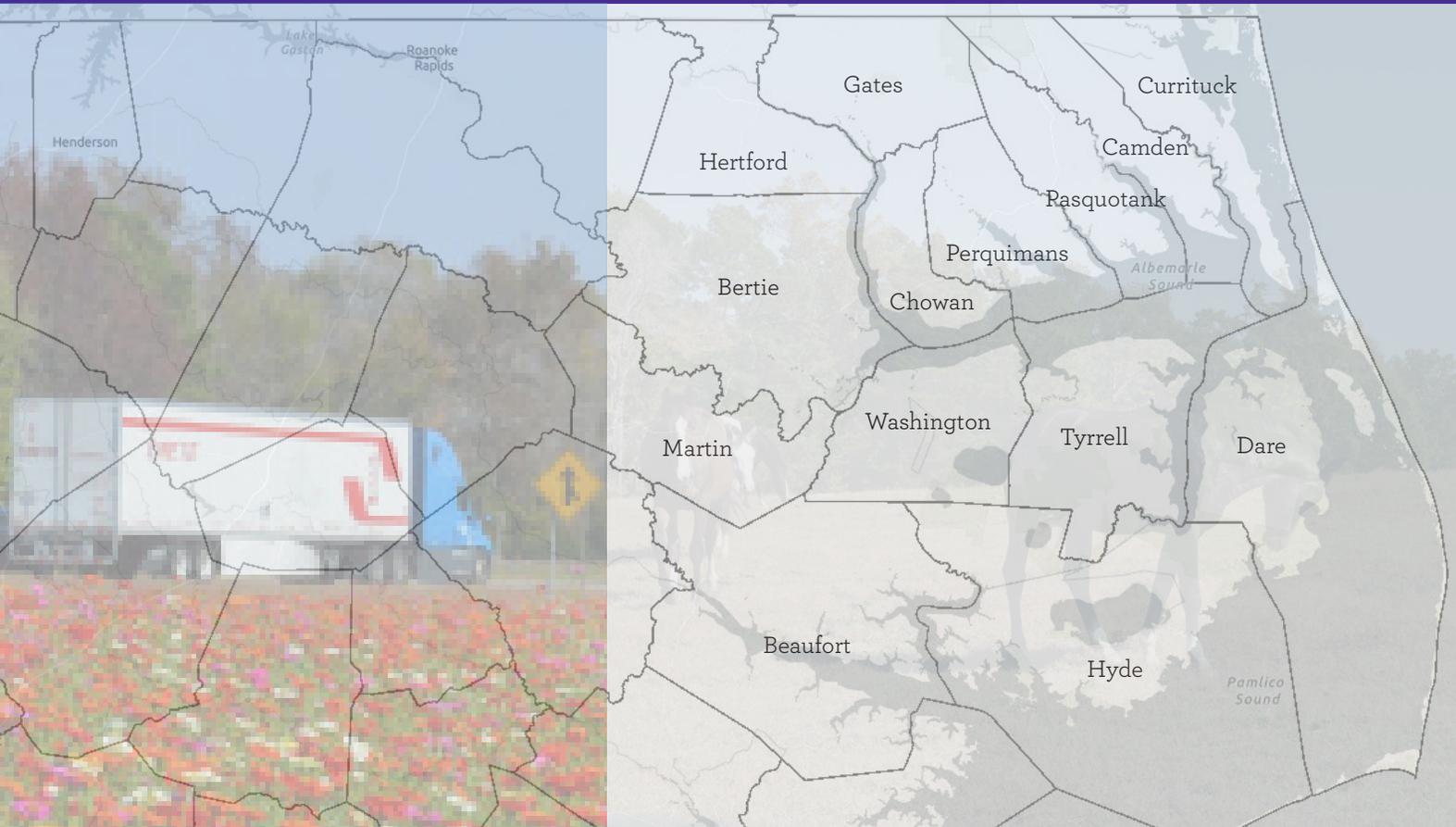




# Northeastern Rural Freight

## WORKSHOP MEETING SUMMARY & REGIONAL ANALYSIS

June 2020



# Northeastern Rural Freight Workshop Meeting Summary

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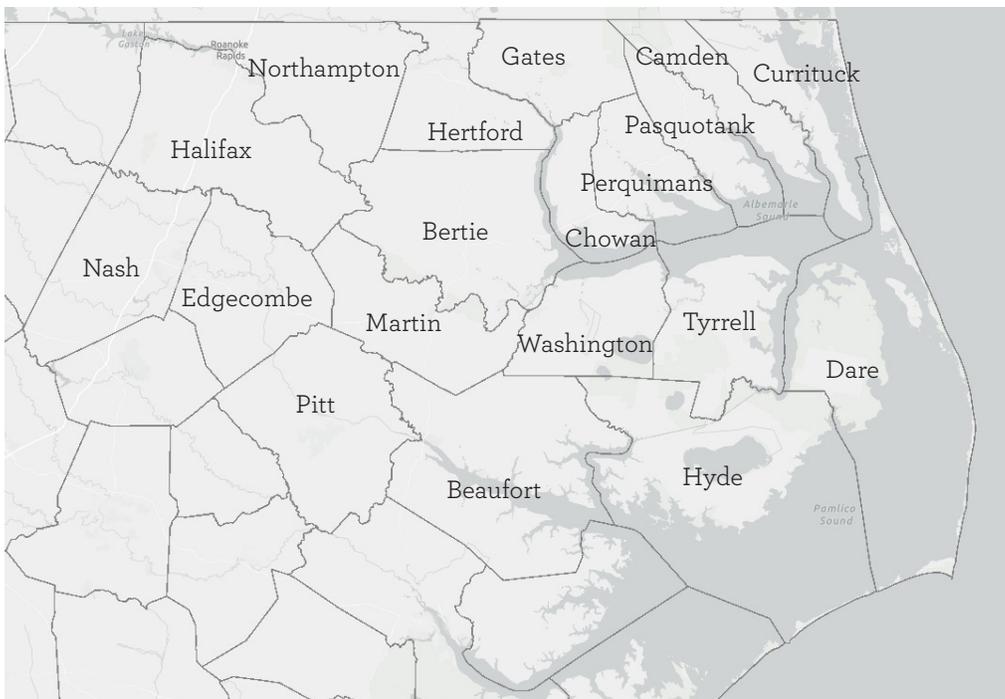
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## North Carolina's Northeastern Region



- Beaufort County
- Bertie County
- Camden County
- Chowan County
- Currituck County
- Dare County
- Edgecombe County
- Gates County
- Halifax
- Hertford County
- Hyde County
- Martin County
- Nash County
- Northampton County
- Pasquotank County
- Perquimans County
- Pitt County
- Tyrrell County
- Washington County

# Northeastern Rural Freight Workshop

## Executive Summary

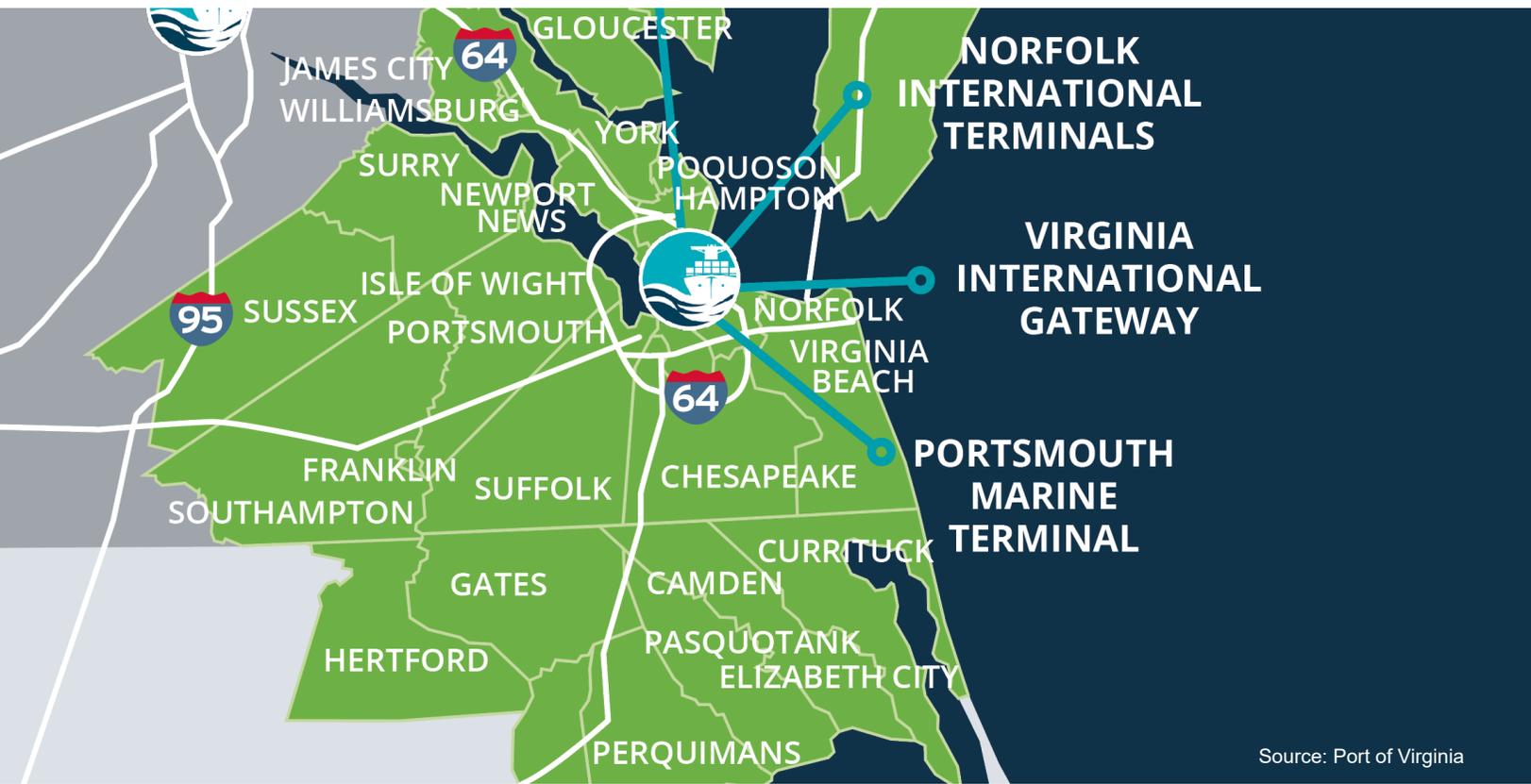
The rural areas of North Carolina have freight transportation needs that are different from those of the urban areas. Much of their community support is focused around agriculture, forestry, tourism, and retirement economics. The principal mode of transportation is highway, although marine and rail are also significant, and maintaining the reliability of the networks is crucial. Socio-economic conditions are also challenging, as the majority of counties in the region have declining populations rates for individuals in their prime working years (20-45) and increasing population rates for individuals in their retirement years (60+).

It is important to understand the transport needs of the region, in this context, for freight. The state has limited resources for making infrastructure (transportation-related) investments. So, choosing the right investments in the right places and times is critical.

To help develop rural transport policies and investments that are on-target, a workshop was held on October 23, 2019 convening economic development specialists, transportation planners, civil engineers, and academic researchers, among other key stakeholders. Workshop attendees engaged in discussion and produced thoughtful ideas about the best ways in which the North Carolina Department of Transportation (NCDOT) can help foster economic growth in the northeastern region of the state. These ideas coalesced into three primary focus areas to guide economic development in the Northeast region, including:

- Transportation Upgrades and Redevelopment
- Workforce Opportunities
- Regional Industries

Workshop attendees also identified actions that could be taken to support each of these focus areas and from this discussion, the research team suggests potential investments that could generate substantial economic activity in the region.



Source: Port of Virginia

**Image Caption:** Foreign Trade Zones (FTZ) are areas which are geographically inside the United States, but are legally considered outside its Customs territory. Companies locating in FTZ 20 (90 miles within the Customs Port of Entry in Norfolk, VA) can benefit from advanced distribution networks; easy and reliable access to shipping channels, highways, railways, and airways.



## Focus Area

### Transportation Upgrades and Redevelopment

**Take-aways:** Highway, waterway, and other transportation infrastructure that connect growth centers in North Carolina to Hampton Roads, Virginia are essential in the Northeastern region. Future I-87 and the northeastern region's waterways were discussed at length during the workshop as opportunities for freight movement and business growth.

Economic development opportunities in northeastern North Carolina are intricately linked to Hampton Roads, Virginia. The Hampton Roads harbor area in southern Virginia has the largest concentration of military bases and government facilities of any metropolitan area in the world, yielding a gross domestic product of \$94.86 billion in 2018 (1). Hampton Roads comprises a collection of cities, counties, and towns on the Virginia Peninsula and an extended combined statistical area (CSA) that includes the Elizabeth City, NC micropolitan statistical area and Kill Devil Hills, NC micropolitan statistical area. The harbor at Hampton Roads is essential to its growth and two deepwater channels branch out from the harbor, the southern of which is linked with the coastal inlets of North Carolina through the Atlantic Intracoastal Waterway (2). These water connections are key enablers for marine freight. Additionally, the harbor area exists within the Foreign Trade Zone 20 Service Area, which offers special procedures to encourage business activities by reducing, eliminating, or delaying duties (2).

During the workshop participants spoke about Hampton Roads' success and strategies that could be implemented to harness the area's economic activity for growth in North Carolina. David Goss, Economic Development Consultant to Perquimans County explained, "Hampton Roads is one of our

# Transportation Upgrades and Redevelopment

“Hampton Roads is one of our primary economic development assets. They keep expanding the ports and have nowhere to move but South.”

- David Goss, Economic Development Consultant to Perquimans County

primary economic development assets. They keep expanding the ports and have nowhere to move but South.” According to Goss, a barge builder recently relocated from Hampton Roads to the Perquimans County Commerce Center.

Participants also discussed ways to improve existing transportation networks in North Carolina’s northeastern region including highway, rail, air, ferry, barge, and pipeline, to provide increased access with the ports at Hampton Roads. Discussion centered around measures that could be undertaken to capitalize on growth that extends across the Virginia-North Carolina border.

The need for full implementation of the Future I-87 corridor, which improves connectivity to Hampton Roads, was also discussed. As plans currently stand, the corridor would span from Raleigh to Hampton Roads via Rocky Mount, Edenton, and Elizabeth City. Future I-87 would supersede existing US-64 and US-17 (3).

Participants also mentioned the need for limited access highways to tie into Future I-87, so that industries in northeastern North Carolina could fully access the ports as well as provide housing opportunities for individuals working in the Hampton Roads greater region. [For a map of the region see page 4.](#)

According to Larry Lombardi, Currituck County Economic Development Director, economic development opportunities are originating in Hampton Roads, “coming across the border, landing in Currituck

County and expanding across North Carolina.” To meet these opportunities, Lombardi spoke about the increasing importance of improved highway infrastructure in the region. According to Lombardi, Currituck County is experiencing a clustering of housing and development occurring along US-168. He voiced the need for Future I-87 and limited access highways connecting US-168 to the future interstate to serve the needs of new residents and businesses looking to locate in Currituck County. He also discussed the possibility of altering the alignment of I-87 to better meet the growth needs of the region.

Shelley Cox, Pasquotank County Planning Director, spoke about the role of the Virginia ports. Cox saw the ports as an economic driver that helped support businesses in Pasquotank and other counties in the region. She spoke about the importance of connecting North Carolina businesses to the ports via Future I-87. Other participants built upon the discussion regarding the importance of Virginia’s ports and future I-87, mentioning the value of having an interstate in the region for business recruitment purposes. “An interstate designation is a primary site selection criterion [for recruiting businesses],” an attendee explained. “I wish we could just get someone from the state level to step in and make something happen. This is too important to us and we’ve had this need for 10 years.”

In addition to highway improvements, workshop participants also spoke about opportunities to bolster transportation

via the region’s waterways. The waterways in northeastern North Carolina have historically served as transportation corridors. They continue to be utilized daily for recreational and commercial transport. Workshop attendees recommended prioritizing funding to help expand upon marine highways in the region.

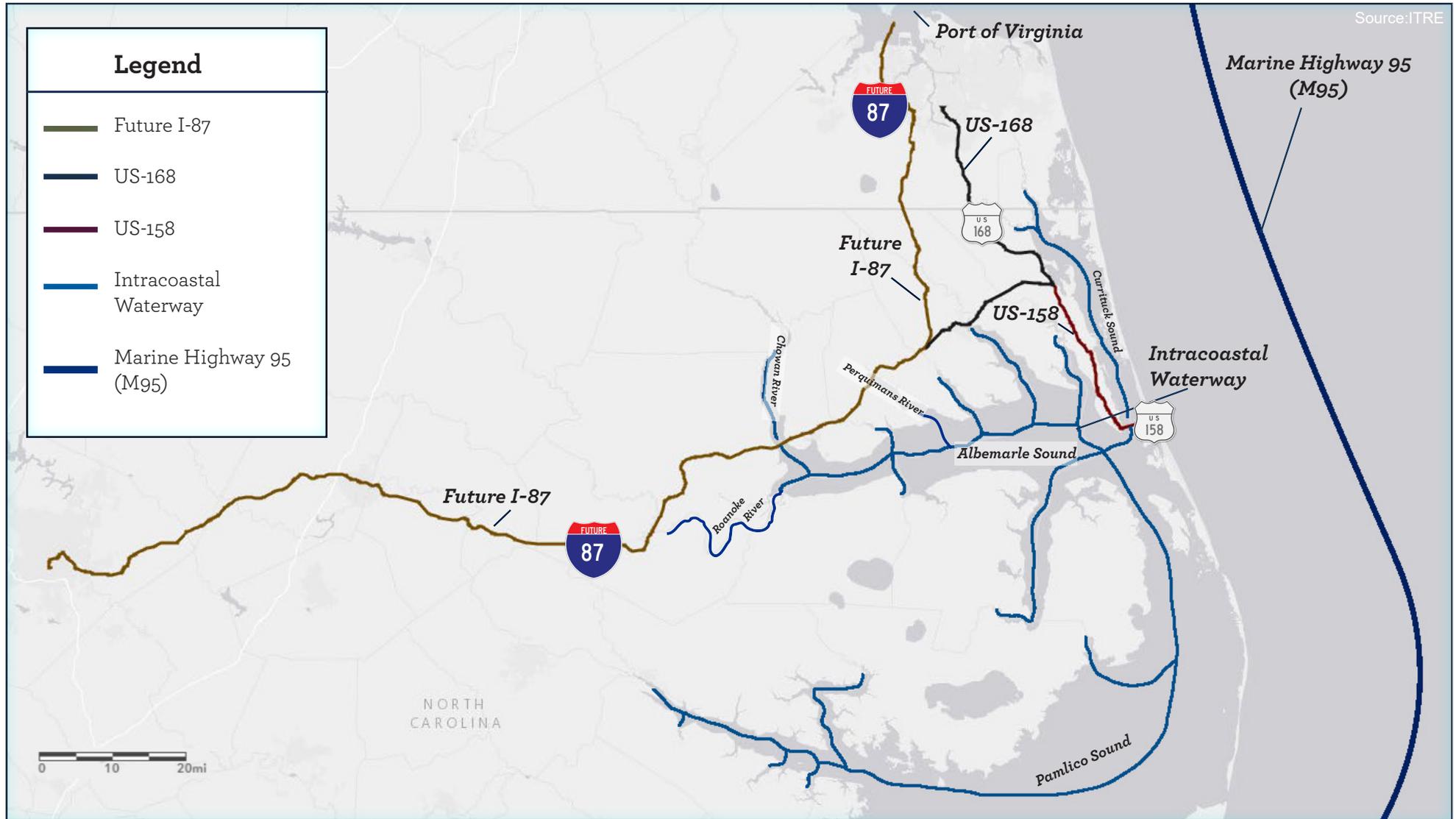
Washington County’s Comprehensive Transportation Plan discusses the role of the Roanoke River and the Albemarle Sound (4).

- **Roanoke River:** Begins in Roanoke, Virginia and flows 400 miles to its ending point in the Albemarle Sound, near the town of Plymouth. This deep water river has the ability to accommodate barge traffic.
- **Albemarle Sound:** Protected from the Atlantic Ocean by the Outer Banks, the sound extends east from Washington County for about 50 miles. A vital link in the Intracoastal Waterway, the Albemarle Sound connects with the Chesapeake Bay via canals. Barge traffic travels this route all the way to the Atlantic Ocean.

Workshop participants specifically discussed the importance of barge transportation investment during the workshop. They spoke about a need to update barge infrastructure for transporting freight containers and oversized supply chain components. Barge investments have been made

# Transportation Upgrades and Redevelopment

*Terrestrial and Marine Highway Assets Discussed By Participants During the Northeastern Rural Freight Workshop*



**Image Caption:** In 2015, both houses of Congress passed federal transportation legislation authorizing a future Interstate designation for the full corridor between Raleigh and southeastern Virginia via northeastern North Carolina (3). The corridor subsequently received the I-87 designation in May 2016 (3). This map shows the Future I-87 corridor, the existing US-158 and US-168 corridors, as well as the numerous waterways that are invaluable to the region's economic competitiveness.

# Transportation Upgrades and Redevelopment

elsewhere in the United States. For example, the US Department of Transportation's Maritime Administration (MARAD) recently awarded \$1.8 million to the James River Barge Lines for the construction of an additional barge to expand service from Hampton Roads to the Port of Richmond. The barge is expected to carry approximately 170 containers per trip (5).

Catherine Peele, Planning and Development Manager for the NCDOT Ferry Division, provided information about North Carolina's application to become a MARAD designated project along Marine Highway 95. If designated, the Ferry Division would join an elite group of 34 projects around the country and would be eligible to apply to Marine Highway Grant opportunities, which are currently reserved for MARAD designations only. This grant program has seen notable increases in funding and will be appropriated \$9.7 million this year. Approximately 75 percent of applicants receive all or partial amount of funds requested under this grant. Funding is open to development and expansion of ports (or terminals) and landside infrastructure.

Workshop participants also spoke about the general importance of using North Carolina's marine highways to allow increased access to its two deep-water ports and four river ports and continue the development of maritime-dependent industries. The Port of Wilmington is served by CSXT and Wilmington Terminal Railroad (WTRY), handles containers, bulk and break-bulk cargo, and features refrigerated storage capabilities (6). The Port of Morehead City is served by Norfolk Southern (NS) (on the North Carolina Railroad) and Coastal Carolina Railway (CLNA), has nine berths with approximately 5,500 feet of wharf and handles both breakbulk and bulk cargo at its existing facilities



**Image Cap on:** The Marine Highway system currently includes 25 "Marine Highway routes" that serve as extensions of the surface transportation system. Each all-water route offers relief to landside corridors experiencing traffic congestion, excessive air emissions or other environmental challenges.

(6). Radio Island, which is part of the Port of Morehead City, is located across the Newport River from the port and includes approximately 150 acres of land suitable for port industrial development (6).

The Aurora river port is located in Beaufort County along the Pamlico River. The port is owned by the Nutrien company which uses the facility to transport phosphate from the nearby mine to the Port of Morehead City (6). Cofield, located in Hertford County along the Chowan River handles scrap metal for the Nucor steel plant, accessible by rail via the North Carolina Virginia Railroad and by highway via SR 1400 (6). Edenton is on the Chowan River and also handles fertilizers, forest products (i.e., lumber, logs, and wood chips), slag, primary iron and steel products, primary non-ferrous metal products, fabricated metal products, and waste/scrap (6). The Knobbs Creek Deepwater Barge Port is located in Elizabeth City (6). The port has a water depth of 30 feet with direct

access to shipping traffic lanes through the Albemarle Sound into the Atlantic Ocean (6).

Participants also spoke about the importance of shallow draft channels and inlets for keeping North Carolina's seafood industry alive as well as keeping the ferry channels open. In North Carolina, the U.S. Army Corps of Engineers maintains shallow draft projects with dredging depths of less than 20 feet. This includes 10 inlets and 14 inland water ways that are a part of the Atlantic Intracoastal Waterway. Of these channels there are three that directly impact the successful operation of ferry routes, Hatteras Inlet/Rollinson Channel, Silver Lake/Big Foot Slough, and Stumpy Point Bay.

Workshop participants shared a common view that the waterways and marine infrastructure in the region were a tremendous asset for commerce. Though many attendants felt the resources were being underutilized.



Source: NCDOT

**Image Caption:** North Carolina has the third largest military presence in the country and is home for more than 720,000 veterans (25). The Governor’s Working Group on Veterans Affairs, focuses on job creation, workforce enrichment, health and wellness, legal and financial services and benefits for veterans (25).



## Focus Area

# Workforce Opportunities

**Take-aways:** Connecting military personnel stationed in Hampton Roads, Virginia to employment opportunities in the Northeastern region was a focus of discussion during the workshop. Additionally, retaining individuals between ages 20-45 (prime working years) is an important consideration for the region.

The Hampton Roads area’s influence has been expanding southward and North Carolina’s northeastern region is geographically well-suited to capitalize on that growth. During the workshop, participants spoke of the abundance of military personnel and workforce opportunities stemming from Hampton Roads. Participants explained that a number of military personnel find employment in Hampton Roads, but others seek employment elsewhere once their terms of service have ended. According to workshop participants, a key opportunity for northeastern North Carolina is “connecting talented military individuals to potential jobs.”

Workshop participants suggested that the proper alignment between workforce capabilities and employment opportunities may come to define the economic success in North Carolina’s northeast. For example, effectively determining which military roles and positions align with civilian occupational skills is very important in the region. According to workshop participants, the military uses different terms and classifications to describe their positions compared to workforce descriptions. Finding a way “to better map out jobs from the military to private sector and other jobs” would help with military and workforce alignment, according to a workshop participant.

# Demographic Opportunities

In addition to military workforce considerations, current demographic trends in North Carolina’s northeastern counties present occupational implications. Across the region, the number of individuals above 60 has grown substantially and continues to increase. In 2010, there were 101,820 individuals above 60 in the region and in 2017 that number increased to 125,681. Meanwhile, the population of individuals entering their prime working years (ages 20-45) has decreased in the region. In 2010, there were 217,914 individuals between ages 20-45 and in 2017 that number decreased to 212,934. These demographic trends for North Carolina’s northeastern region are shown in Figure 1. Trends for each northeastern region county can be found in Appendix H.

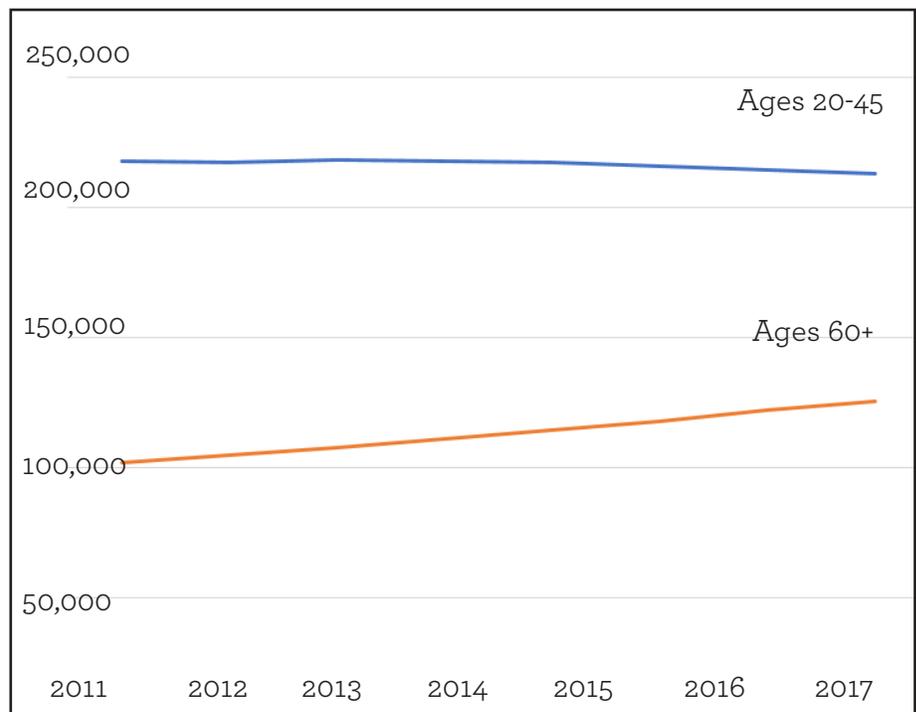
Coinciding with considerations about an aging population, workshop participants spoke about the importance of offering economic development opportunities in healthcare. They mentioned that the region should be poised for the aging population and be ready for any employment opportunities in the industry. Currently, Health Care and Social Assistance is North Carolina’s largest industry by employment and is projected to be the fastest and highest growing (31). By 2026, this industry is projected to add 93,000 new jobs (31).

During the workshop, participants also spoke about the need for a consistent and fully-funded economic development presence in the region. Currently, the absence of a publicly supported and geographically located organization that fosters business and commercial collaboration limits the ability of the region to move as quickly as possible for economic development functions. An economic development entity that can serve as an important catalyst for new businesses and as a critical resource for existing businesses would greatly benefit the region.



**Image Caption:** Vidant Medical Center is the first largest employer in Pitt County and the second largest employer in Chowan and Hertford Counties.

*Population Ages 20-45 and 60+ Years in Northeastern Counties*



*Source: US Census Bureau.*



Image Caption: A boat welder works on a steel hull plate for an NCDOT ferry vessel.



## Focus Area

# Regional Industries

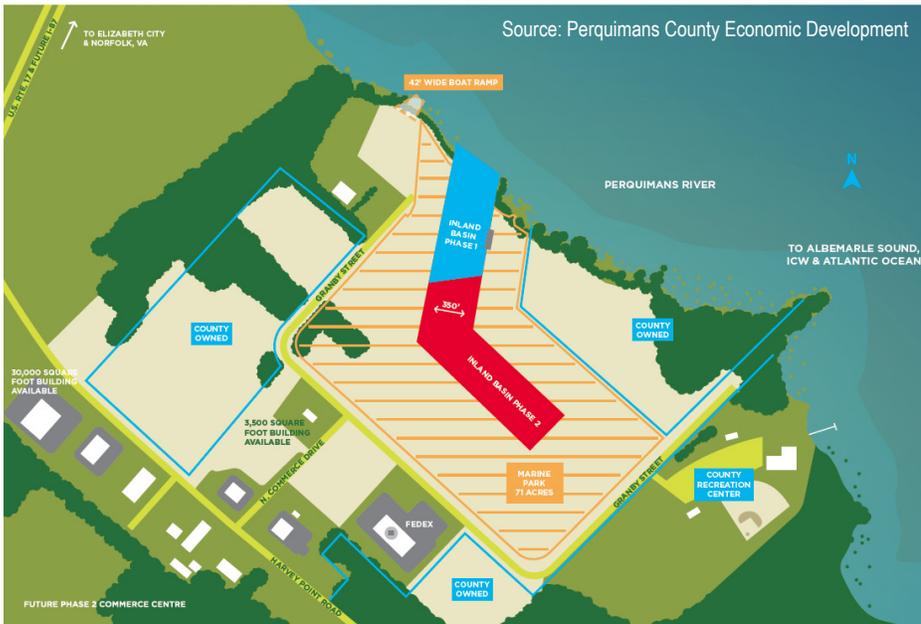
**Take-aways:** Deep-water and shallow draft channels on the eastern seaboard provide a comparative advantage for marine industries in the Northeastern region. Offshore wind, boat-building, seafood production, barging, and agriculture were regional industries discussed during the workshop.

During the workshop, attendees discussed specific strategies that could be implemented to promote industry in the region. This included plans for being an international leader in offshore wind, bolstering boat-building and marine industries, improving seafood production through aquaculture, advancing freight movement through barging, and continuing to be a leader in agriculture including implementing and expanding value-added opportunities. In addition to topics discussed during the workshop, insights from the Seven Portals Study highlight opportunities for industries in the region.

**Offshore Wind.** During the workshop attendees discussed offshore wind manufacturing, supply chain component distribution, and energy production as an invaluable growth industry in northeast North Carolina. The region's navigable waterways, Foreign Trade Zone (FTZ) locations, and proximity to the Atlantic Ocean offer a comparative advantage for offshore wind manufacturing, distribution, and other marine industries. Additionally, the coast of North Carolina features wind corridors that are favorable for offshore wind energy production (7).

Heavy and oversized components are requisite for the offshore wind supply chain. Only a limited number of heavy-lift boats and other vessels are currently equipped to handle the weight

# Regional Industries



*Image Caption: The Perquimans Marine Industrial Park (PMIP) is within 700 miles of 170 million US and Canadian consumers and 65 of the US's top 100 metro areas.*

and height requirements to install wind turbines and even fewer vessels can install state-of-the-art turbines in transitional depths of 30 to 60 meters (8). Barges are used for pile-driving at the site as well as transporting parts (8). The parts can be transported in pieces or put together from the manufacturing site depending on the part size (8).

Workshop attendees discussed multiple opportunities the region has with the offshore wind industry. Attendees explained that the offshore wind supply chain would enable the region to strategically advance boat-building, barging, and manufacturing activities to meet the needs of the offshore wind market. They spoke specifically about lucrative manufacturing opportunities. “Wind turbines have over 8,000 components that are part of the supply chain. These supply chain companies should be the economic development focus for northeastern North Carolina,” according to workshop attendee David Goss, Consultant to Perquimans County.

The Marine Industrial Park, located in the Perquimans County Commerce Centre, offers a strategic location for a variety of marine-related companies, including offshore wind supply chain entities. The Commerce Centre is 300 acres, with 150 acres of shovel-ready space still available for new development (space has all necessary utilities provided; 10).

The county has received a \$308,762 Golden Leaf grant and constructed an industrial boat ramp in 2017 (9,10). The ramp will provide access to the Perquimans River and the infrastructure needed to attract new industry to the Perquimans Marine Industrial Park, which is in the development stages (9). The county also received special status as a Foreign Trade Zone (FTZ) in December 2016 when the Port of Virginia approved the expansion of their FTZ 20 to include all of Perquimans County (10). This FTZ designation can provide companies with custom duty savings and logistical benefits that can help

encourage them to establish or expand operations in the United States (10).

In addition to offshore wind component manufacturing and distribution, North Carolina also has a number of opportune locations for offshore wind energy generation. The Bureau of Ocean Energy Management has identified three areas off the coast of North Carolina that are favorable for wind energy facilities: Wilmington-West Wind Energy Area, Wilmington-East Wind Energy Area, and Kitty Hawk Wind Energy Area (7).

**Boat-building, Barging, and Marine Industries.** Workshop attendees spoke about expanding marine industries in the region. They identified barging, boat-building, and coastal industries as primary opportunities for growth. One participant discussed Stevens Towing as an example of a successful barging company that currently exists in Edenton and could be readily integrated into the supply chain of offshore wind or other industries in the region. Stevens Towing’s Riverbulk Terminal is located 125 miles south of Norfolk, Virginia by Intracoastal barge and 185 miles north of Morehead City (24). It currently has 100,000 square feet of warehouse space available for economic development related to marine industries (24). Participants also spoke about economic opportunities related to boat-building.

In 2018, North Carolina ranked ninth in the country for economic activity generated from recreational boat sales, with \$5.5 billion in economic output (23). During that time period, Eco Powerboat sales increased in North Carolina by more than 6 percent (11). More boats, engines, and trailers are sold in North Carolina than all but five other states (11). Recreational boating activity has led marinas to invest in expansions and upgrades. For example, the Wrightsville Beach Marina recently completed almost

# Regional Industries



*Photo Caption: NC Shipyard employees work on the MV Pamlico structure.*

\$4 million in renovations, according to the Greater Wilmington Business Journal (11).

The boat building business has a significant impact on the Dare County economy. The 15 boat builders located in Dare County represent a substantial portion of the 47 manufacturing businesses in the county, directly employing 274 workers in 2012, who earned \$10.6 million in wages. Boat building accounted for approximately 274 of the 480 manufacturing jobs in Dare County in 2013. Boat building jobs are relatively high-paying, with an average weekly wage of \$744 in 2012, compared to the county average weekly wage for private industry of \$517. The types of boats manufactured in North Carolina include: shad boat, mullet skiff, flounder boat, beach dory, shrimp trawler, set-net boat, crab-pot boat, etc. (12).

Workshop attendees discussed the need to expand academic opportunities to connect students to marine industries in North Carolina. They cited the success of the College of Albemarle's

welding apprenticeship, which prepares students for employment with the North Carolina Department of Transportation's Shipyard.

Other academic and workplace intersections include Cape Fear Community College in Wilmington, NC, which has several scholarships specifically for their marine technology programs. The Dare County Boat Builders Foundation is a non-profit, 501C3 organization dedicated to preserving Dare County's boat building heritage by actively supporting the students and families within its community (3). Beginning in November 2015, the NC Coastal & Piedmont Chapter has given a scholarship to a student in the Cape Fear Community College (Wilmington) Boat Building Program (4). The Annual Beaufort National Boat Building Challenge is held simultaneously with the Annual Wooden Boat Show, which takes place on the Beaufort waterfront at the North Carolina Maritime Museum and the Harvey W. Smith Watercraft Center (15).

Workshop attendees also discussed the importance of waterways for transporting raw materials and products produced in the northeastern region. For example, Aurora is located in Beaufort County along the Pamlico River. The port is owned by the Nutrien company which uses the facility to transport phosphate from the nearby mine to the Port of Morehead City. Cofield, located in Hertford County along the Chowan River handles scrap metal for the Nucor steel plant, accessible by rail via the North Carolina Virginia Railroad and by highway via SR 1400. Edenton is on the Chowan River and also handles fertilizers, forest products (i.e., lumber, logs, and wood chips), slag, primary iron and steel products, primary non-ferrous metal products, fabricated

metal products, and waste/scrap. The Knobbs Creek Deepwater Barge Port is located in Elizabeth City. The port has a water depth of 30 feet with direct access to shipping traffic lanes through the Albemarle Sound into the Atlantic Ocean.

Attendees specifically mentioned the importance of the Intracoastal Waterway and the role it plays transporting goods to Virginia. They mentioned that rail and highway, in conjunction with the waterways made the region a valuable freight corridor.

In North Carolina, the east-west Class I lines operated by CSXT and NS carry smaller, but significant, volumes. For example, the NCRR corridor operated by NS, which connects to New Bern and Morehead City, was estimated to transport approximately 2.4 million tons of goods, including through flows, on an annual basis (5). The Class I branch lines provide important connections to national and international markets for industries in the region. The predominant commodities transported by rail to/from the region primarily consist of bulk goods such as fertilizers, cereal grains, gravel, nonmetallic minerals, and basic chemicals. Bulk commodities are typically transported by rail and barge (5).

The Intracoastal Waterway (ICW) is a federally protected and maintained route that serves commercial and recreational vessels from Norfolk, VA, to the Jacksonville, FL area, and in more broad terms, from Boston all the way to Key West, FL. There are a number of boat ramps in the Cape Fear region that provide easy access to the Intracoastal Waterway and surrounding areas. Visitors with their own vessel along who want to explore the waters for themselves can start by heading to these destinations that are dotted

# Regional Industries

throughout the coastal landscape (16). In the Virginia section of the Atlantic Intracoastal Waterway (AICW), routes are available once again to the mariner. Beginning near mile marker (MM) “7.1” where they split, the most common route used and providing deeper water, follows the Albemarle and Chesapeake Canal to Albemarle Sound, the alternate route, is through Great Dismal Swamp Canal to Albemarle Sound. Both routes rejoin in the vicinity of (MM) “79.0” in North Carolina.

**Aquaculture.** By 2030, it is estimated that the global demand for seafood will reach 94 million metric tons, an increase of approximately 30 million metric tons from current consumption levels (28). Over this same time period, it is anticipated that seafood caught in wild fisheries will either remain static or decline slightly, due to a combination of environmental regulations and declining wild fish stocks (29).

As the demand for seafood has increased, technology has made it possible to grow food in coastal marine waters and the open ocean. Aquaculture is a method used to produce food and other commercial products, restore habitat and replenish wild stocks, and rebuild populations of threatened and endangered species. It is breeding, raising, and harvesting fish, shellfish, and aquatic plants. U.S. aquaculture is an environmentally responsible source of food and commercial products that helps to create healthier habitats and is used to rebuild stocks of threatened or endangered species.

Raising fish for food production is less resource intensive than tending to other protein sources. For every one pound of body mass gained, it is estimated that 1.1 pounds of feed is needed for farm raised fish, 1.7 pounds for broiler chickens, 2.9 pounds for hogs, and 6.8 pounds for cattle (30). These differences in



*Photo Caption: Aquaculture tanks contain domesticated bass breeding stock.*

feeding requirements help demonstrate one aspect of the environmental impacts associated with animal protein production. By evaluating feed conversion ratios, it can be seen that farm raised fish are more than six times more efficient than raising beef.

During the workshop participants discussed the success of farm raised salmon via “Bluehouse” technology in Miami, Florida as well as aquifer enabled “shrimperies” in Indiana. They shared their perspectives for why aquaculture would be successful in large-scale in North Carolina. One participant explained, “The U.S. is an importer of seafood, yet we’re sitting on hundreds of miles of coastline. [North Carolina] is already known for its oysters. We can expand that [aquaculture] model here.” Another participant explained that increased oyster production could serve dual purposes in the region. Oysters could also be used to clean hog farm lagoons.

In northeastern North Carolina, the warm climate and recirculating aquaculture systems (RAS) – a technology that allows production in water-limited areas with a smaller indoor footprint – have helped the state’s tilapia and sturgeon

industries grow as has demand from Asia, Canada, and the northern half of the U.S. Randy Gray, North Carolina Aquaculture Association president and owner of Circle G Farm near Pikeville, says the industry has also been aided by the cooperative relationship with North Carolina State University (19). Beaufort County is home to an internationally recognized aquaculture research center, the Waddell Mariculture Center in Bluffton that is working to study ways to make sustainable shrimp farms profitable for domestic farmers (19).

Marine aquaculture in the United States contributes to seafood supply, supports commercial fisheries, restores habitat and at-risk species, and maintains economic activity in coastal communities and at working waterfronts in every coastal state. The worldwide amount of wild-caught seafood has stayed the same year to year; however, the amount raised through aquaculture has risen notably. Sales of domestic marine aquaculture increased 13 percent per year from 2007 to 2011, on average, led by increases in oyster and salmon production (17). The United States is a minor aquaculture producer, ranked 16th in 2016, excluding seaweed, on a

# Regional Industries

global scale—but it is the leading global importer of fish and fishery products (17).

**Value-Added Agriculture.** During the workshop, participants discussed the importance of value-added agriculture and saw an increasing role for value-added agriculture in the region. According to the U.S. Department of Agriculture, value-added agricultural products can be described as using raw agricultural outputs to create a distinct product or intentionally altering the production of a good to enhance its value. Examples of the former include a change in the physical state or form of the product, such as milling wheat into flour or making strawberries into jam. Examples of the latter may include the production of a product in a manner that enhances its value, such as production of organic agriculture.

Participants discussed academic and business opportunities related to value-added agriculture. “ECU’s Economic Growth Collaboratory has a specific focus on new food, crop commercialization, and agriculture bi-products for new value streams,” explained Keith Wheeler, Executive Director of East Carolina University’s Office of National Security and Industry Initiatives East Carolina University. According to Wheeler, the collaboratory will equip ECU students with the skillsets to help expand value-added agriculture in the region. Workshop participants mentioned soybeans, industrial hemp, wood pellets, sweet potatoes, and seafood as primary growth areas. Participants also mentioned opportunities for agricultural growth in a less-obstructed trade climate. “Two years ago, Chinese companies were interested in logging. Once the tariff issues started, [these companies] disappeared,” one participant explained.

North Carolina is recognized internationally as a major agricultural production area. According to NC

Department of Agriculture statistics, North Carolina ranks first nationally in the production of sweet potatoes, and second in hogs, pigs, and turkeys (21). The state ranks third overall for cucumbers sold for pickles, trout sold, and poultry and egg products (21). Outside of its livestock and agricultural strength, N.C.’s northeastern region also has assets that serve to support and grow agricultural output. The state has the facilities to support food processing, ample municipal services support, a variety of logistical support features, such as access to trucking companies, large refrigeration facilities and easy access to market through an extensive 4-lane highway network (5).

Much of the state’s production in hogs, turkeys, and other poultry is centered in and around the region. There are more than 160 facilities involved in food manufacturing. Total employment in North Carolina’s food industry sector exceeds 20,000 people, or 5 percent of the total workforce (21). Major food processing employers in the Region include many nationally and internationally recognized companies such as Mt. Olive Pickles, Carolina Turkeys, The Cheesecake Factory Bakery, and Sara Lee Bakeries (21).

The NC Department of Agriculture and Consumer Services has four research farms located within the Region (and others across the state) that can assist with research in a broad range of areas of interest to value-added agriculture businesses. North Carolina State University (NCSU) also makes research capabilities available to companies through its Cooperative Extension Services, and also through the Seafood Laboratory located in Morehead City, which is a part of the NCSU Center for Marine Sciences and Technology (CMAST) (21).

The North Carolina Value-Added Cost Share (NCVACS) program, administered

by N.C. Cooperative Extension in the College of Agriculture and Life Sciences at N.C. State University, supports the development of value-added agricultural operations. The program provided a cost share of over \$1.3 million to support nearly 70 farmers, producer groups, and agricultural businesses in 2013 (24). This assistance translates to at least \$3 million in equipment purchases by N.C. businesses in the last four years, expansions that might not have otherwise occurred (24). Including secondary impacts (indirect and induced), the extension program supports an annual economic impact on the North Carolina economy of approximately \$7 million and the annual employment of 35 additional jobs. The 2013 NCVACS equipment cost share award recipients include an array of agricultural producers and processors, from the mountains to the sea, exemplifying the diversity of N.C and its agriculture economy (24).

**Seven Portals Study Insights.** Beyond what was discussed in the workshop, aerospace, biotech, pharmaceuticals, food processing, agribusiness, military/defense, tourism, and entertainment may also be considered target industries in the region (26). The aerospace industry is anchored by Spirit AeroSystems airframe facilities in Kinston (26). Biotech is seeded by several plants along the western edge of the region which are in the immediate orbit of the Triangle Region (26). Food processing is supported by the region’s specialization in agriculture and the relatively easy access to markets via the I-95 corridor (26). Military support activities are linked to Camp Lejeune and other installations in or near the region (26). Tourism and recreation are anchored by popular seacoast resort areas and inland nature preserves (26). A more in-depth discussion of target industries identified in the “Seven Portals Study” can be found in Appendix E.

## Conclusions

On October 23, 2019, a Rural Freight Workshop was held in Perquimans County, North Carolina to help the freight transportation leadership at the North Carolina Department of Transportation understand what high-priority investments will most help rural economic development. Economic development specialists, transportation planners, civil engineers, academic researchers, among other key stakeholders attended the workshop and provided key input.

These ideas coalesced into three primary focus areas to guide economic development in the Northeastern region, including: (1) Transportation Upgrades and Redevelopment, (2) Workforce Opportunities, and (3) Regional Identity and Industries.

The workshop helped lead to key-takeaways, which are summarized below:

1. The Northeastern region is well-positioned to capitalize on economic growth related to Hampton Roads, Virginia. Highway, waterway, and other transportation networks that connect business and population centers in North Carolina to Hampton Roads have the opportunity to facilitate growth in North Carolina.
2. The Northeastern region's proximity to deep-water channels and the eastern seaboard provide a comparative advantage for marine industries.
3. Military personnel stationed in Hampton Roads, Virginia often seek employment elsewhere after fulfilling their service obligations. Connecting military personnel with civilian occupations offers a potential growth opportunity for the Northeastern region.
4. A number of industries are poised to benefit from transportation investments. Offshore wind, boat-building, seafood production, barging, and agriculture were potential growth industries discussed during the workshop.
5. A state-supported economic development entity can serve as an important catalyst in the Northeast. Additional resources for an organization such as the NC East Alliance could help accelerate business growth in the region.
6. Waterways are not currently designated as transportation infrastructure, which makes acquiring grants for dredging, channeling, or other marine transportation network improvements difficult. If the region's waterways were able to received this infrastructure designation, it would help for economic development grants and programs.

# References

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- (1) "Hampton Roads gross domestic product increased in 2017." Dragas Center for Economic Analysis and Policy. September 2018. Online: <https://www.ceapodu.com/wp-content/uploads/2018/09/CEAP-Release-of-Metropolitan-GDP-Estimates-For-Immediate-Release-18-September-2018-FINAL.pdf>.
- (2) "Hampton Roads: Roadstead, Virginia." Encyclopedia Britannica. 2013. Online: <https://www.britannica.com/place/Hampton-Roads#ref50228>
- (3) "Interstate 87." Regional Transportation Alliance. 2019. Online: <http://letsgetmoving.org/priorities/congestion-relief/interstate-87/>
- (4) "2015 Washington County Comprehensive Transportation Plan." NCDOT. August 2015. Online: <https://connect.ncdot.gov/projects/planning/TPBCTP/Washington%20County/REPORT.pdf>
- (5) "Eastern North Carolina Regional Freight Mobility Plan." Draft Final Report. October 2019.
- (6) "US container-on-barge services get funding boost." JOC. April 2019. Online: [https://www.joc.com/maritime-news/short-sea-shipping/container-barge-services-get-federal-funding-boost\\_20190423.html](https://www.joc.com/maritime-news/short-sea-shipping/container-barge-services-get-federal-funding-boost_20190423.html)
- (7) Stearns, Bailey et al. "Offshore Wind Energy Development in North Carolina." University of North Carolina at Wilmington. May 2015. Online: <https://uncw.edu/mcop/documents/mcop2015-finalreport.pdf>
- (8) "National Offshore Wind Strategy." US Department of Energy. September 2016. Online: <https://www.boem.gov/sites/default/files/renewable-energy-program/National-Offshore-Wind-Strategy-report-09082016.pdf>
- (9) "Perquimans Marine Industrial Park Boat Ramp." Golden Leaf Foundation. Online: <https://www.goldenleaf.org/grants/perquimans-marine-industrial-park-boat-ramp/>
- (10) "Perquimans County, NC Economic Development: Commerce Center." Perquimans County. Online: <http://www.econdeverperquimansnc.com/commercecentre.html>
- (11) "Hot boat market spurs N.C. marina expansions". By Business NC Posted August 3, 2017. Online: <https://businessnc.com/hot-boat-market-spurs-n-c-marina-expansions/>
- (12) "Traditional Working Boats of the Outer Banks". Sea Grant North Carolina Coastwatch 2013. Online: <https://ncseagrant.ncsu.edu/coastwatch/previous-issues/2013-2/winter-2013/969-2/>
- (13) "Dare County Boat Builder Foundation". Online: <http://dcbbf.org/>
- (14) "NC Coastal & Piedmont". Antique and Classic Boat Society, Inc. Online: <https://www.vintageboat.org/scholarships/>
- (15) "Beaufort National Boat Building Challenge". Online: <https://beaufortwoodenboatshow.com/beaufort-national-boatbuilding-challenge/>
- (16) "Intracoastal Waterway – Cape Fear Area". Cape Fear, NC. Online: <https://www.capefear-nc.com/intracoastal-waterway-cape-fear-area.html>
- (17) "U.S Aquaculture". NOAA Fisheries January 2019. Online: <https://www.fisheries.noaa.gov/national/aquaculture/us-aquaculture>
- (18) "How Aquaculture Works". Online: <https://animals.howstuffworks.com/animal-facts/aquaculture3.htm>
- (19) "North Carolina's Broad Aquaculture Industry". By Teree Caruthers -December 8, 2016. Online: <https://www.farmflavor.com/north-carolina/north-carolinas-broad-aquaculture-industry/>
- (20) "North Carolina Agriculture Statistics". North Carolina Department of Agriculture & Consumer Services.
- (21) "Value Added Agriculture". NC East Alliance. Online: <https://www.nceast.org/economy-and-employers/value-added-agriculture/>
- (22) "Research, Education, & Economics Information System". By United States Department of Agriculture. Online: <https://portal.nifa.usda.gov/web/crisprojectpages/1001368-economic-impact-of-value-added-agriculture-in-north-carolina.html>
- (23) "U.S. Recreational Boating Industry Sees Seventh Consecutive Year of Growth in 2018, Expects Additional Increase in 2019." National Marine Manufacturers Association. January 2019. Online: <https://www.nmma.org/press/article/22428>
- (24) "N.C. State Program Awards Funding to Expand 20 Agricultural Businesses." October 2013. Online: <http://sfntoday.com/n-c-state-program-awards-funding-to-expand-20-agricultural-businesses/>
- (25) "Supporting North Carolina's Military and Veterans Communities." December 2019. Online: <https://governor.nc.gov/issues/militaryveterans>
- (26) "Seven Portals Study." December 2011. Online: <https://connect.ncdot.gov/projects/research/RNAProjDocs/2010-34-0MasterFinalReport.pdf>
- (27) "Perquimans Marin Industrial Park Industrial Flyer." *Perquimans County Economic Development*.
- (28) "Fish to 2030: Prospects for Fisheries and Aquaculture." World Bank. December 2013. Online: <http://documents.worldbank.org/curated/en/458631468152376668/pdf/831770WPO11260ES003000Fishoto02030.pdf>
- (29) "Aquaculture is Needed to Meet the Gap." Global Aquaculture Alliance. Online: <http://documents.worldbank.org/curated/en/458631468152376668/pdf/831770WPO11260ES003000Fishoto02030.pdf>
- (30) "How to Farm a Better Fish." National Geographic. Online: <https://www.nationalgeographic.com/foodfeatures/aquaculture/>
- (31) "North Carolina Employment Projections." North Carolina Department of Commerce. October 2018. Online: <https://www.nccommerce.com/blog/2018/10/10/north-carolina-employment-projections-2026>

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# **Appendix A: Workshop Agenda**

## Purpose of Workshop

The workshop will give local business leaders the opportunity to tell our study team what economic development ideas should be stressed in identifying supportive transportation infrastructure investments. It will also examine ways in which funding for these investments can be secured through the state's data-driven strategic prioritization process.

## Study Background/Introduction

The study will help the freight transport leadership at NCDOT understand what high-priority investments will most help rural economic development. The southwest and northeast are initial focal points. It will provide an update to the Seven Portals Study prepared by ITRE at NC State and a similar study prepared by the Global Research Institute at UNC-Chapel Hill. The objective is to match demand pull (locally supported economic development) with supply push (infrastructure investment).

## Benefits to Participating

Attendees will help ensure that the findings from the study resonate with what they perceive to be the most promising economic development opportunities for their region. They will help guide the inputs provided to NCDOT's investment prioritization process so that useful, meaningful infrastructure investments take place. They will help identify what data should be collected, and presented, to secure the needed investment funding.

### Draft Itinerary

- 9:30am - 9:45am** Welcome & Introduction
- 9:45am - 10:00am** Opening Remarks
- 10:00am - 10:30am** Introduction to the study
- 10:30am - 10:45am** Networking Break
- 10:45am - 11:30am** Break-out Session
- 11:30am - 11:45am** Networking Break
- 11:45am - 12:15pm** Large Group Discussion
- 12:15pm - 12:30pm** Closing Remarks

# Rural Freight NCDOT WORKSHOP

RSVP to Robin Kneisley by 10/21/2019 ([KNEISLEYR17@ECU.EDU](mailto:KNEISLEYR17@ECU.EDU))



## Prior Studies

This is not the first time that a study has asked what infrastructure investments would help most. The Seven Portals study posed that question in 2010. It suggested a need for freight-focused staff within NCDOT. Those people now exist. For the northeast, it urged connections to major highway networks and corridors into Southeast Virginia and the Outer Banks, short-line railroad line improvements, and air access enhancements. Five possible sites were examined for possible development: Ahoskie (including the Tri-County Airport); Edenton (including the Northeastern Regional Airport); Elizabeth City (including the Elizabeth City/Coast Guard Air Station Airport), Williamston (including the Martin County Airport), and an “Import/Export Village” concept that emerged in discussions among the Northeast Commission, the Virginia Port Authority, and potential private investors in Virginia.

## Demand Pull

Infrastructure investments make sense only if they are coupled with demand pull: economic development that is locally supported. This could be expansion of existing activities, addition of activities upstream or downstream of existing ones; or new activities.



Examples that seem to be of present interest include:

- Aerospace
- Biotech/Pharma/Life Science
- Military/Defense
- Logistics & Distribution
- Food Processing/Agri-Industry
- Tourism & Entertainment

The study team wants to refresh and enhance these perceptions.

## Workshop Details

9:30am-12:30pm  
Wednesday, October 23

Perquimans County Library  
514 S Church Street  
Hertford, NC 27944

## How to Prepare

1. Think about how the economy of the region can be enhanced and expanded.
2. Pinpoint markets for those activities; also, the support services needed.
3. Identify the infrastructure investments needed to encourage growth in those industries.
4. Identify other companion investments, like ubiquitous, rural, broadband, that might be needed to encourage growth.
5. What supportive, out-of-state investments would be needed to make the in-state investments pay off.
6. What are the greatest barriers to sustainable economic development in your area? How can that sustainability be achieved?
7. Identify partnerships that could be developed with other stakeholders to address unmet rural needs.
8. Review the prior studies.

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**Appendix B:  
List of Attendees**

# List of Attendees

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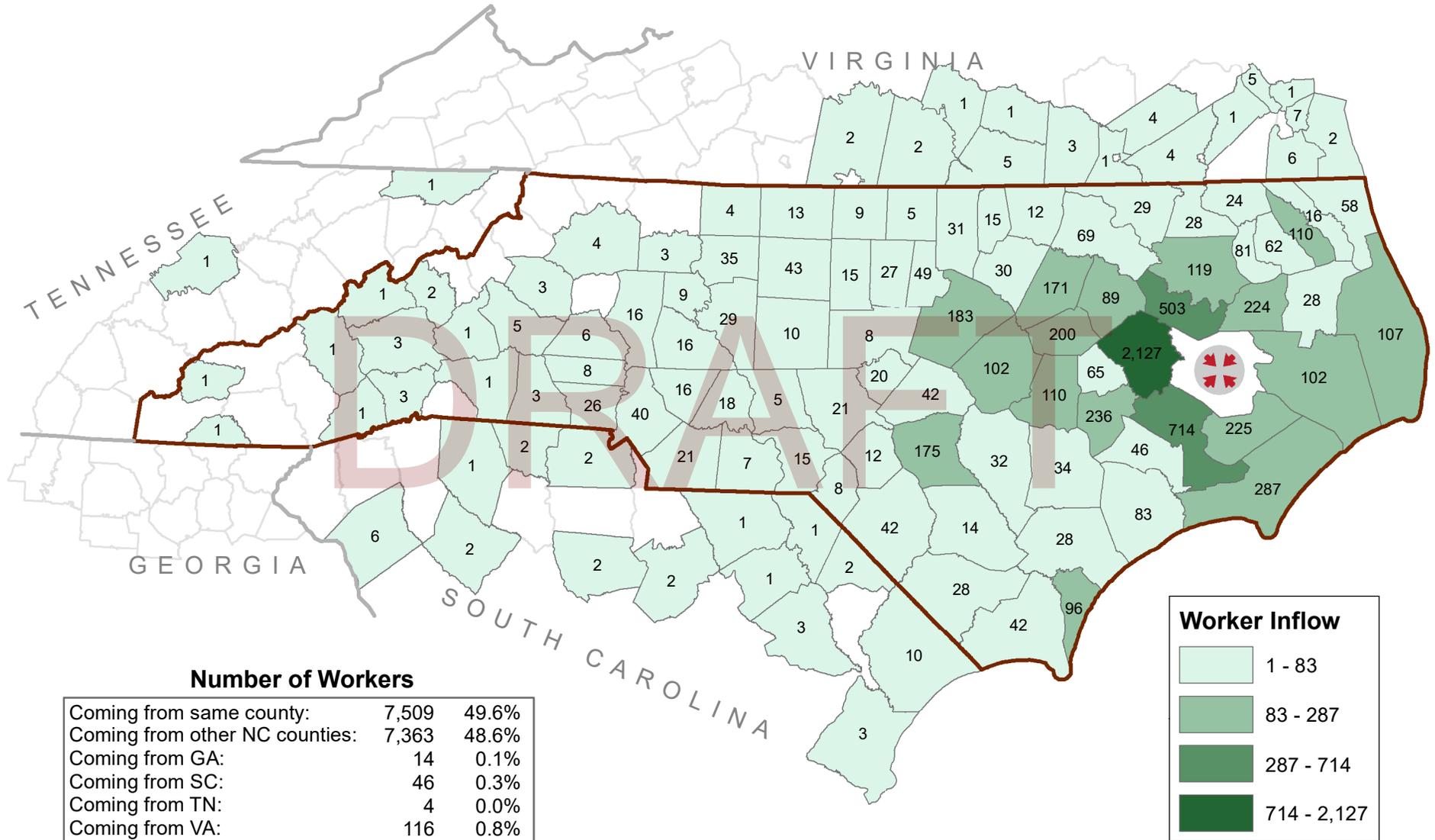
Shelley Cox	Pasquotank County Planning
Charles Edwards	North Carolina Department of Transportation
David Goss	Consultant to Perquimans County
Frank Heath	Perquimans County
Trey Lewis	Senator Thom Tillis's Office
Larry Lombardi	Currituck County Economic Development
Dana Magliola	North Carolina Department of Transportation
Catherine Peele	North Carolina Department of Transportation
Jason Semple	Martin County Economic Development Corporation
Betty Jo Shephard	Jackson County Economic Development
Scott Snead	East Carolina University
Angela Welsh	Albemarle Rural Planning Organization
Keith Wheeler	East Carolina University

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# Appendix C: Commuter Maps By County

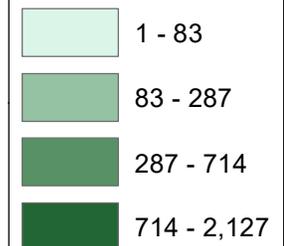
# Workers Commuting into Beaufort County, North Carolina



## Number of Workers

Coming from same county:	7,509	49.6%
Coming from other NC counties:	7,363	48.6%
Coming from GA:	14	0.1%
Coming from SC:	46	0.3%
Coming from TN:	4	0.0%
Coming from VA:	116	0.8%
Coming from all other States:	97	0.6%
<b>Total:</b>	<b>15,149</b>	<b>100%</b>

## Worker Inflow



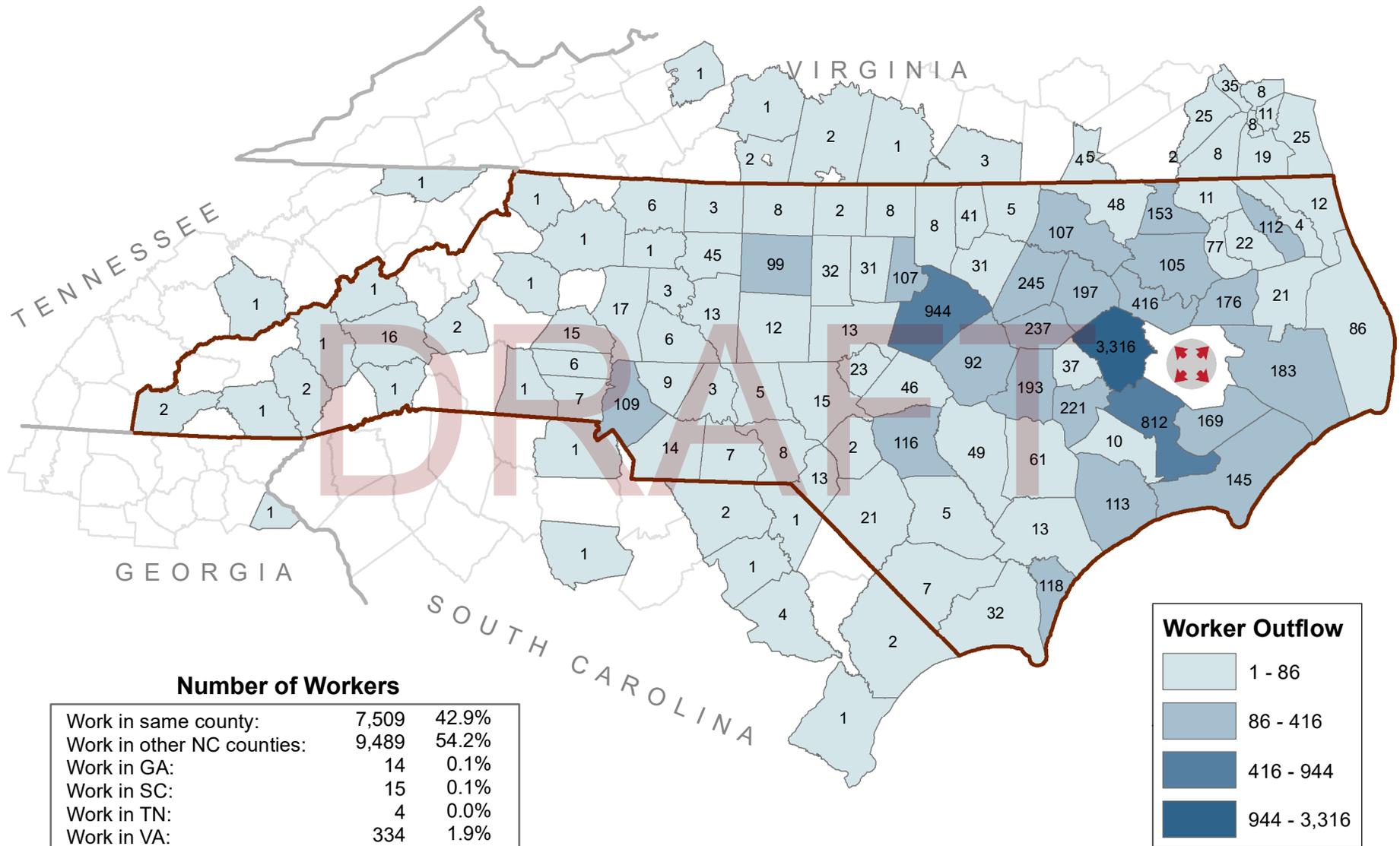
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Map Created in October, 2017

60 Miles



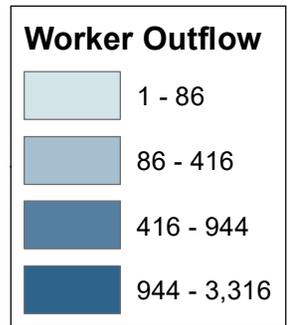
**NORTH CAROLINA**  
DEPARTMENT OF COMMERCE

# Workers Commuting out of Beaufort County, North Carolina



## Number of Workers

Work in same county:	7,509	42.9%
Work in other NC counties:	9,489	54.2%
Work in GA:	14	0.1%
Work in SC:	15	0.1%
Work in TN:	4	0.0%
Work in VA:	334	1.9%
Work in all other States	128	0.7%
<b>Total:</b>	<b>17,493</b>	<b>100%</b>



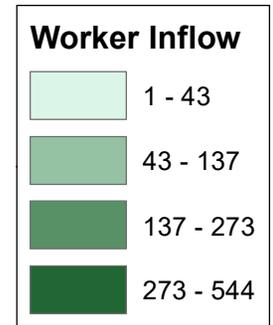
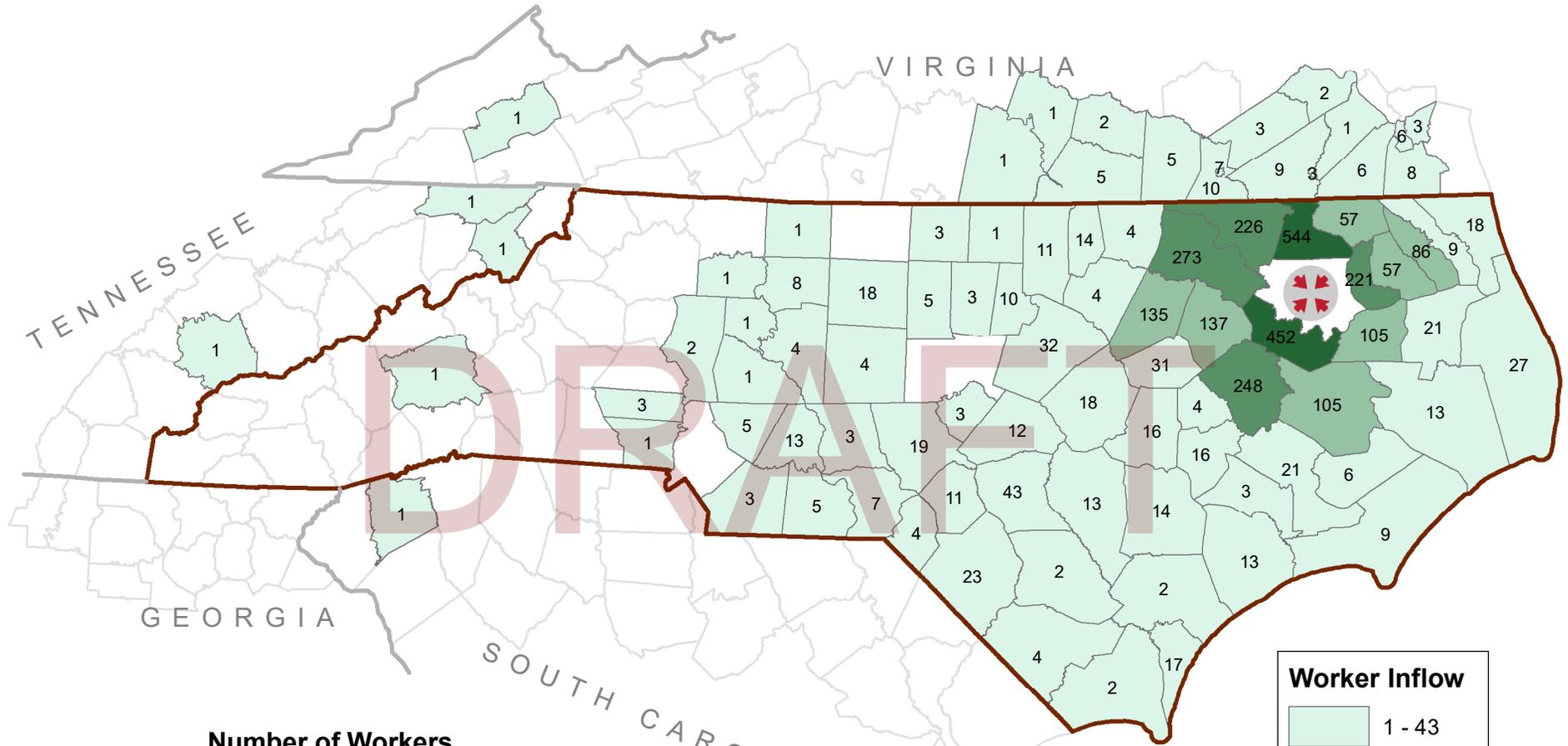
Data Source: US Census Bureau, Center for Economic Studies, LODES, 2015.  
Map Created in October, 2017

70 Miles



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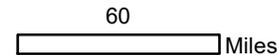
# Workers Commuting into Bertie County, North Carolina



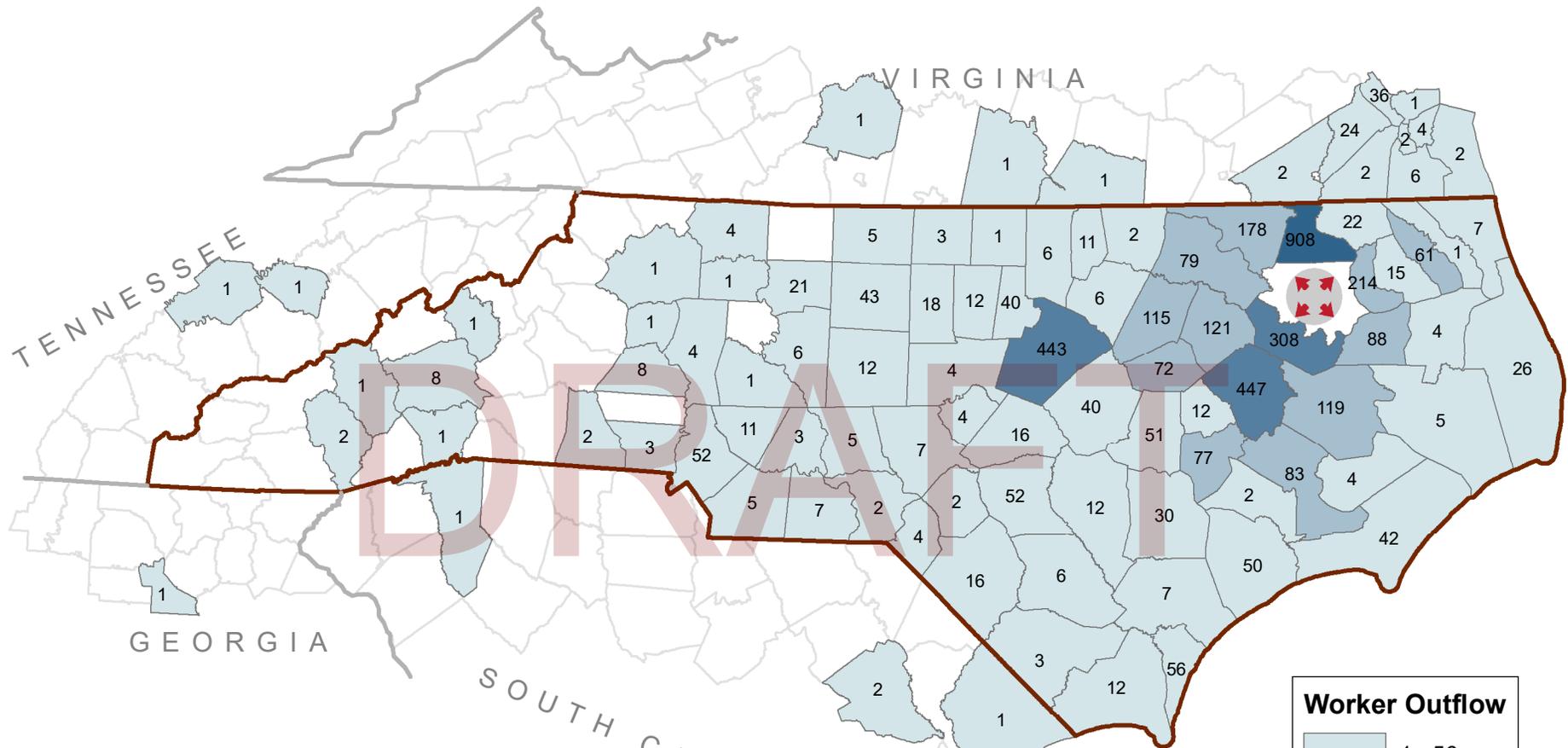
## Number of Workers

Coming from same county:	1,945	36.6%
Coming from other NC counties:	3,208	60.4%
Coming from GA:	0	0.0%
Coming from SC:	4	0.1%
Coming from TN:	3	0.1%
Coming from VA:	89	1.7%
Coming from all other States:	64	1.2%
<b>Total:</b>	<b>5,313</b>	<b>100%</b>

Data Source: US Census Bureau, Center for Economic Studies, LODES, 2015.  
Map Created in October, 2017

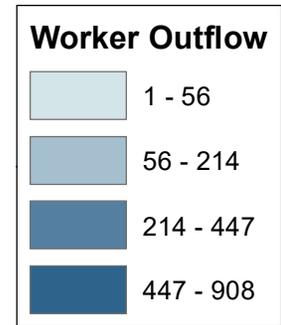


# Workers Commuting out of Bertie County, North Carolina

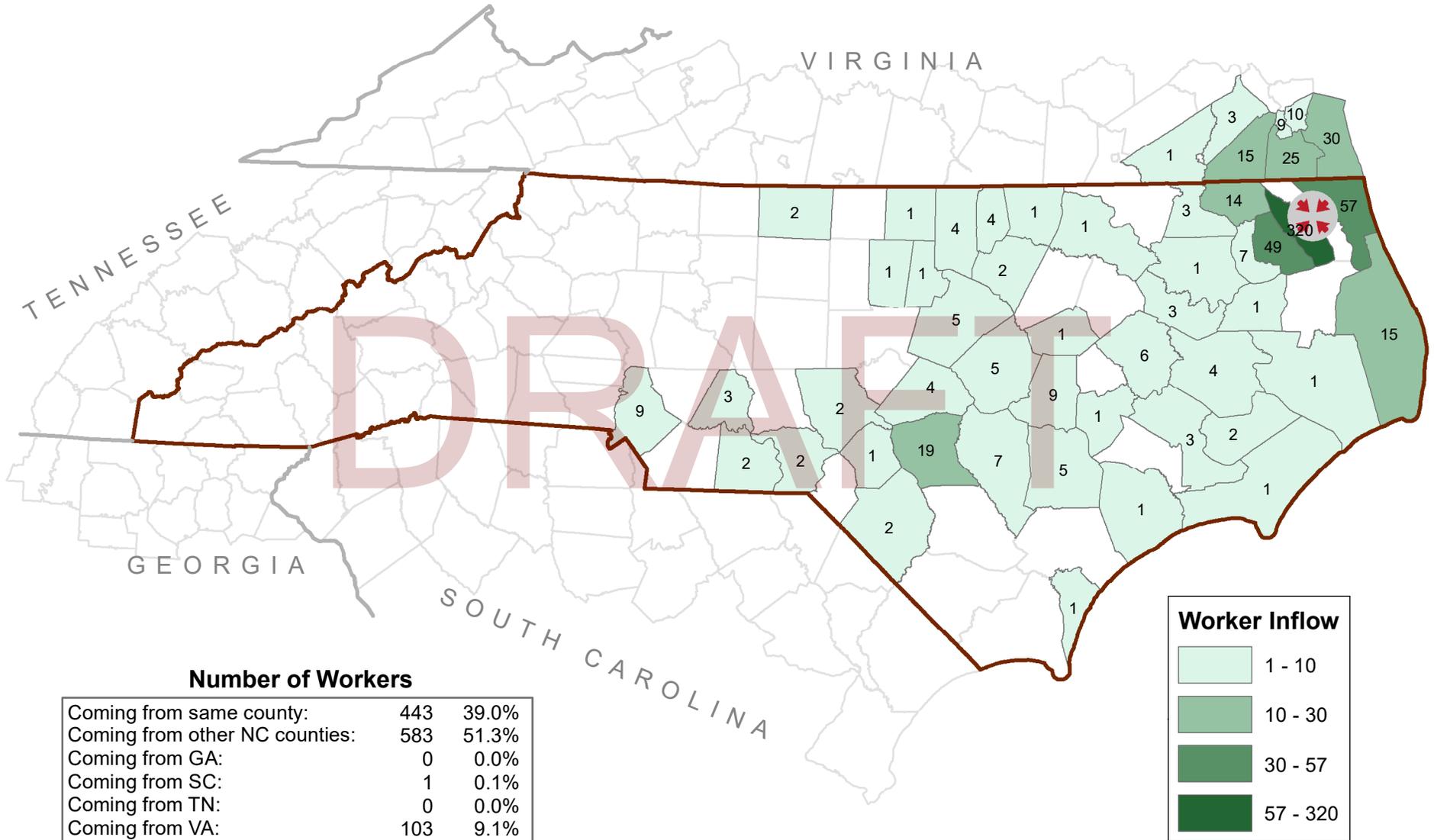


## Number of Workers

Work in same county:	1,945	30.9%
Work in other NC counties:	4,134	65.8%
Work in GA:	5	0.1%
Work in SC:	7	0.1%
Work in TN:	2	0.0%
Work in VA:	143	2.3%
Work in all other States	50	0.8%
<b>Total:</b>	<b>6,286</b>	<b>100%</b>



# Workers Commuting into Camden County, North Carolina



## Number of Workers

Coming from same county:	443	39.0%
Coming from other NC counties:	583	51.3%
Coming from GA:	0	0.0%
Coming from SC:	1	0.1%
Coming from TN:	0	0.0%
Coming from VA:	103	9.1%
Coming from all other States:	7	0.6%
<b>Total:</b>	<b>1,137</b>	<b>100%</b>

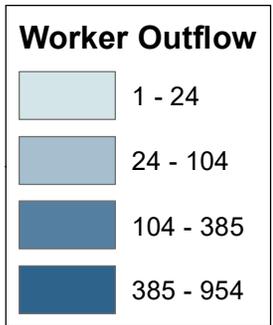
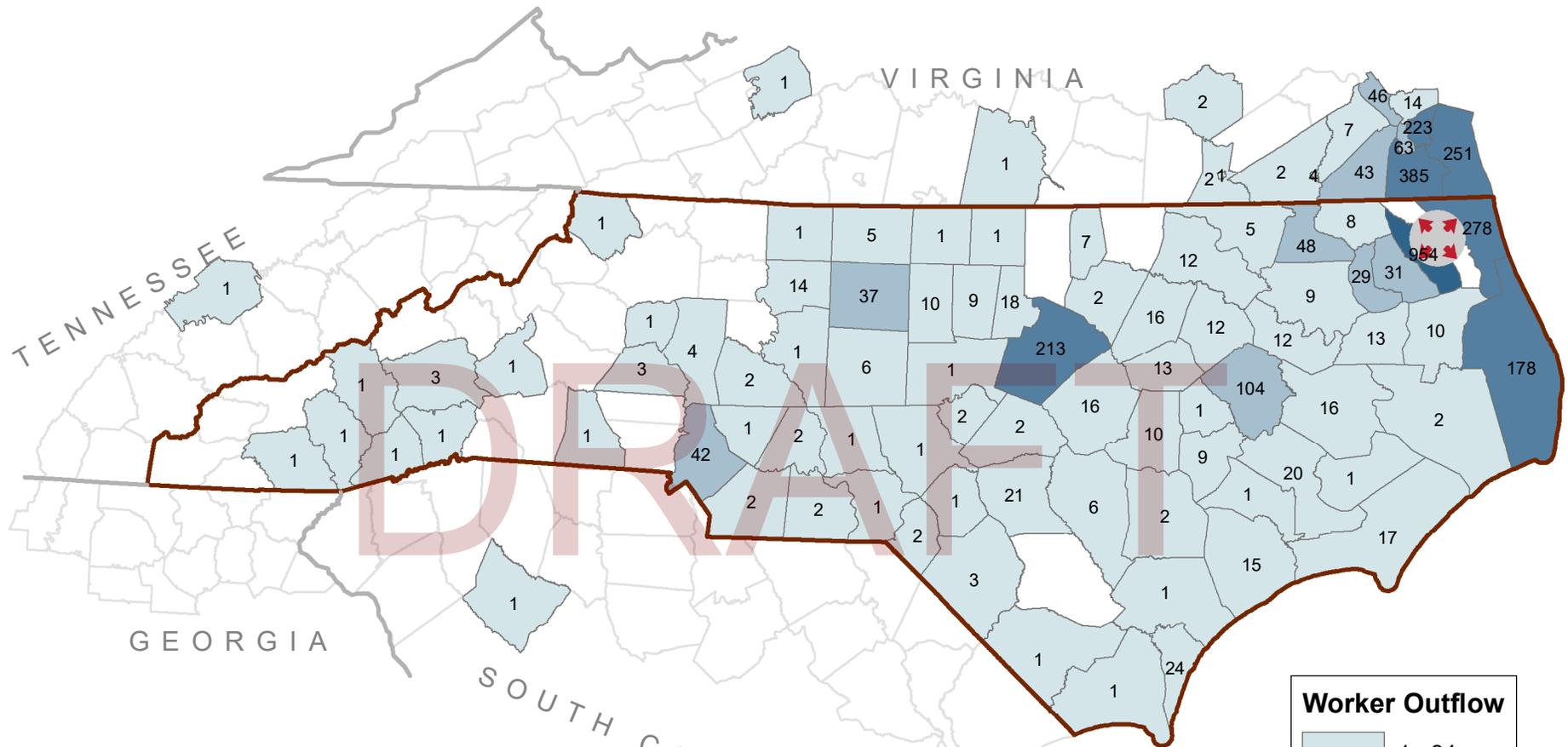
Data Source: US Census Bureau, Center for Economic Studies, LODES, 2015.  
Map Created in October, 2017

60 Miles



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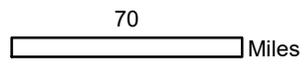
# Workers Commuting out of Camden County, North Carolina



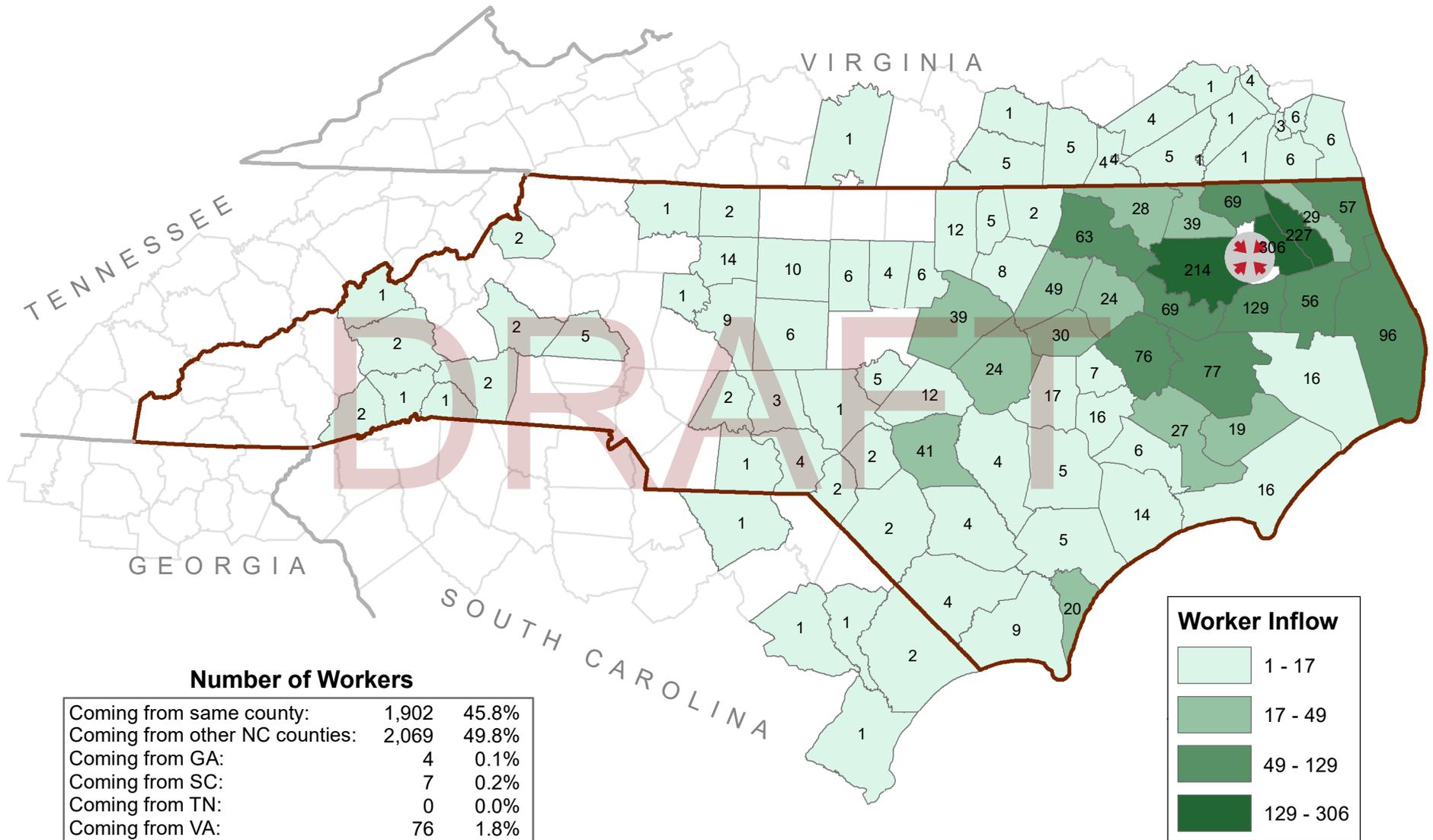
**Number of Workers**

Work in same county:	443	11.4%
Work in other NC counties:	2,305	59.5%
Work in GA:	4	0.1%
Work in SC:	2	0.1%
Work in TN:	1	0.0%
Work in VA:	1,089	28.1%
Work in all other States	30	0.8%
<b>Total:</b>	<b>3,874</b>	<b>100%</b>

Data Source: US Census Bureau, Center for Economic Studies, LODES, 2015.  
Map Created in October, 2017



# Workers Commuting into Chowan County, North Carolina



## Number of Workers

Coming from same county:	1,902	45.8%
Coming from other NC counties:	2,069	49.8%
Coming from GA:	4	0.1%
Coming from SC:	7	0.2%
Coming from TN:	0	0.0%
Coming from VA:	76	1.8%
Coming from all other States:	94	2.3%
<b>Total:</b>	<b>4,152</b>	<b>100%</b>

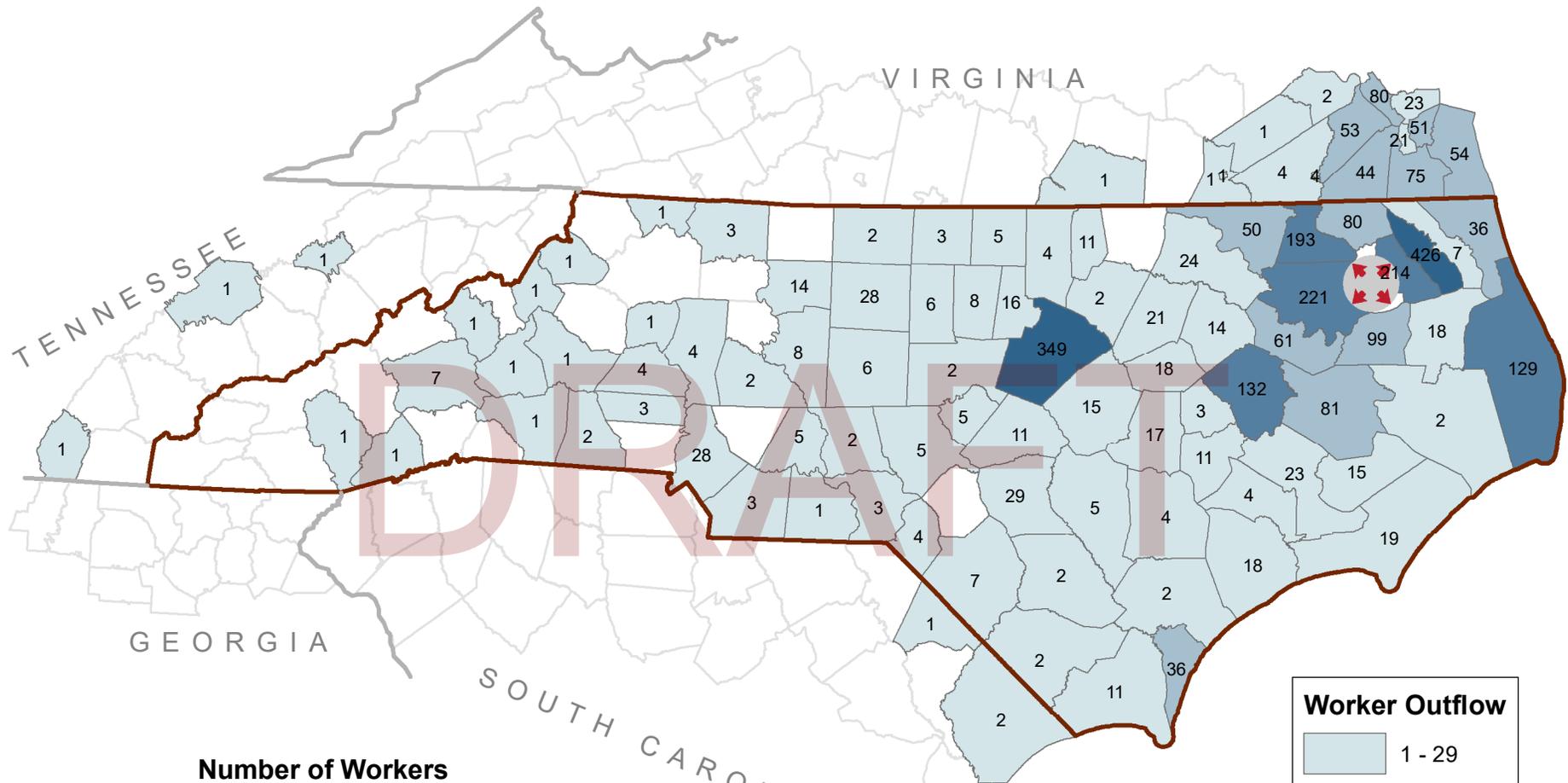
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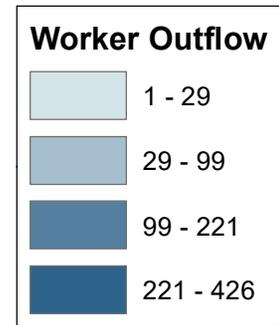
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# Workers Commuting out of Chowan County, North Carolina

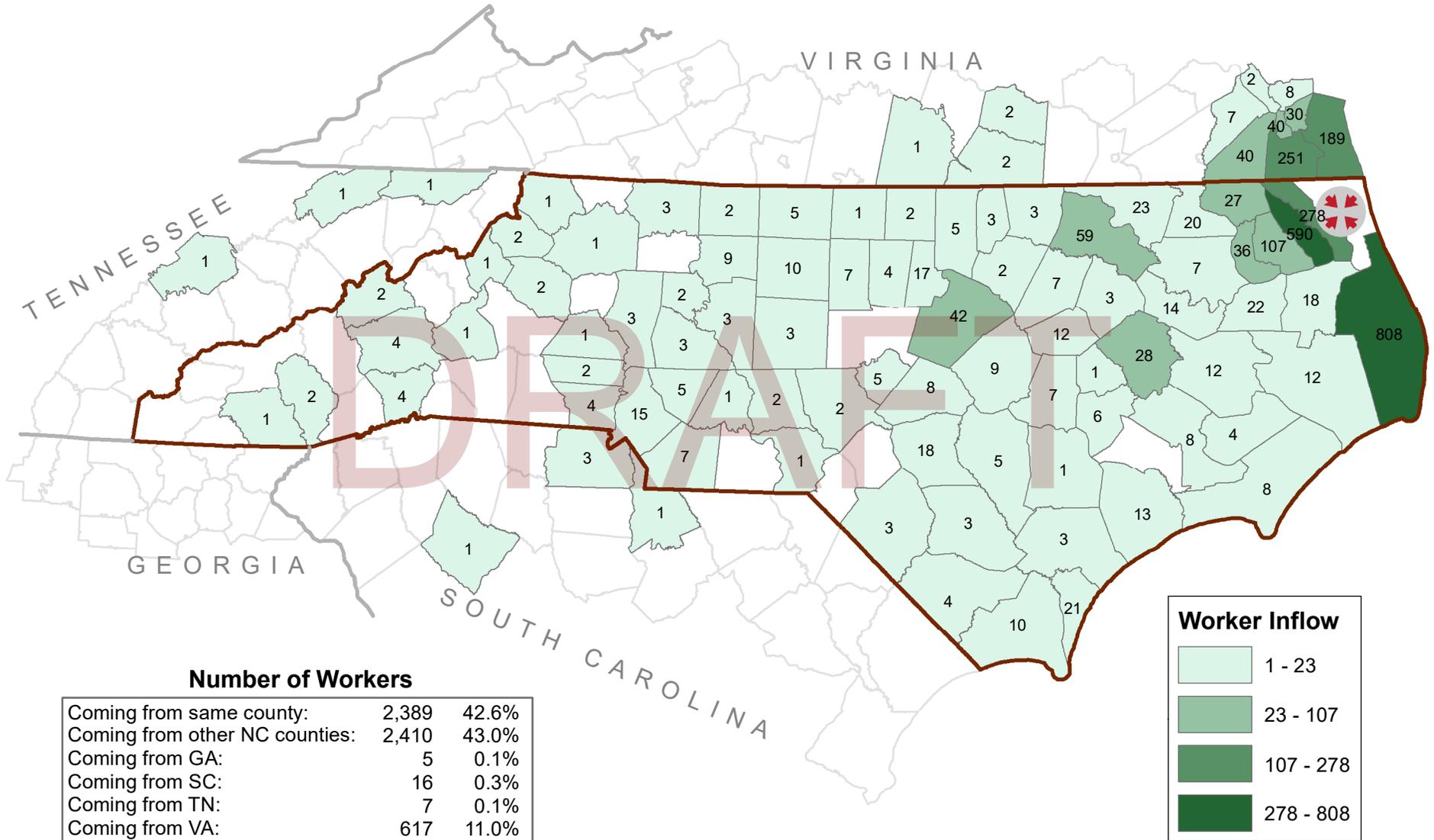


## Number of Workers

Work in same county:	1,902	37.7%
Work in other NC counties:	2,615	51.8%
Work in GA:	3	0.1%
Work in SC:	4	0.1%
Work in TN:	4	0.1%
Work in VA:	489	9.7%
Work in all other States	28	0.6%
<b>Total:</b>	<b>5,045</b>	<b>100%</b>



# Workers Commuting into Currituck County, North Carolina



## Number of Workers

Coming from same county:	2,389	42.6%
Coming from other NC counties:	2,410	43.0%
Coming from GA:	5	0.1%
Coming from SC:	16	0.3%
Coming from TN:	7	0.1%
Coming from VA:	617	11.0%
Coming from all other States:	164	2.9%
<b>Total:</b>	<b>5,608</b>	<b>100%</b>

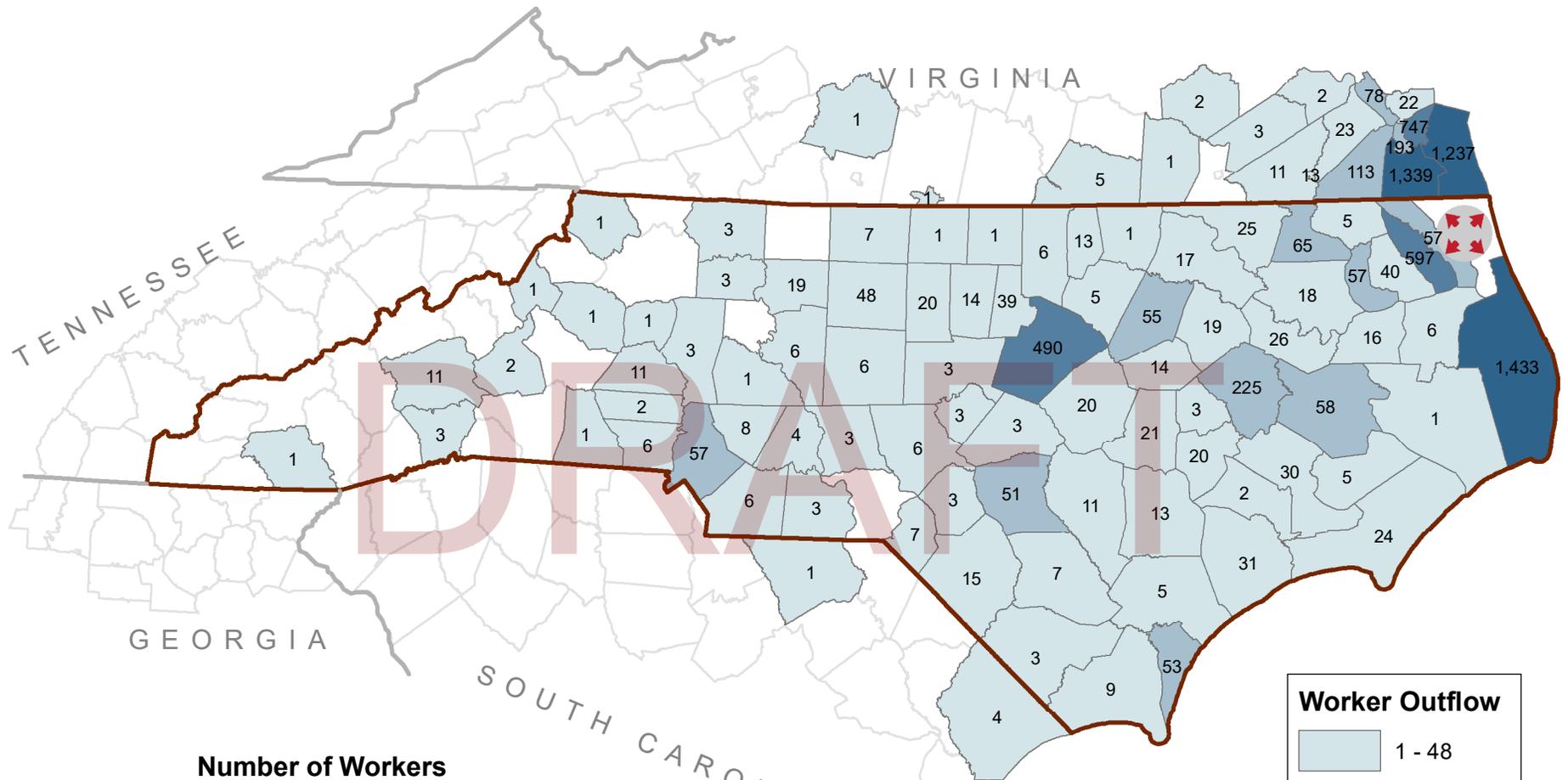
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Map Created in October, 2017

60 Miles



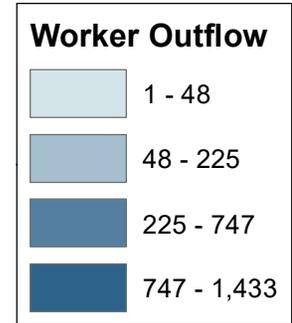
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# Workers Commuting out of Currituck County, North Carolina

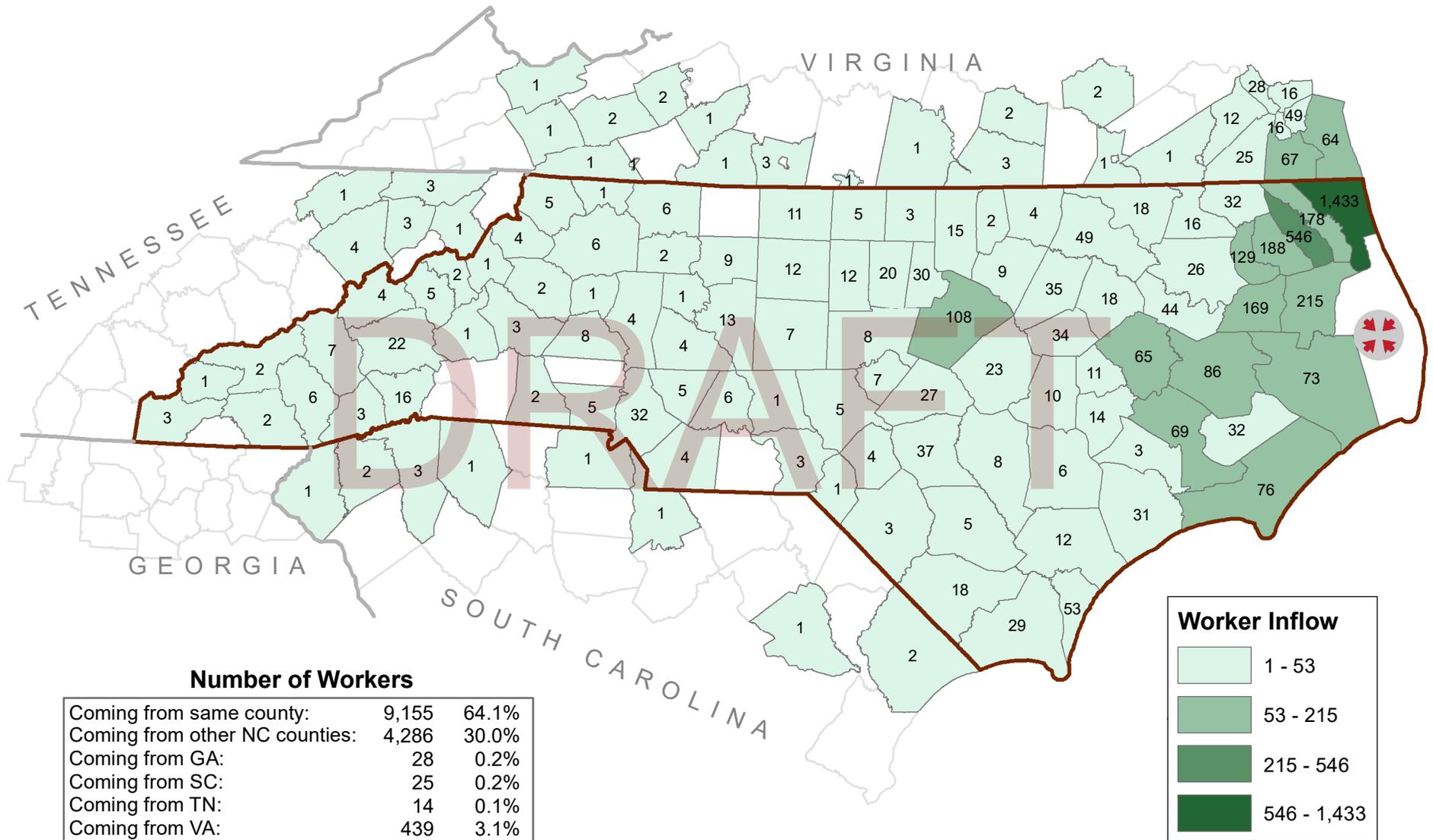


## Number of Workers

Work in same county:	2,389	23.3%
Work in other NC counties:	3,890	37.9%
Work in GA:	3	0.0%
Work in SC:	10	0.1%
Work in TN:	1	0.0%
Work in VA:	3,909	38.1%
Work in all other States	69	0.7%
<b>Total:</b>	<b>10,271</b>	<b>100%</b>



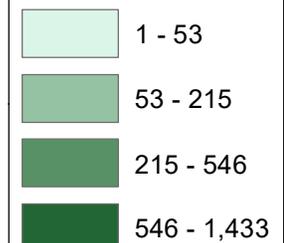
# Workers Commuting into Dare County, North Carolina



## Number of Workers

Coming from same county:	9,155	64.1%
Coming from other NC counties:	4,286	30.0%
Coming from GA:	28	0.2%
Coming from SC:	25	0.2%
Coming from TN:	14	0.1%
Coming from VA:	439	3.1%
Coming from all other States:	341	2.4%
<b>Total:</b>	<b>14,288</b>	<b>100%</b>

## Worker Inflow



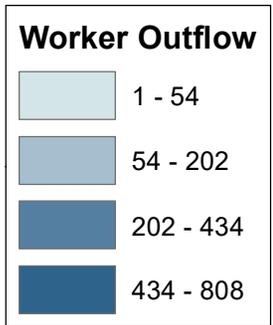
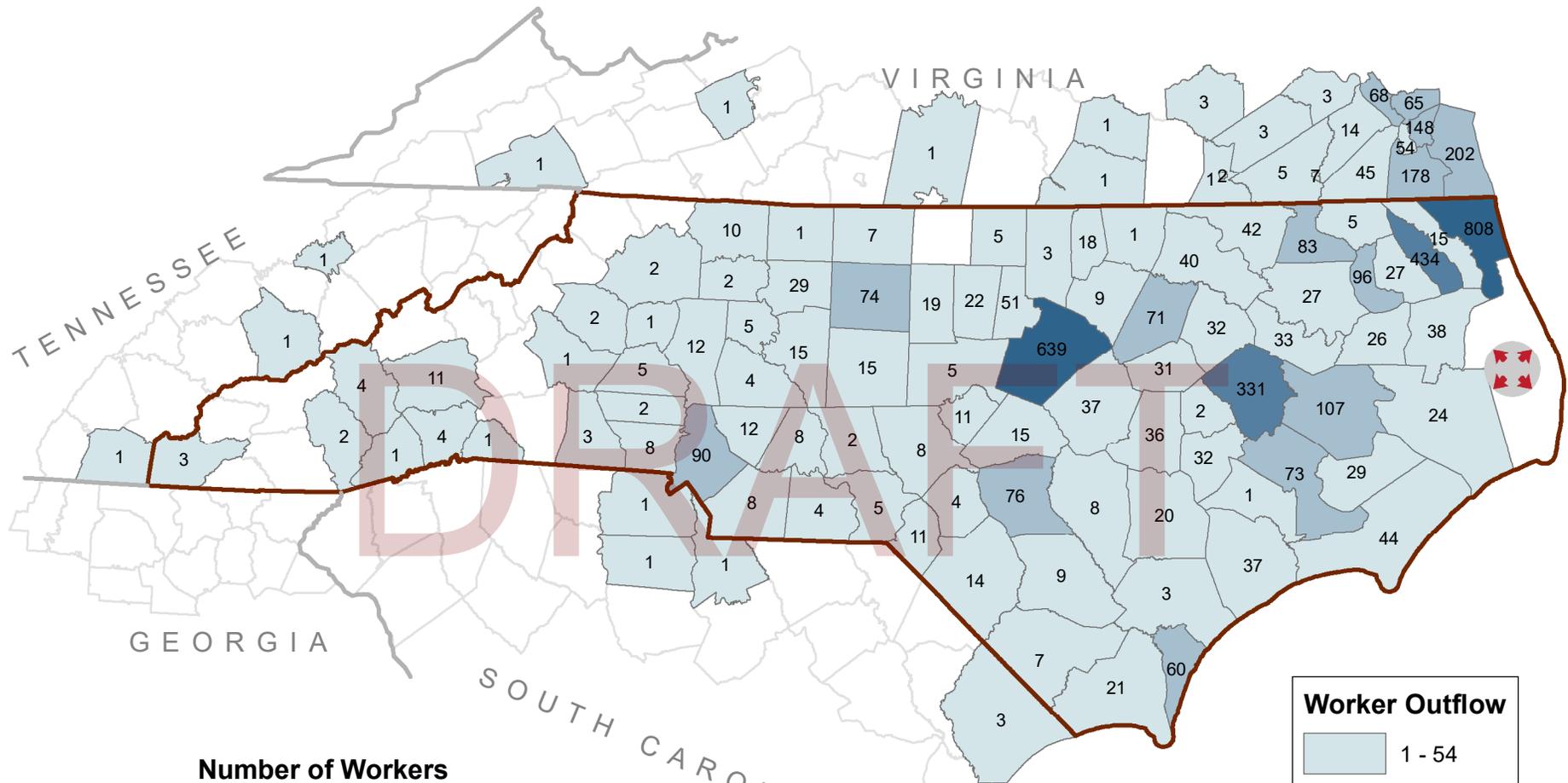
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Map Created in October, 2017

60 Miles



**NORTH CAROLINA**  
DEPARTMENT OF COMMERCE

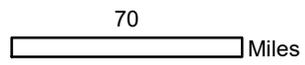
# Workers Commuting out of Dare County, North Carolina



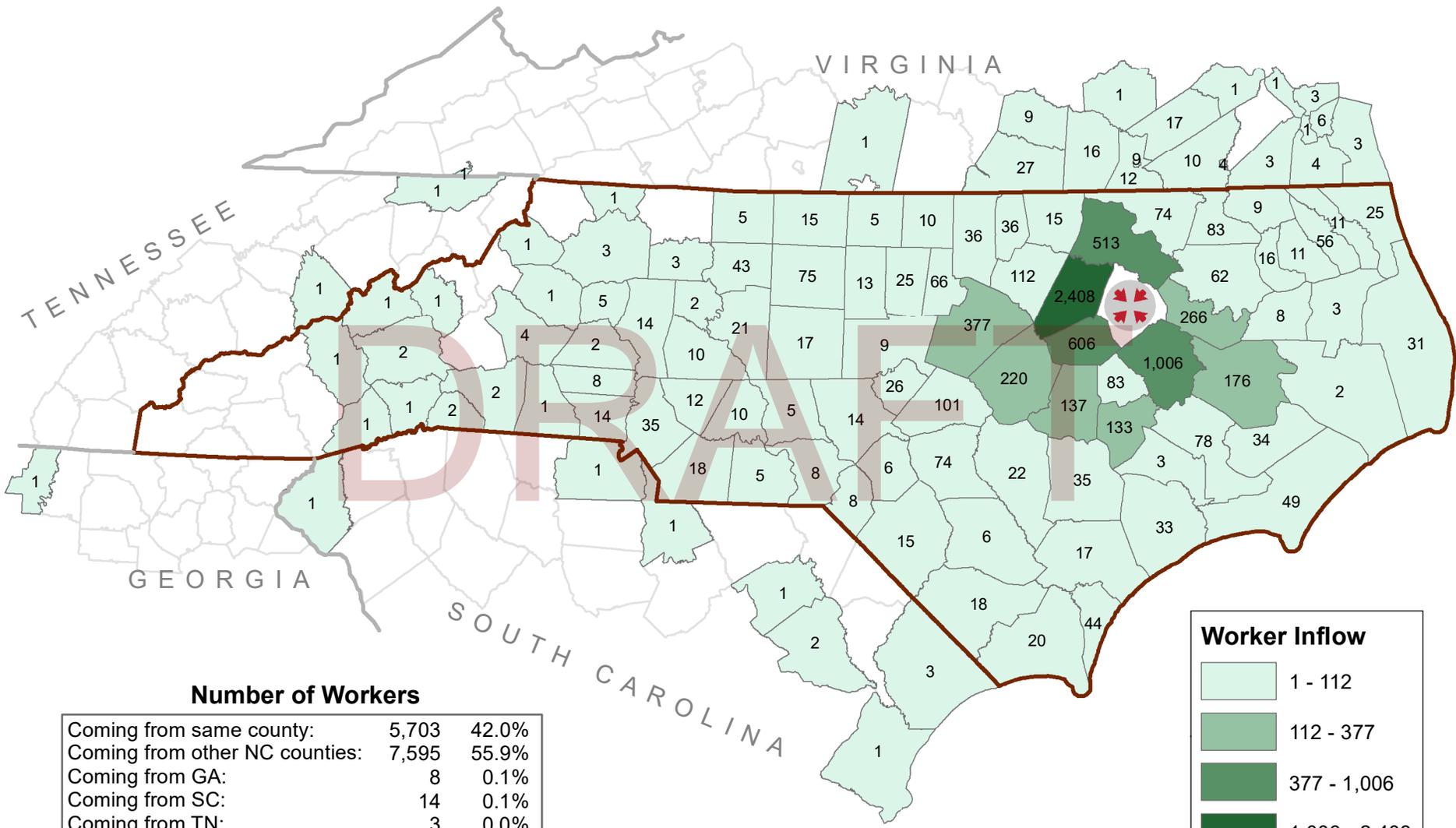
**Number of Workers**

Work in same county:	9,155	64.4%
Work in other NC counties:	3,953	27.8%
Work in GA:	11	0.1%
Work in SC:	11	0.1%
Work in TN:	5	0.0%
Work in VA:	977	6.9%
Work in all other States	98	0.7%
<b>Total:</b>	<b>14,210</b>	<b>100%</b>

Data Source: US Census Bureau, Center for Economic Studies, LODES, 2015.  
Map Created in October, 2017

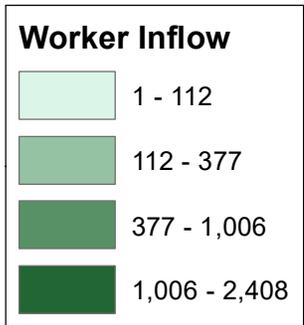


# Workers Commuting into Edgecombe County, North Carolina

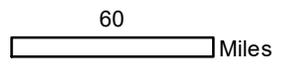


## Number of Workers

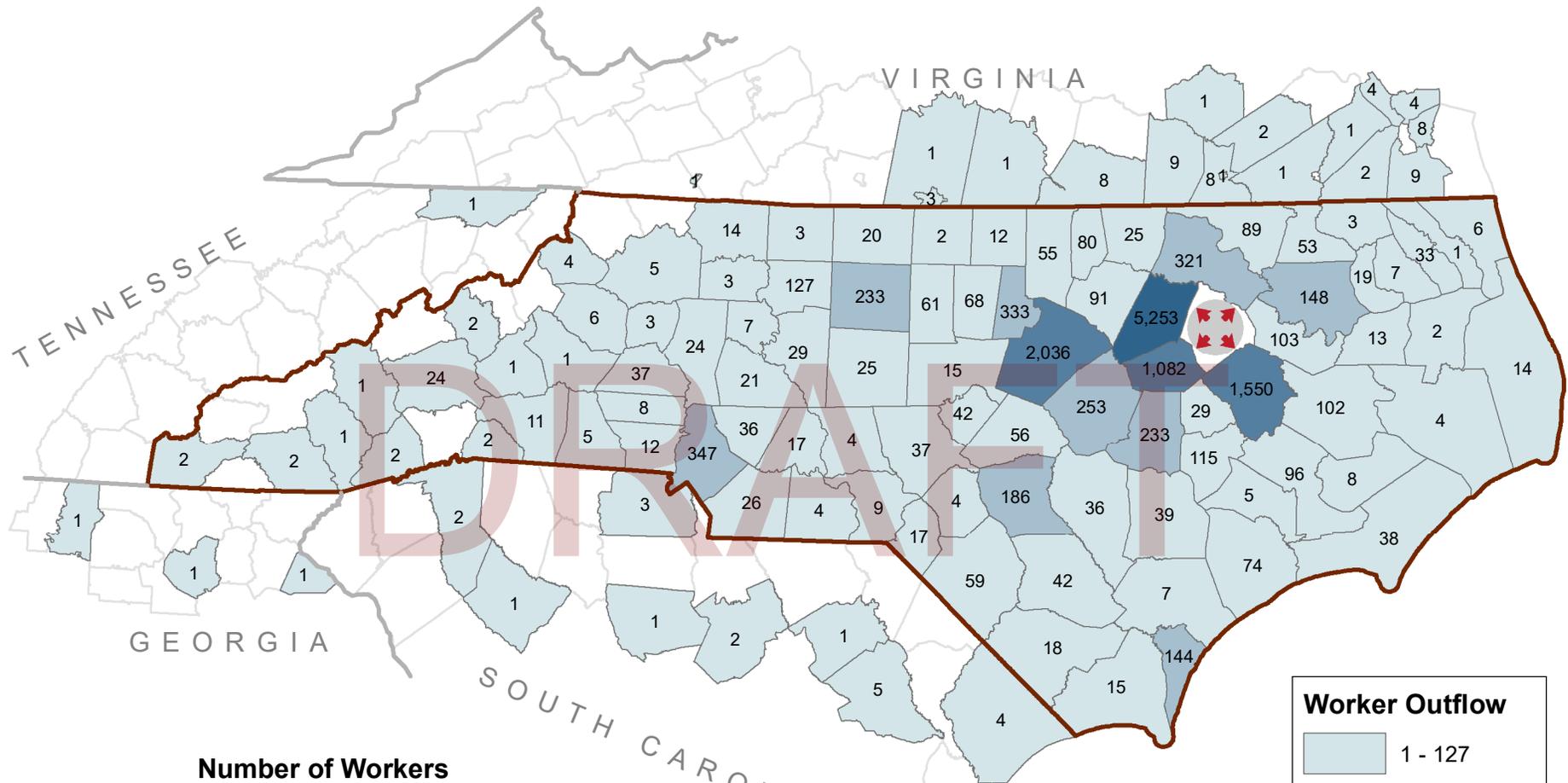
Coming from same county:	5,703	42.0%
Coming from other NC counties:	7,595	55.9%
Coming from GA:	8	0.1%
Coming from SC:	14	0.1%
Coming from TN:	3	0.0%
Coming from VA:	157	1.2%
Coming from all other States:	114	0.8%
<b>Total:</b>	<b>13,594</b>	<b>100%</b>



Data Source: US Census Bureau, Center for Economic Studies, LODES, 2016.  
Map Created in October, 2019

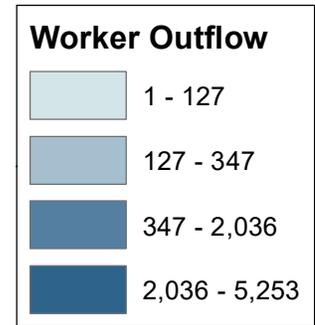


# Workers Commuting out of Edgecombe County, North Carolina

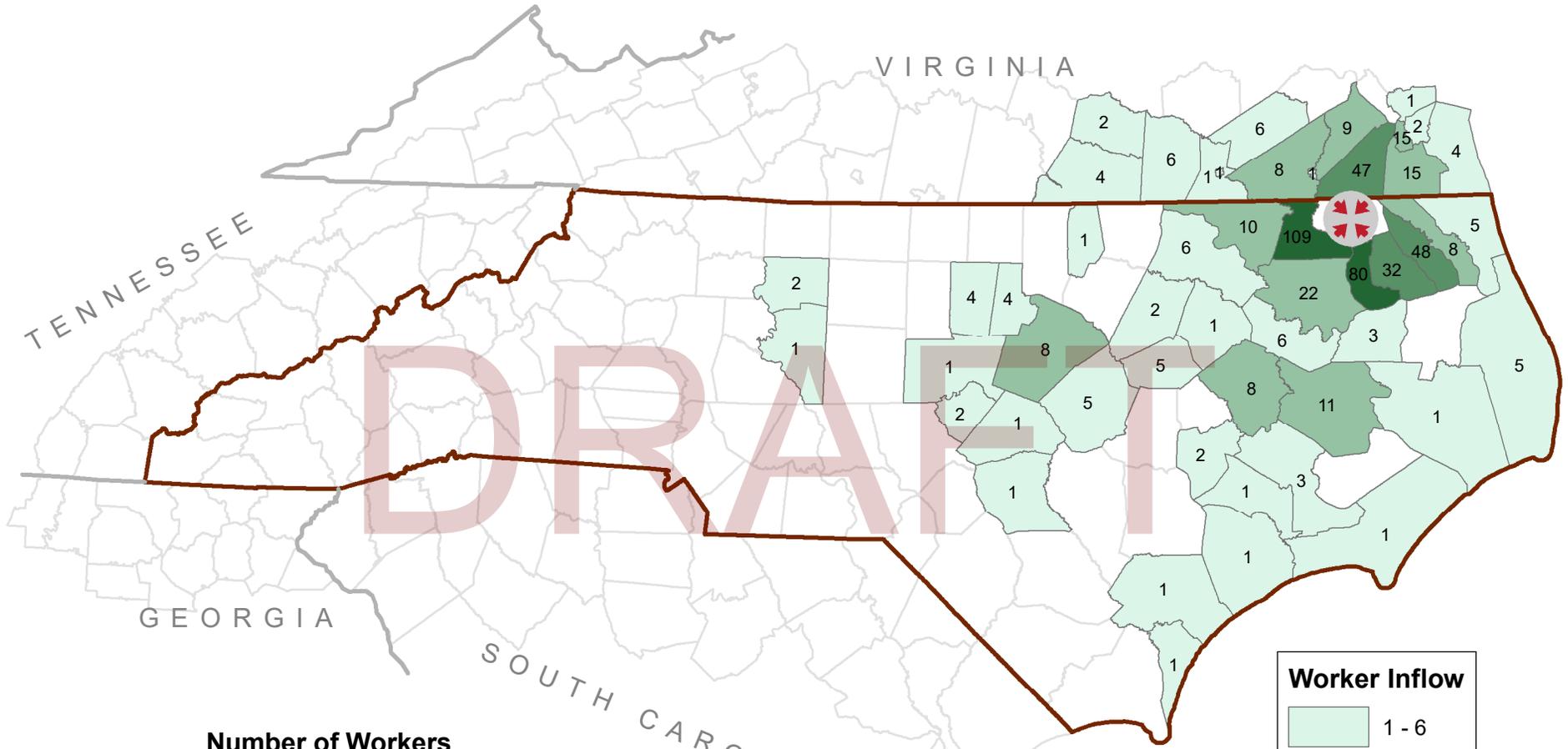


## Number of Workers

Work in same county:	5,703	28.2%
Work in other NC counties:	14,212	70.3%
Work in GA:	18	0.1%
Work in SC:	28	0.1%
Work in TN:	9	0.0%
Work in VA:	107	0.5%
Work in all other States	130	0.6%
<b>Total:</b>	<b>20,207</b>	<b>100%</b>

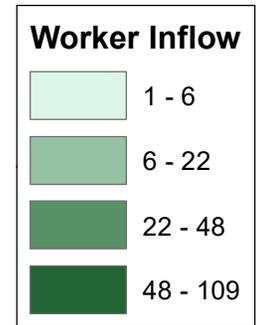


# Workers Commuting into Gates County, North Carolina

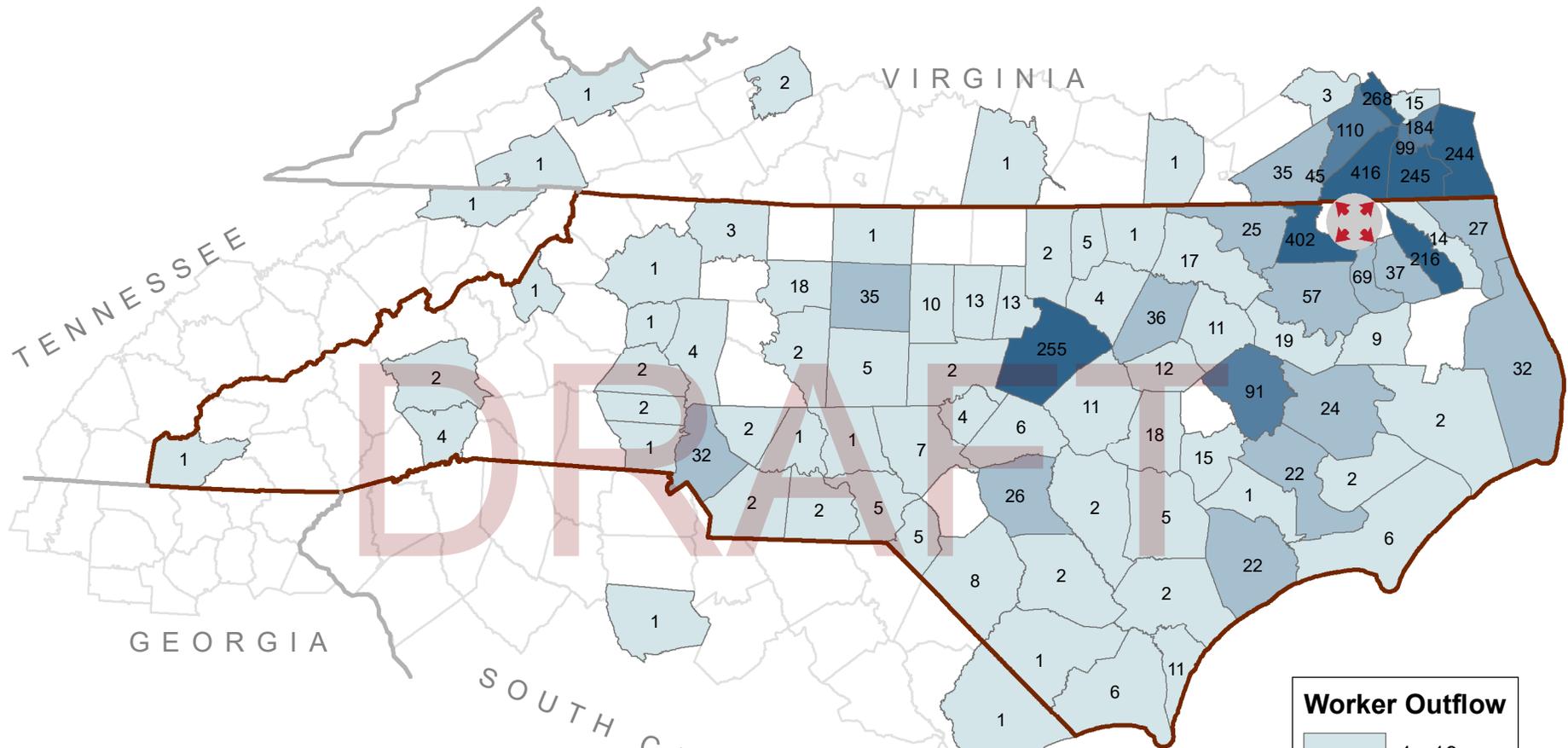


## Number of Workers

Coming from same county:	672	54.7%
Coming from other NC counties:	402	32.7%
Coming from GA:	1	0.1%
Coming from SC:	0	0.0%
Coming from TN:	0	0.0%
Coming from VA:	146	11.9%
Coming from all other States:	8	0.7%
<b>Total:</b>	<b>1,229</b>	<b>100%</b>

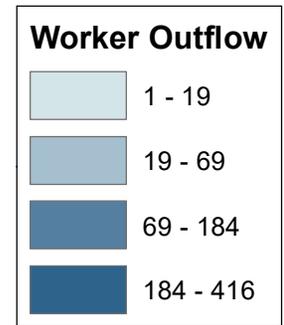


# Workers Commuting out of Gates County, North Carolina

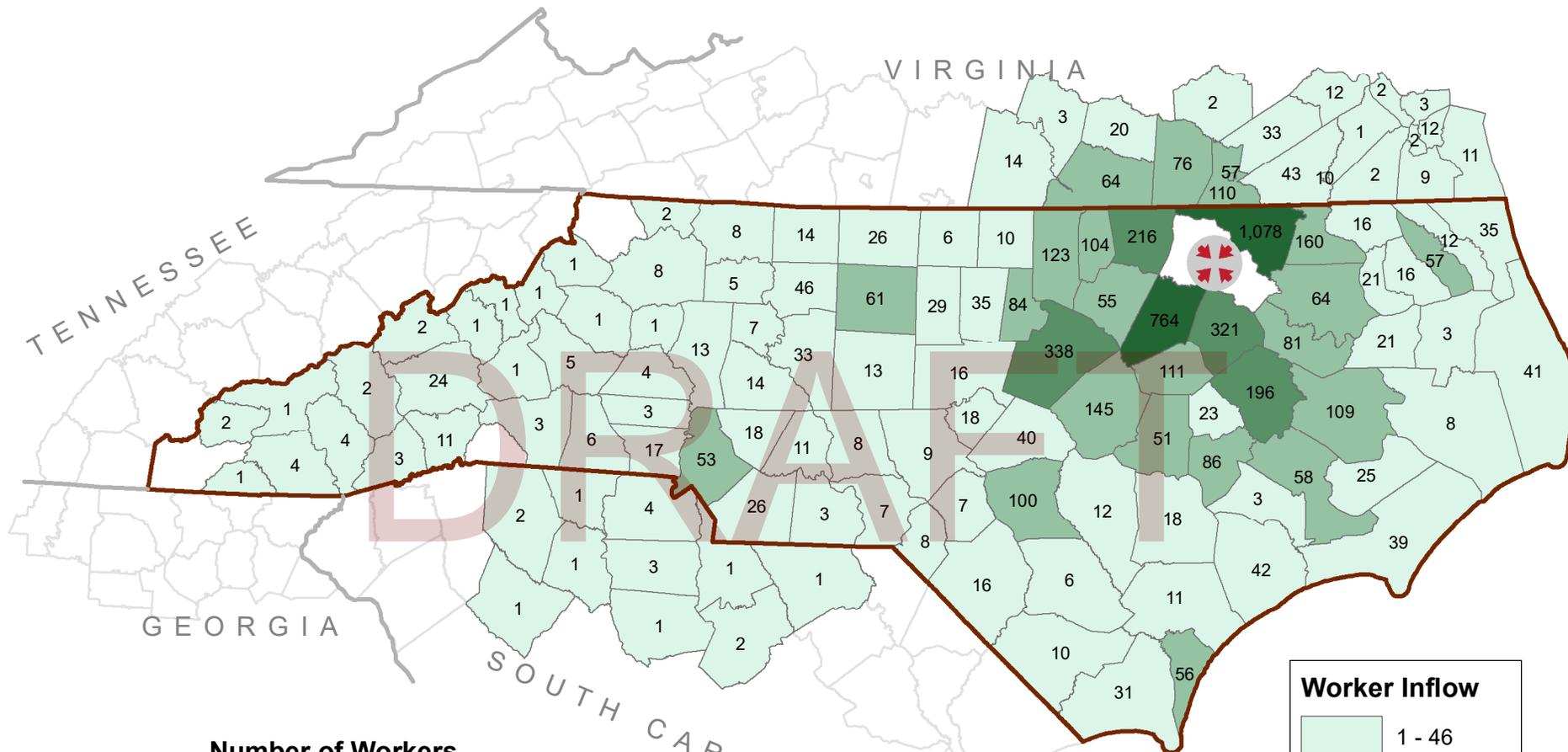


## Number of Workers

Work in same county:	672	16.1%
Work in other NC counties:	1,715	41.2%
Work in GA:	1	0.0%
Work in SC:	3	0.1%
Work in TN:	1	0.0%
Work in VA:	1,743	41.8%
Work in all other States	32	0.8%
<b>Total:</b>	<b>4,167</b>	<b>100%</b>

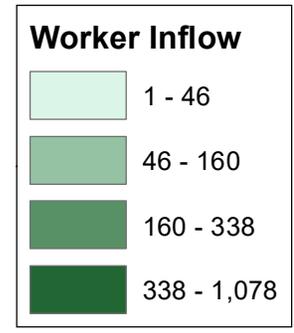


# Workers Commuting into Halifax County, North Carolina

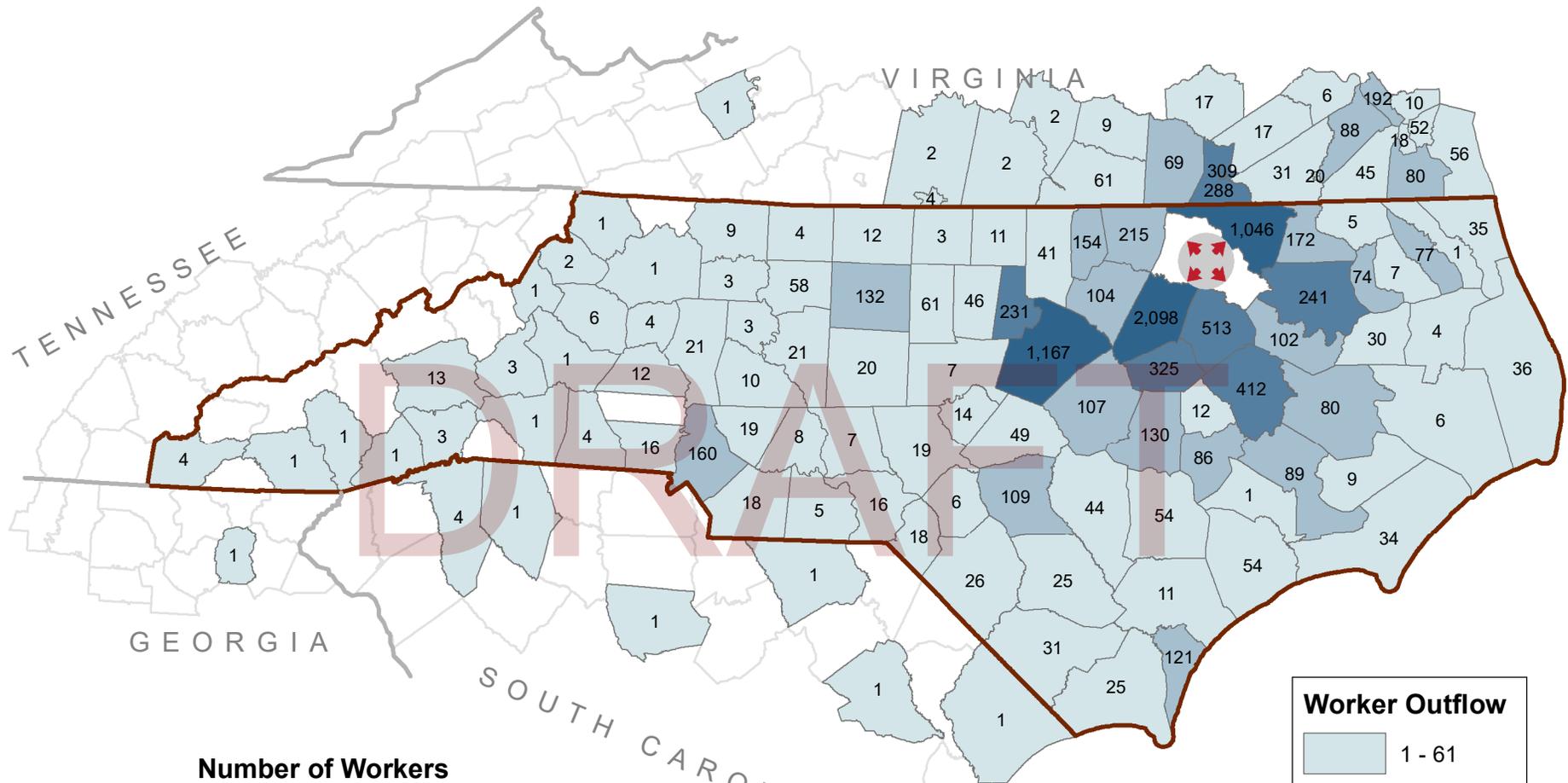


## Number of Workers

Coming from same county:	7,511	54.5%
Coming from other NC counties:	5,419	39.3%
Coming from GA:	20	0.1%
Coming from SC:	25	0.2%
Coming from TN:	1	0.0%
Coming from VA:	601	4.4%
Coming from all other States:	202	1.5%
<b>Total:</b>	<b>13,779</b>	<b>100%</b>

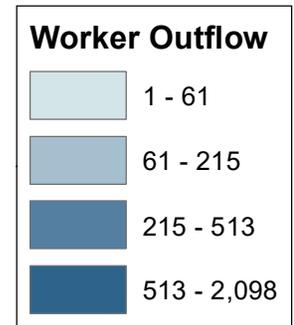


# Workers Commuting out of Halifax County, North Carolina

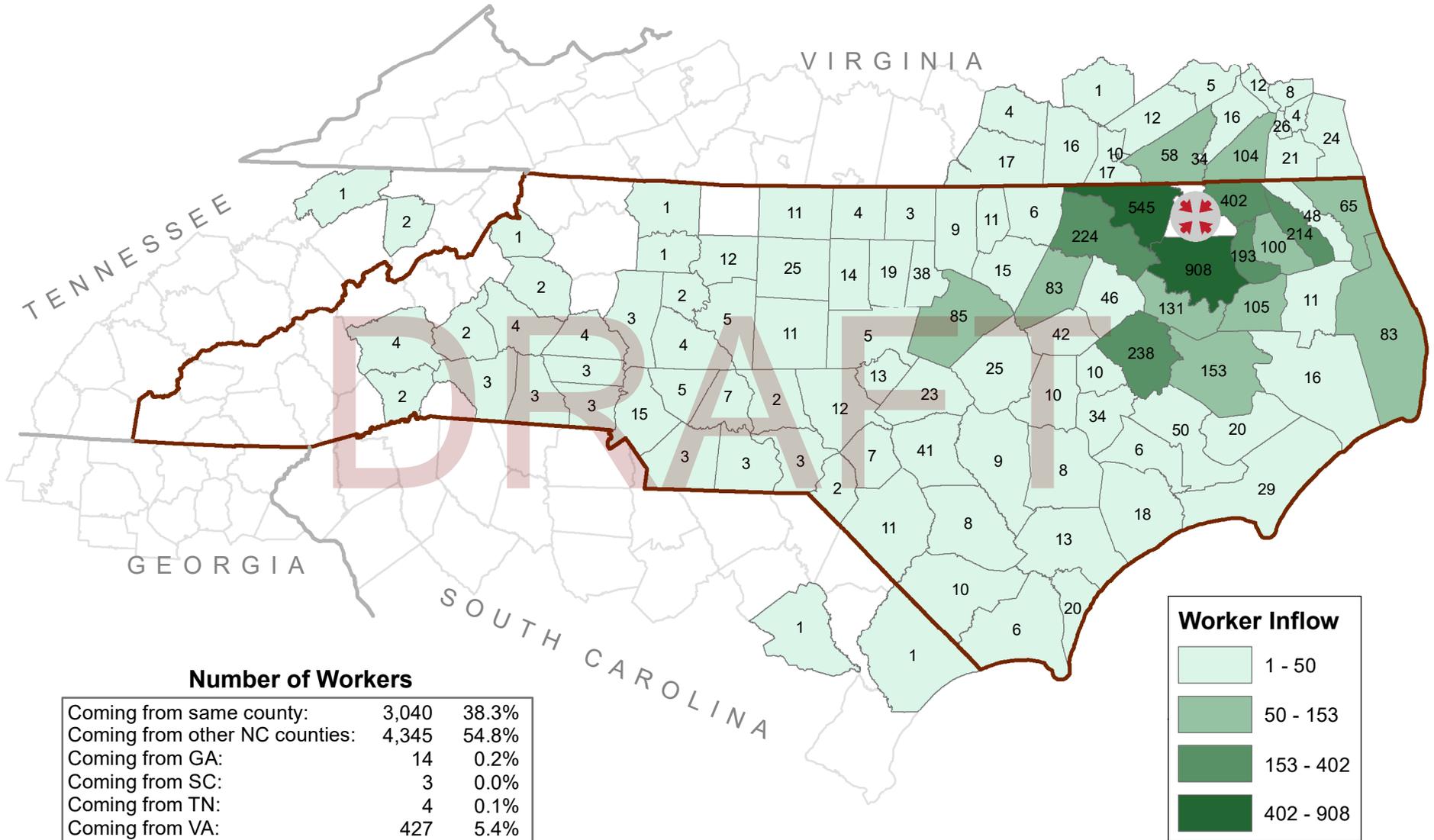


## Number of Workers

Work in same county:	7,511	40.9%
Work in other NC counties:	8,979	48.9%
Work in GA:	22	0.1%
Work in SC:	16	0.1%
Work in TN:	13	0.1%
Work in VA:	1,689	9.2%
Work in all other States	148	0.8%
<b>Total:</b>	<b>18,378</b>	<b>100%</b>



# Workers Commuting into Hertford County, North Carolina



## Number of Workers

Coming from same county:	3,040	38.3%
Coming from other NC counties:	4,345	54.8%
Coming from GA:	14	0.2%
Coming from SC:	3	0.0%
Coming from TN:	4	0.1%
Coming from VA:	427	5.4%
Coming from all other States:	97	1.2%
<b>Total:</b>	<b>7,930</b>	<b>100%</b>

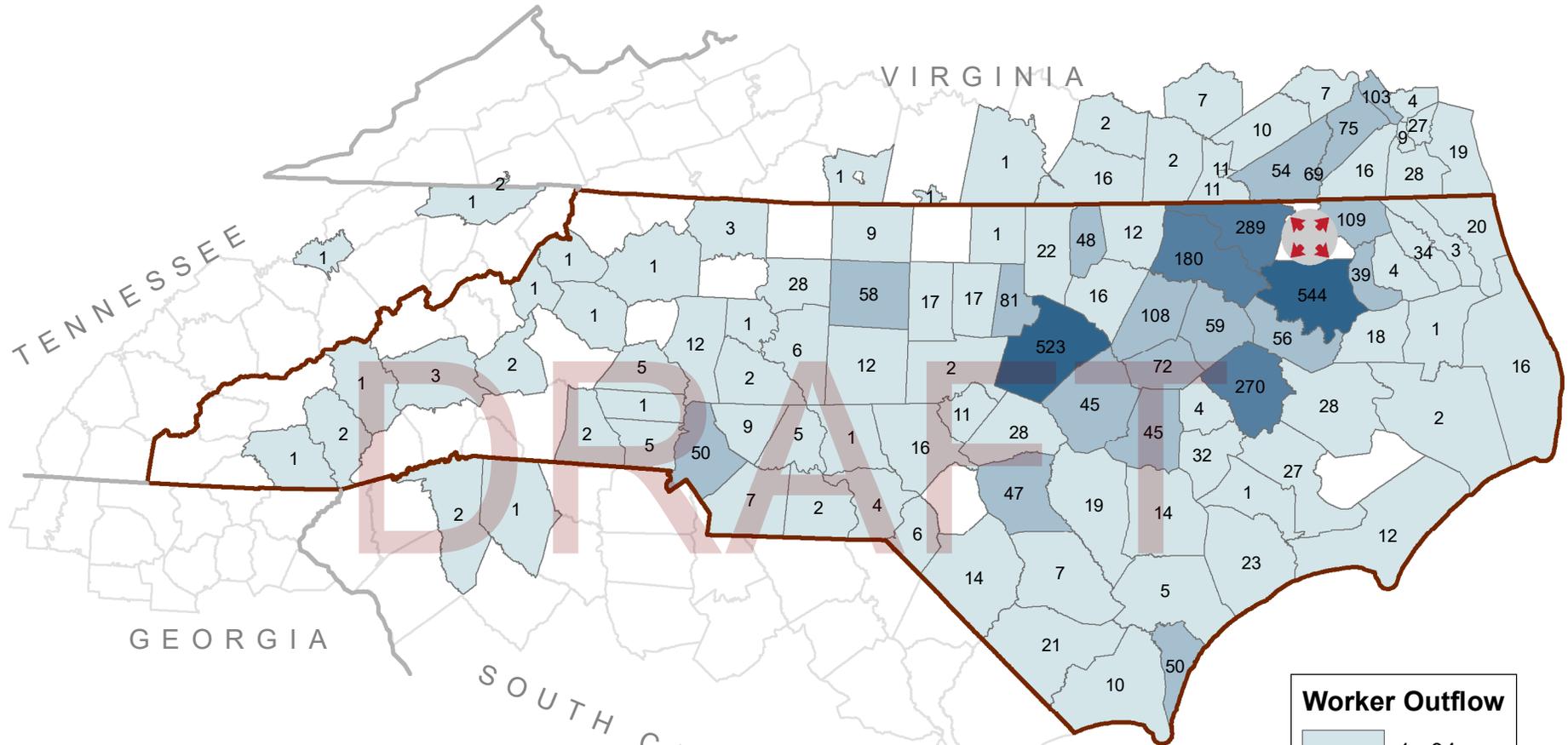
Data Source: US Census Bureau, Center for Economic Studies, LODES, 2015.  
Map Created in October, 2017

60 Miles



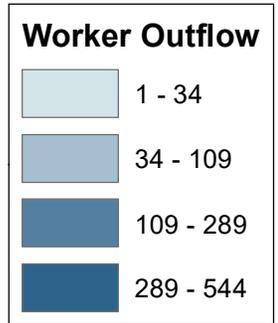
**NORTH CAROLINA**  
DEPARTMENT OF COMMERCE

# Workers Commuting out of Hertford County, North Carolina

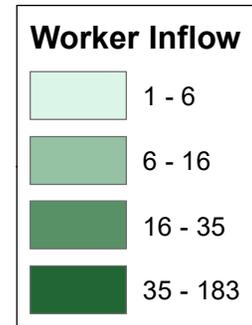
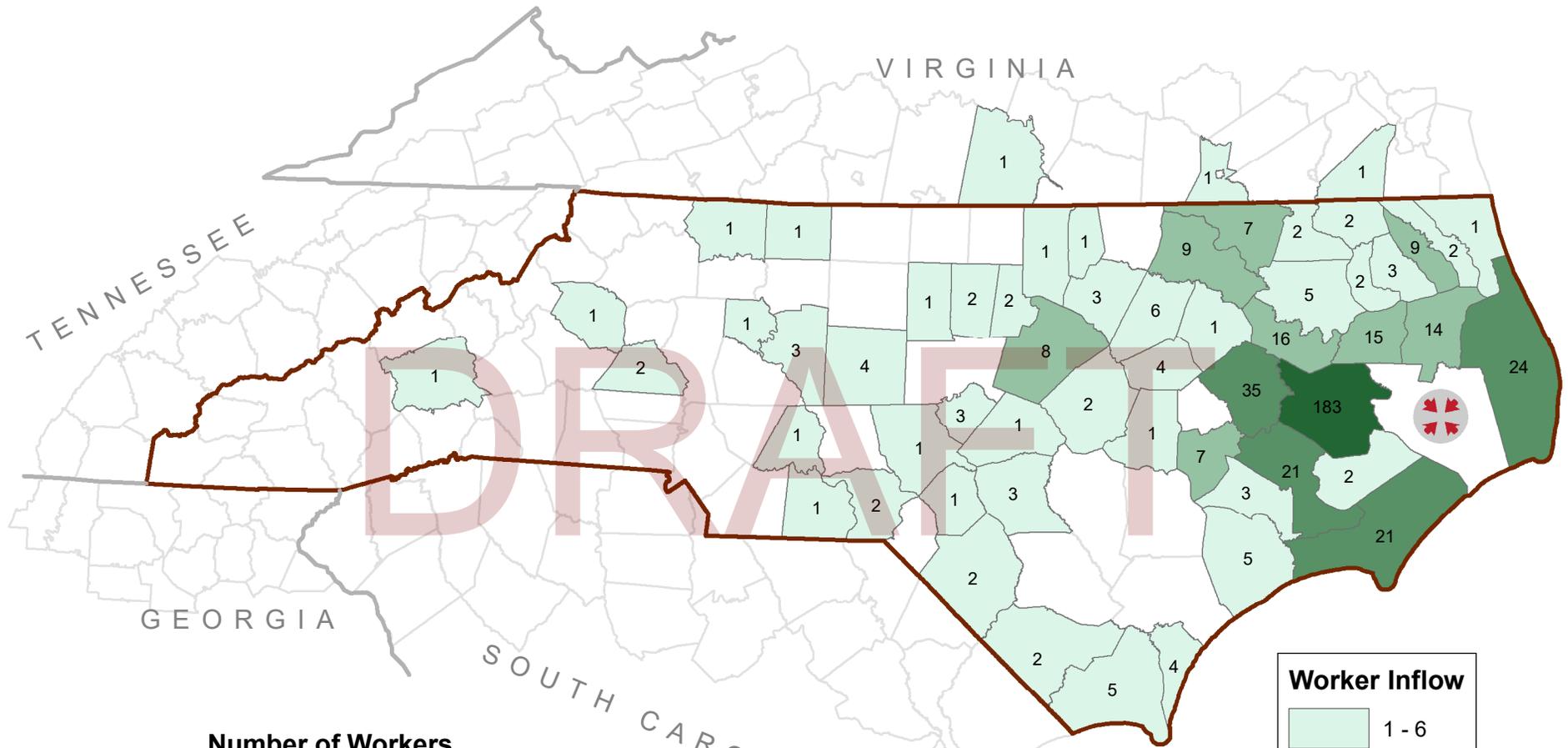


## Number of Workers

Work in same county:	3,040	43.7%
Work in other NC counties:	3,263	46.9%
Work in GA:	3	0.0%
Work in SC:	7	0.1%
Work in TN:	2	0.0%
Work in VA:	606	8.7%
Work in all other States	43	0.6%
<b>Total:</b>	<b>6,964</b>	<b>100%</b>



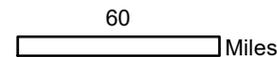
# Workers Commuting into Hyde County, North Carolina



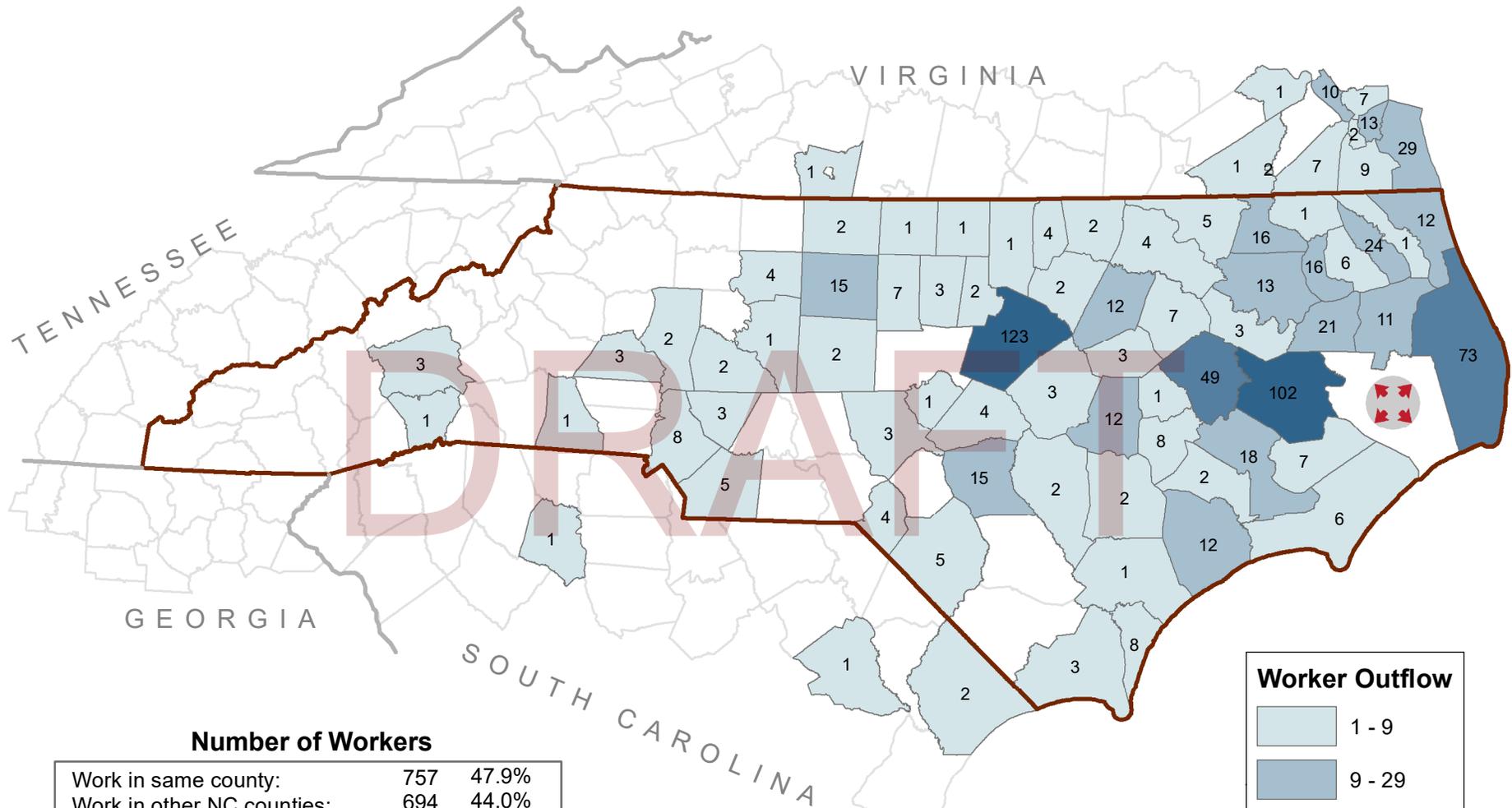
## Number of Workers

Coming from same county:	757	60.1%
Coming from other NC counties:	460	36.5%
Coming from GA:	3	0.2%
Coming from SC:	0	0.0%
Coming from TN:	2	0.2%
Coming from VA:	15	1.2%
Coming from all other States:	22	1.7%
<b>Total:</b>	<b>1,259</b>	<b>100%</b>

Data Source: US Census Bureau, Center for Economic Studies, LODES, 2015.  
Map Created in October, 2017

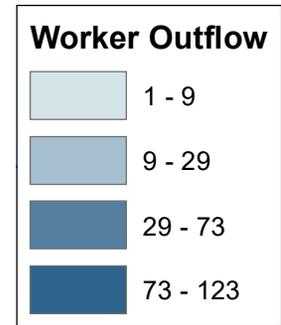


# Workers Commuting out of Hyde County, North Carolina

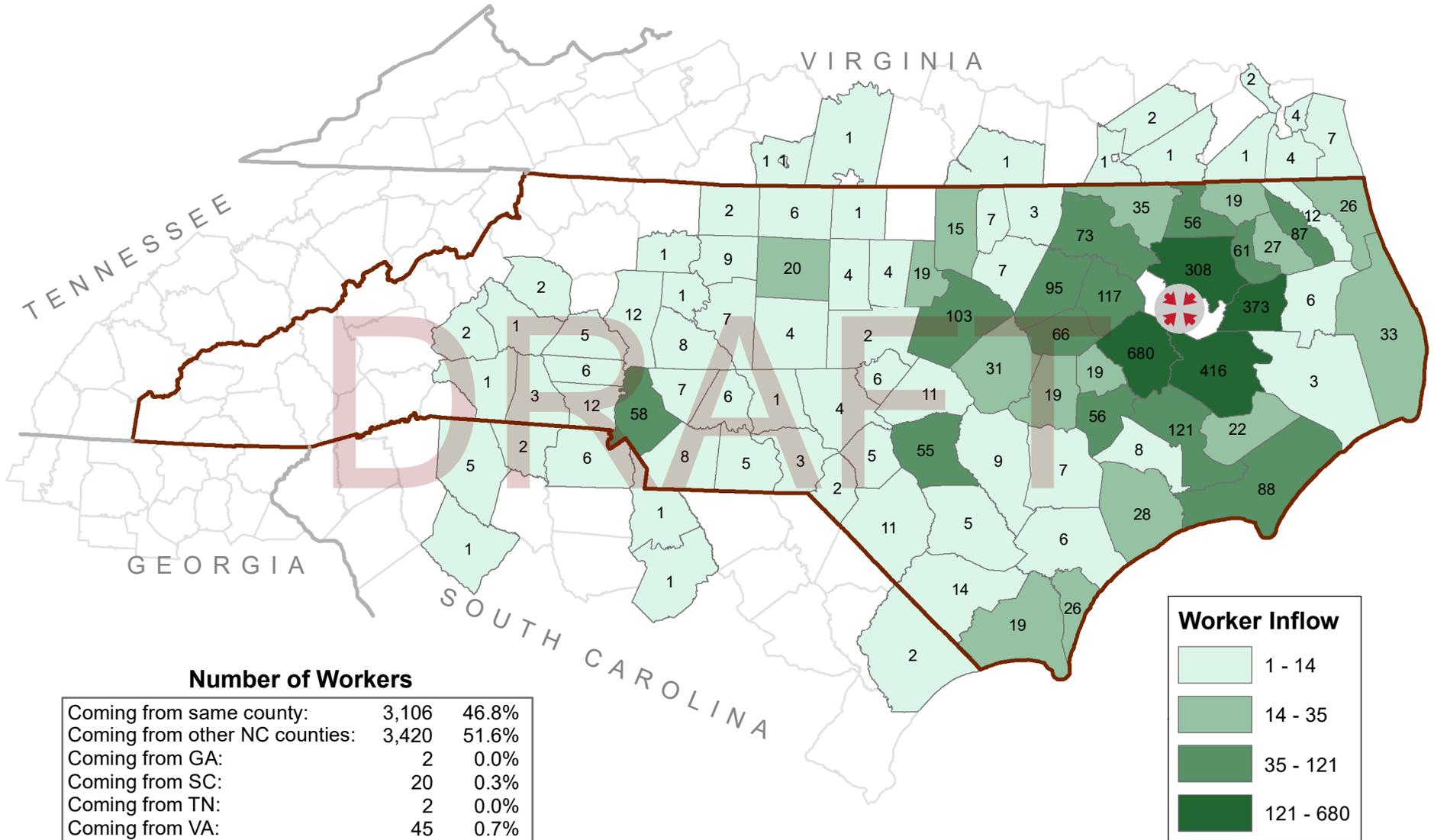


## Number of Workers

Work in same county:	757	47.9%
Work in other NC counties:	694	44.0%
Work in GA:	4	0.3%
Work in SC:	4	0.3%
Work in TN:	0	0.0%
Work in VA:	105	6.6%
Work in all other States	15	0.9%
<b>Total:</b>	<b>1,579</b>	<b>100%</b>



# Workers Commuting into Martin County, North Carolina

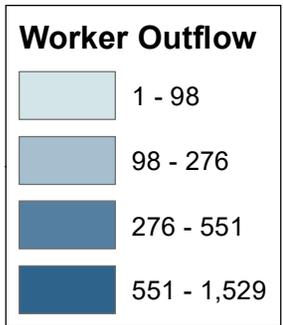
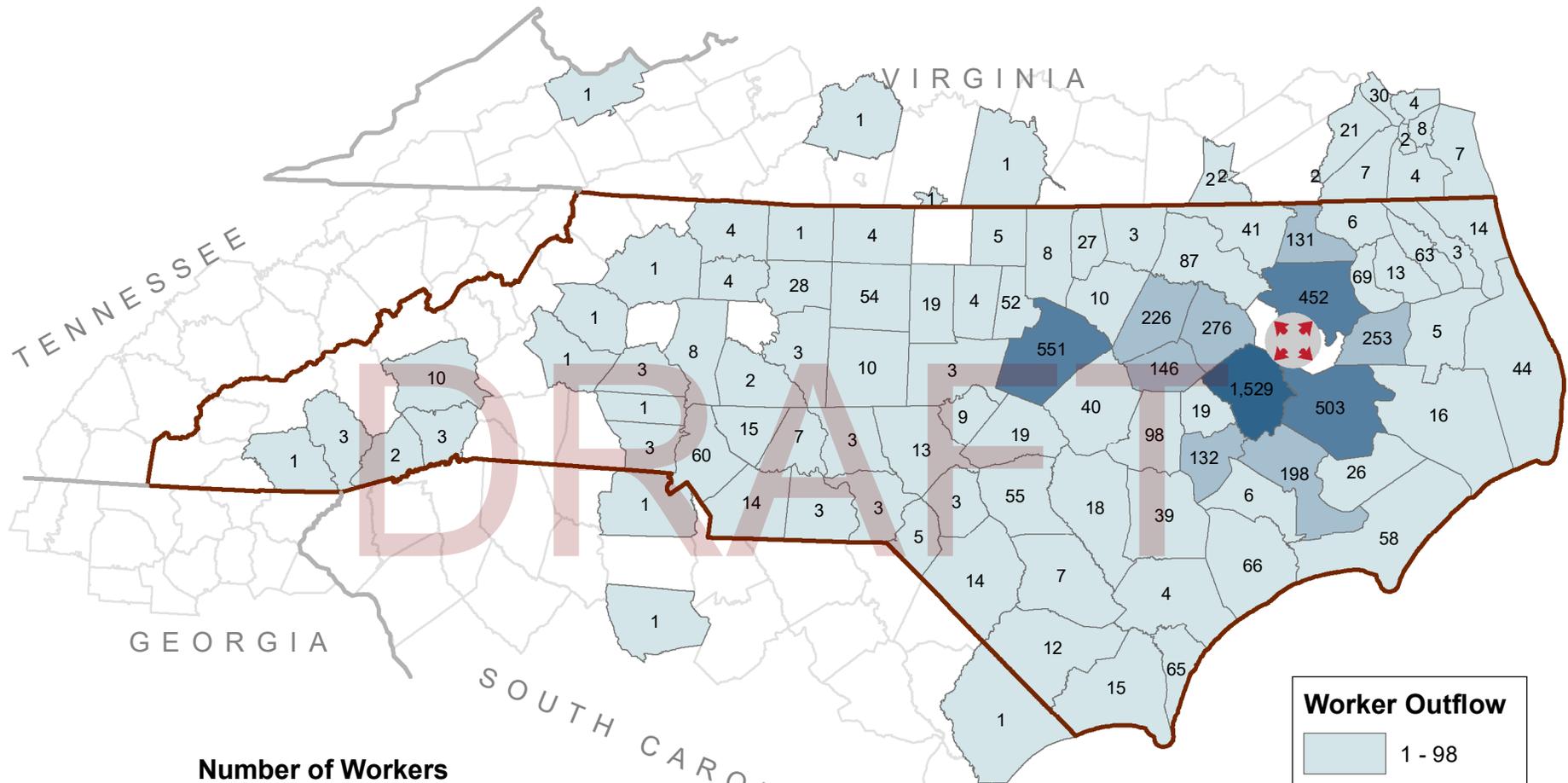


Data Source: US Census Bureau, Center for Economic Studies, LODES, 2015.  
 Map Created in October, 2017

60 Miles



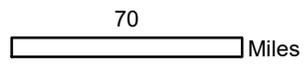
# Workers Commuting out of Martin County, North Carolina



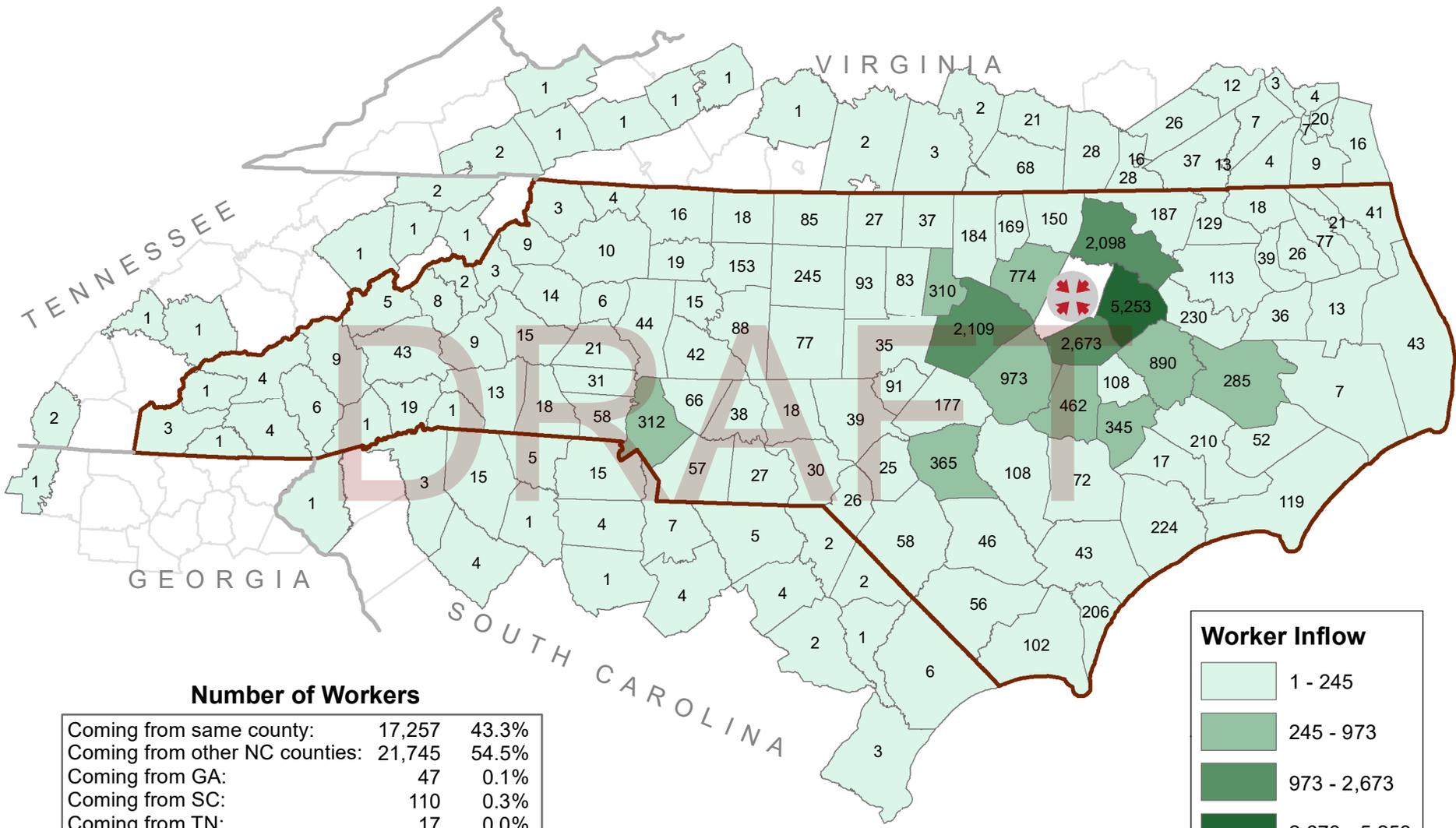
**Number of Workers**

Work in same county:	3,106	34.2%
Work in other NC counties:	5,732	63.1%
Work in GA:	12	0.1%
Work in SC:	5	0.1%
Work in TN:	0	0.0%
Work in VA:	164	1.8%
Work in all other States	65	0.7%
<b>Total:</b>	<b>9,084</b>	<b>100%</b>

Data Source: US Census Bureau, Center for Economic Studies, LODES, 2015.  
 Map Created in October, 2017

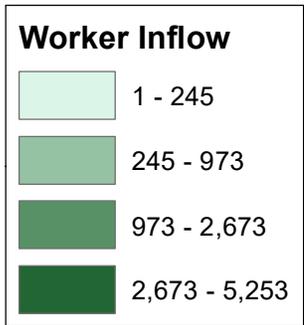


# Workers Commuting into Nash County, North Carolina

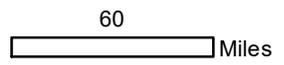


## Number of Workers

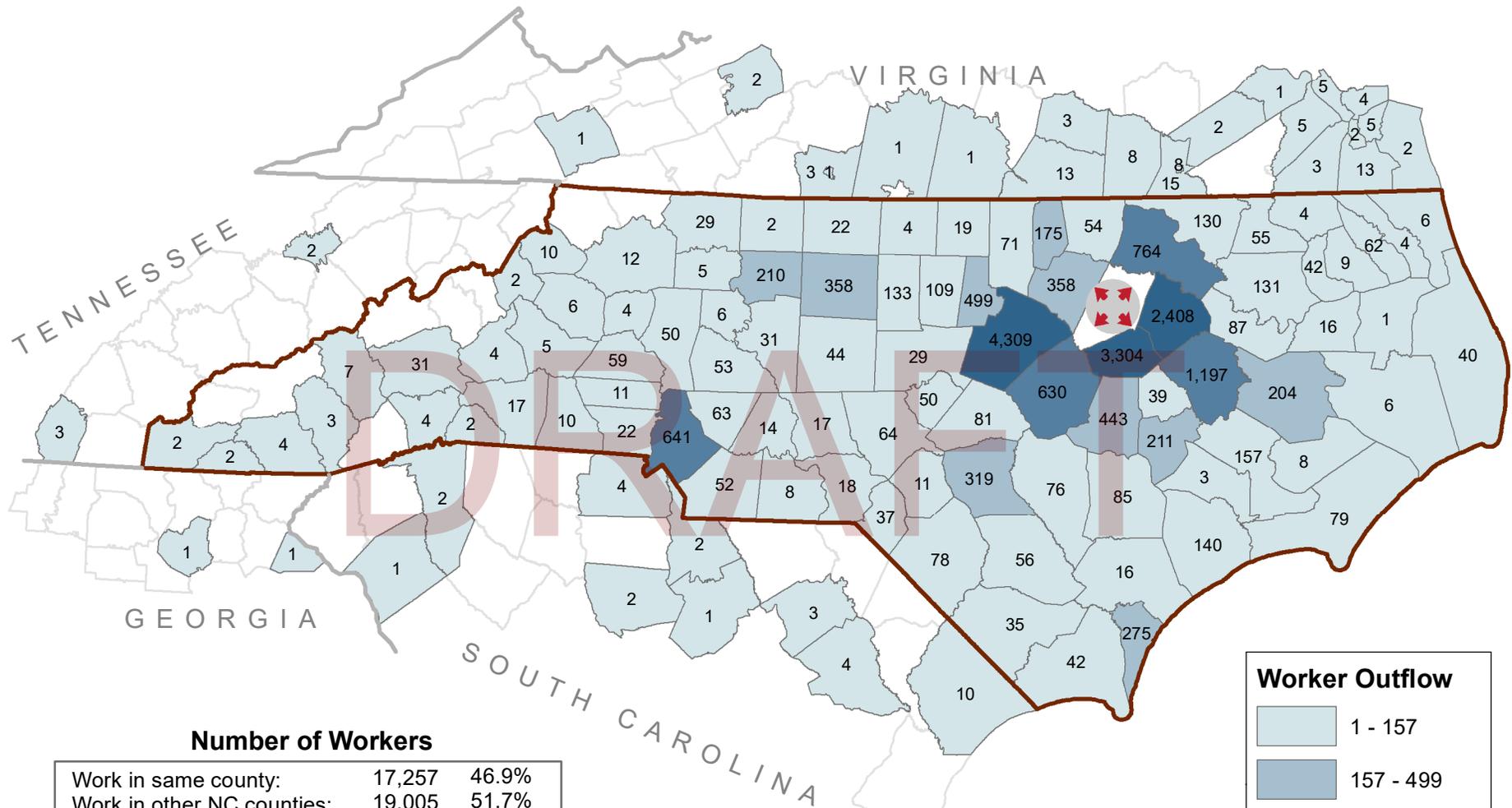
Coming from same county:	17,257	43.3%
Coming from other NC counties:	21,745	54.5%
Coming from GA:	47	0.1%
Coming from SC:	110	0.3%
Coming from TN:	17	0.0%
Coming from VA:	423	1.1%
Coming from all other States:	296	0.7%
<b>Total:</b>	<b>39,895</b>	<b>100%</b>



Data Source: US Census Bureau, Center for Economic Studies, LODES, 2016.  
Map Created in October, 2019



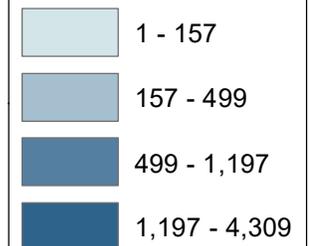
# Workers Commuting out of Nash County, North Carolina



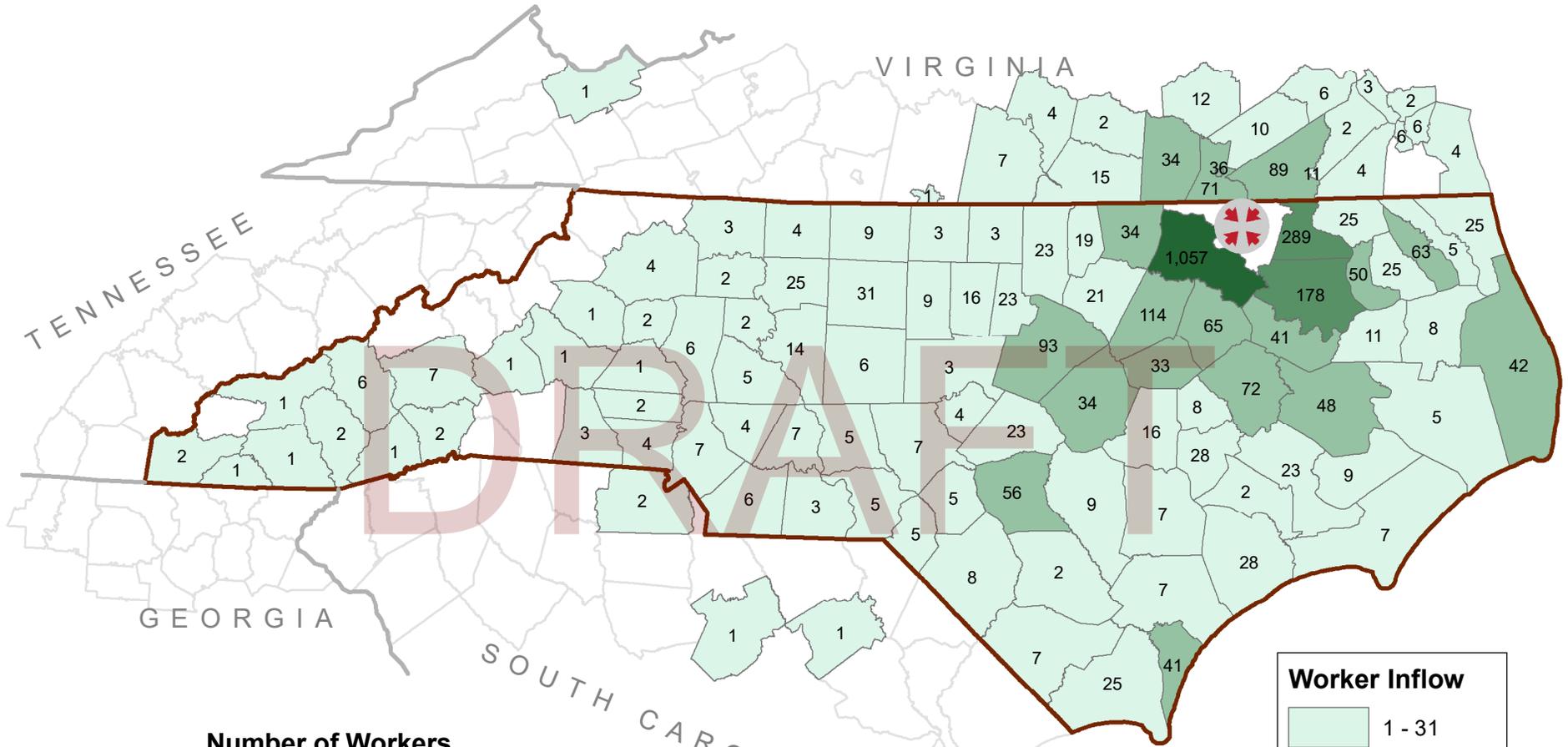
## Number of Workers

Work in same county:	17,257	46.9%
Work in other NC counties:	19,005	51.7%
Work in GA:	33	0.1%
Work in SC:	38	0.1%
Work in TN:	21	0.1%
Work in VA:	176	0.5%
Work in all other States	228	0.6%
<b>Total:</b>	<b>36,758</b>	<b>100%</b>

## Worker Outflow

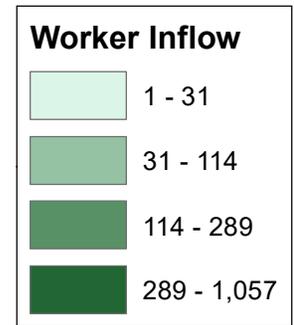


# Workers Commuting into Northampton County, North Carolina



## Number of Workers

Coming from same county:	1,353	28.3%
Coming from other NC counties:	2,950	61.8%
Coming from GA:	9	0.2%
Coming from SC:	7	0.1%
Coming from TN:	1	0.0%
Coming from VA:	400	8.4%
Coming from all other States:	57	1.2%
<b>Total:</b>	<b>4,777</b>	<b>100%</b>



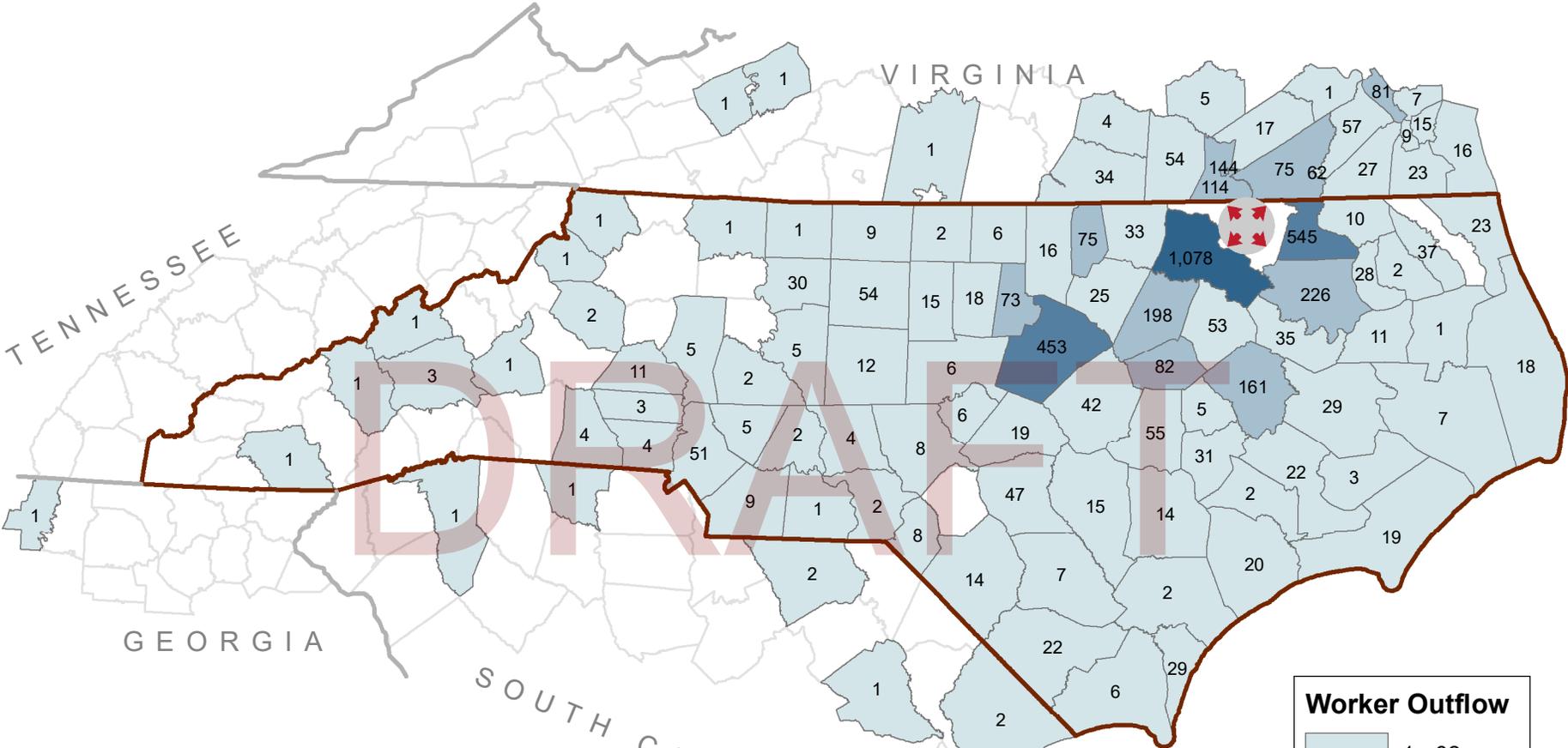
Data Source: US Census Bureau, Center for Economic Studies, LODES, 2015.  
Map Created in October, 2017

60 Miles



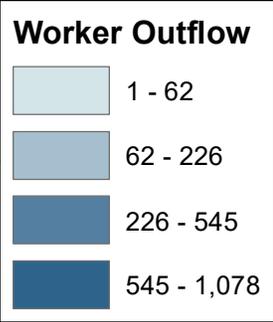
**NORTH CAROLINA**  
DEPARTMENT OF COMMERCE

# Workers Commuting out of Northampton County, North Carolina

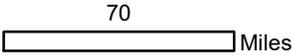


### Number of Workers

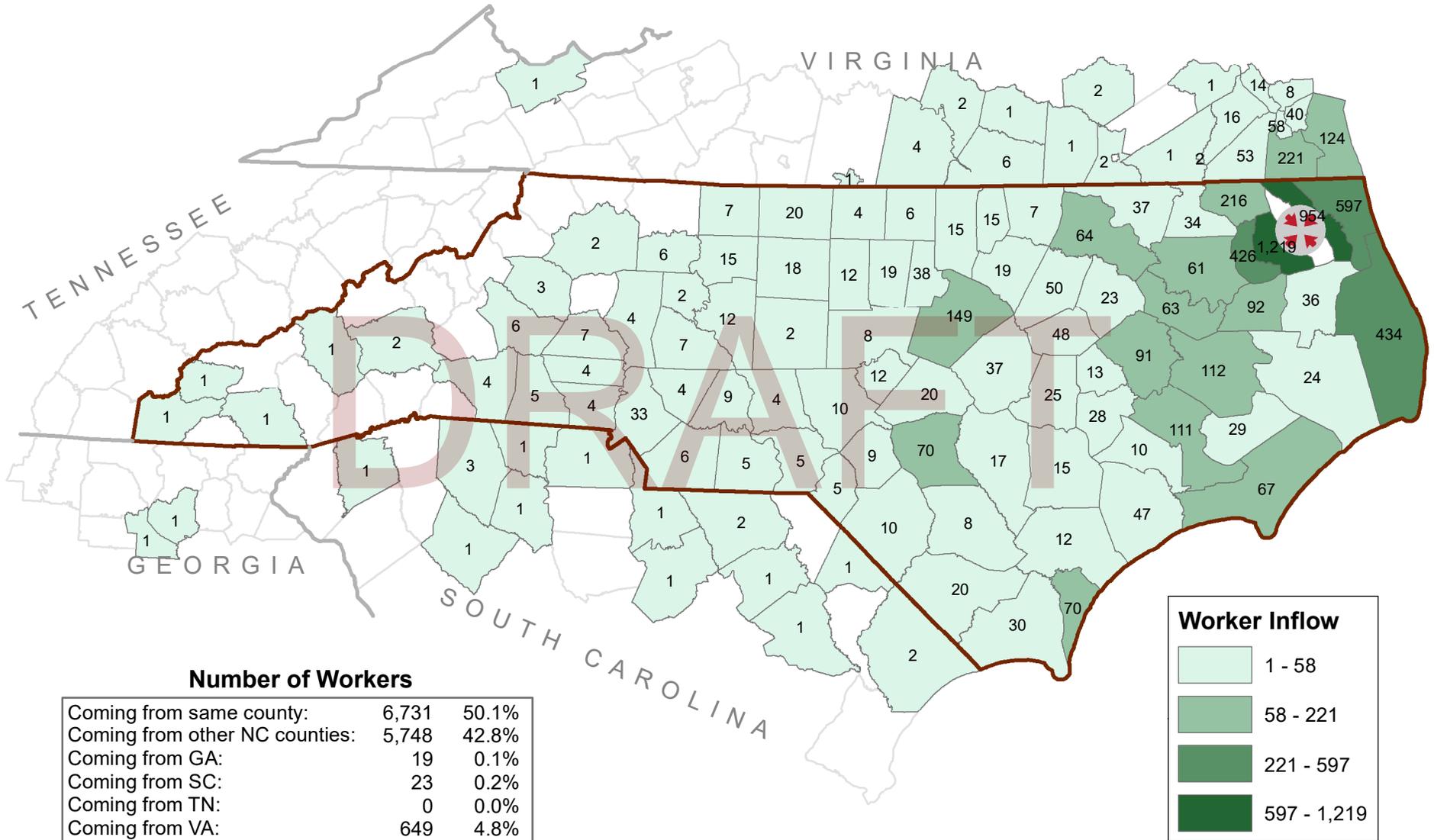
Work in same county:	1,353	21.9%
Work in other NC counties:	3,888	63.0%
Work in GA:	5	0.1%
Work in SC:	8	0.1%
Work in TN:	1	0.0%
Work in VA:	853	13.8%
Work in all other States	62	1.0%
<b>Total:</b>	<b>6,170</b>	<b>100%</b>



Data Source: US Census Bureau, Center for Economic Studies, LODES, 2015.  
 Map Created in October, 2017



# Workers Commuting into Pasquotank County, North Carolina

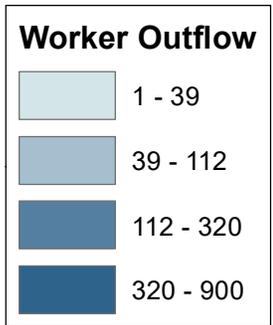
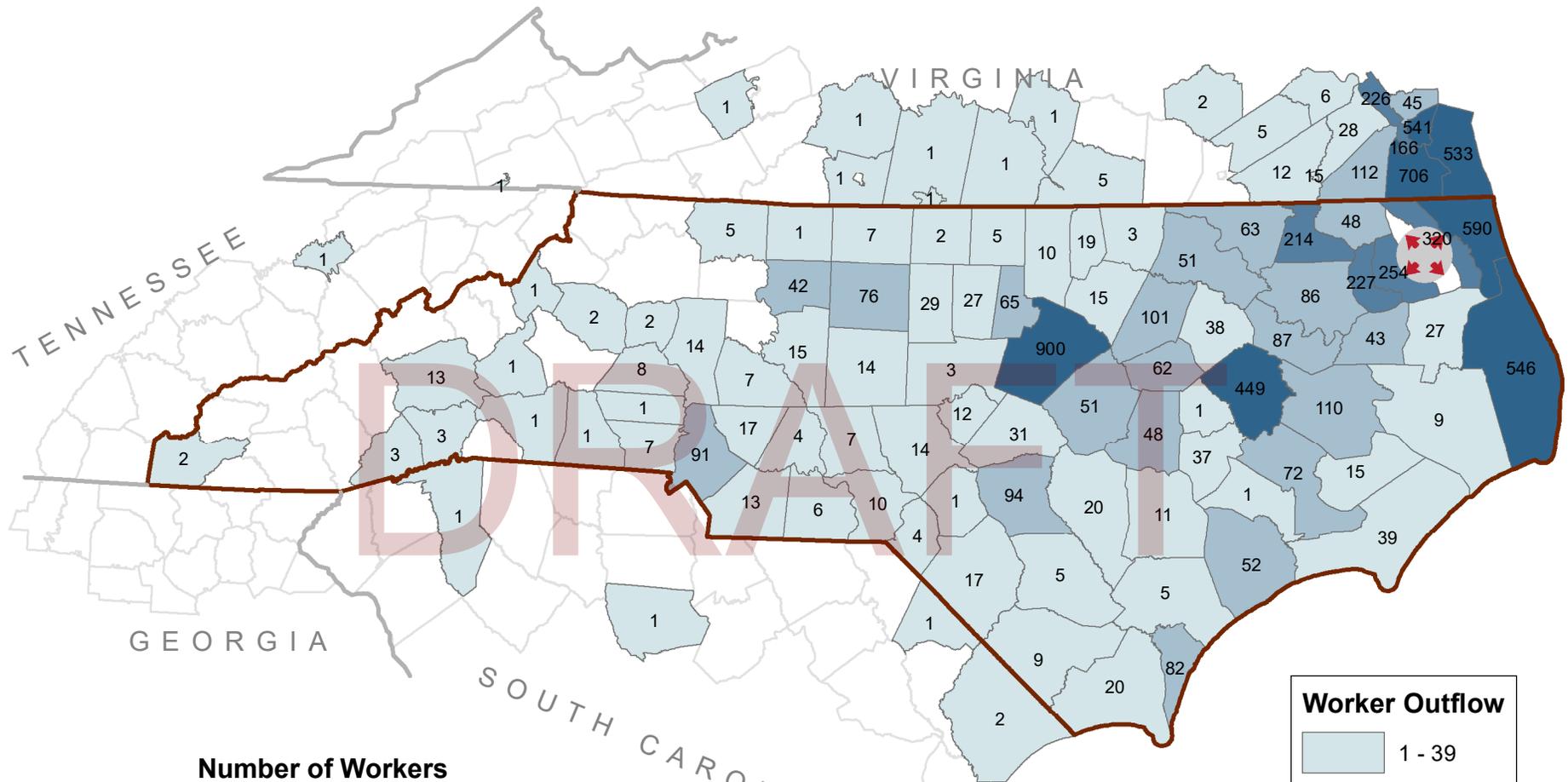


Data Source: US Census Bureau, Center for Economic Studies, LODES, 2015.  
 Map Created in October, 2017

60 Miles



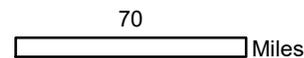
# Workers Commuting out of Pasquotank County, North Carolina



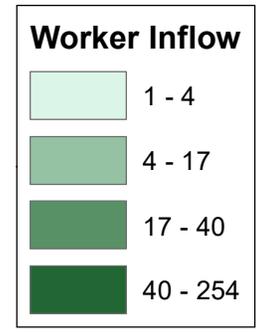
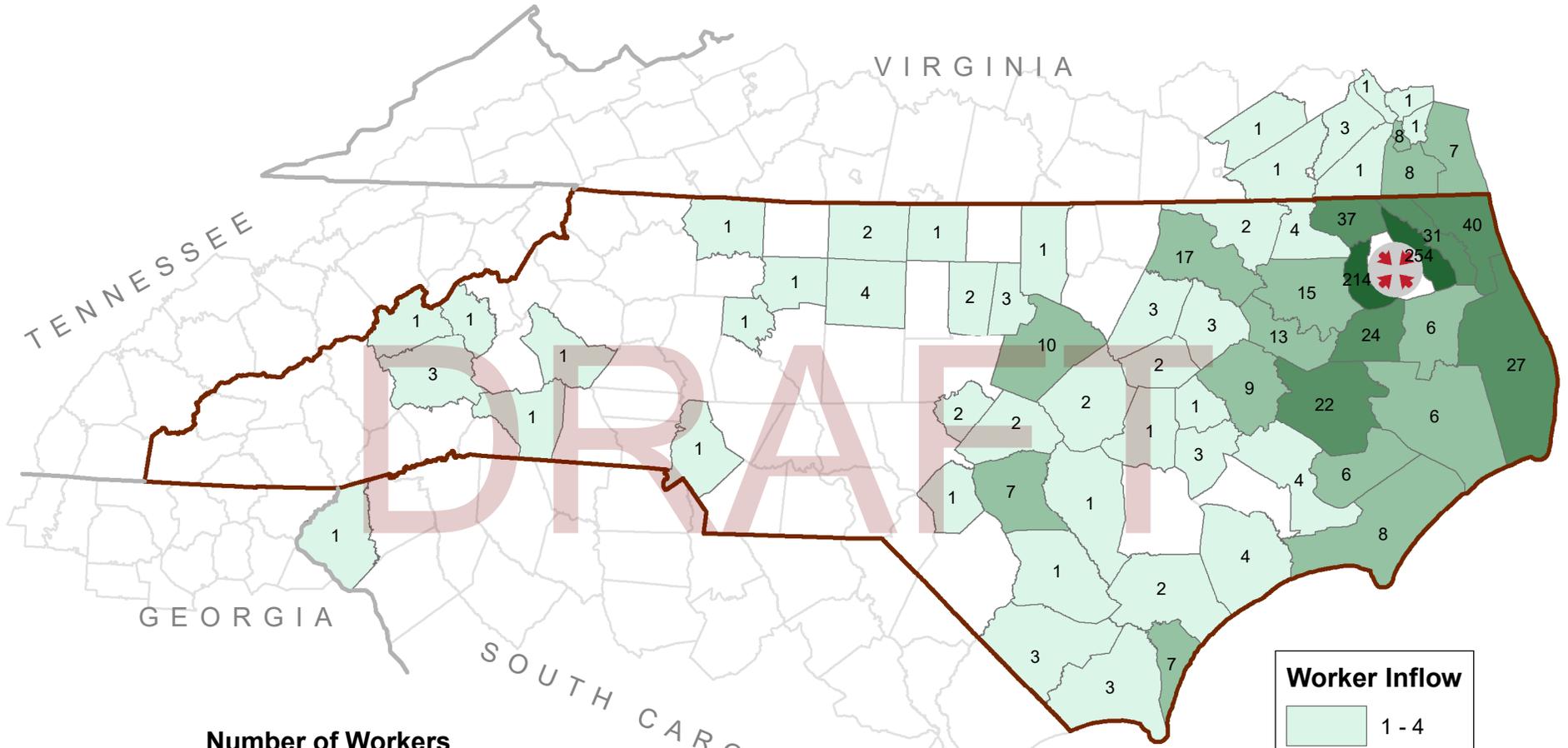
**Number of Workers**

Work in same county:	6,731	45.2%
Work in other NC counties:	5,418	36.4%
Work in GA:	16	0.1%
Work in SC:	6	0.0%
Work in TN:	1	0.0%
Work in VA:	2,615	17.6%
Work in all other States	97	0.7%
<b>Total:</b>	<b>14,884</b>	<b>100%</b>

Data Source: US Census Bureau, Center for Economic Studies, LODES, 2015.  
Map Created in October, 2017



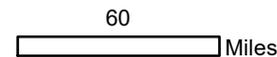
# Workers Commuting into Perquimans County, North Carolina



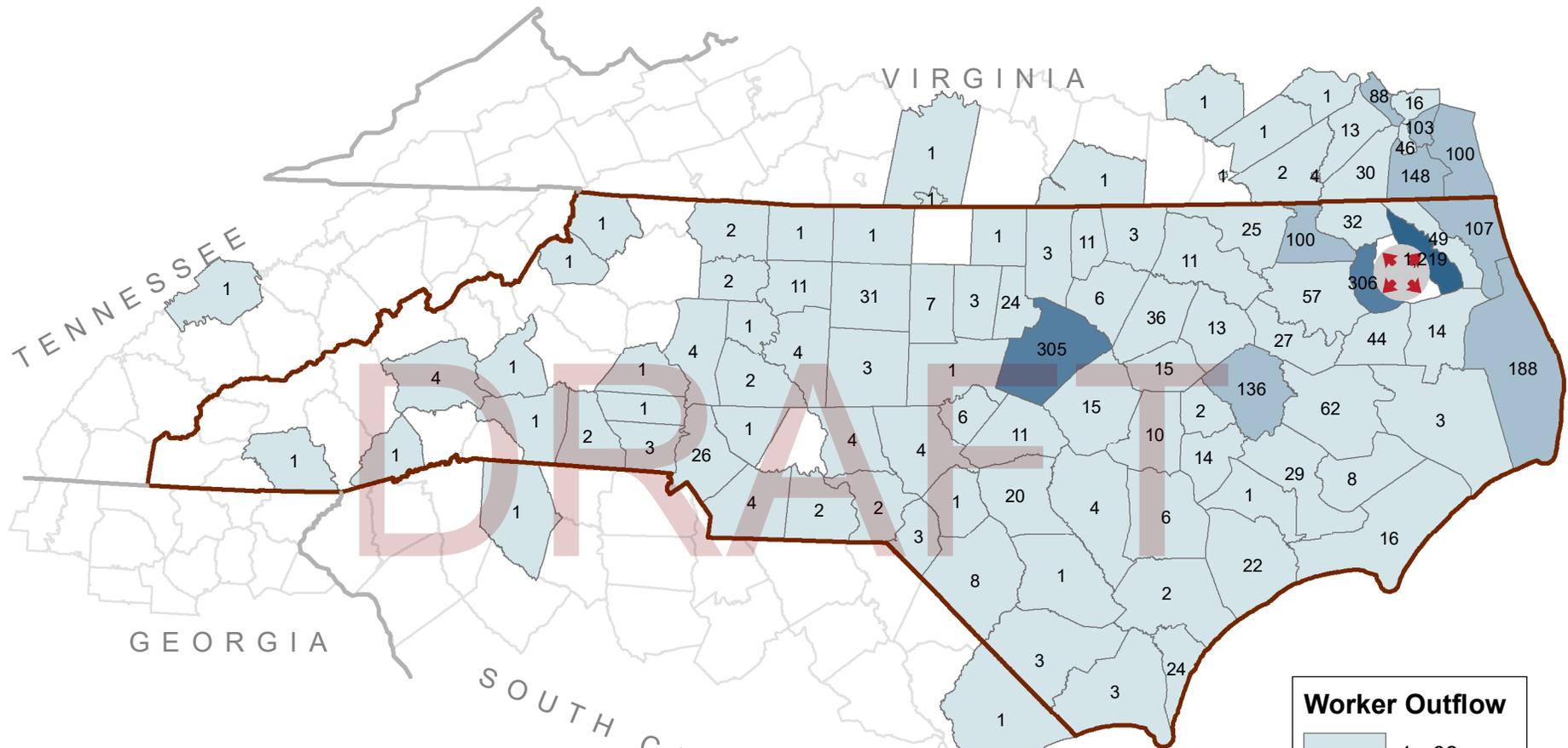
**Number of Workers**

Coming from same county:	846	48.7%
Coming from other NC counties:	821	47.3%
Coming from GA:	1	0.1%
Coming from SC:	3	0.2%
Coming from TN:	0	0.0%
Coming from VA:	38	2.2%
Coming from all other States:	27	1.6%
<b>Total:</b>	<b>1,736</b>	<b>100%</b>

Data Source: US Census Bureau, Center for Economic Studies, LODES, 2015.  
 Map Created in October, 2017

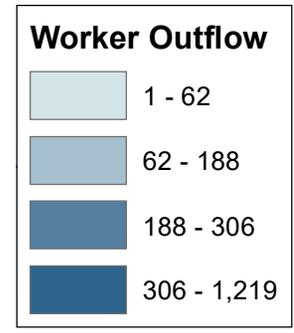


# Workers Commuting out of Perquimans County, North Carolina



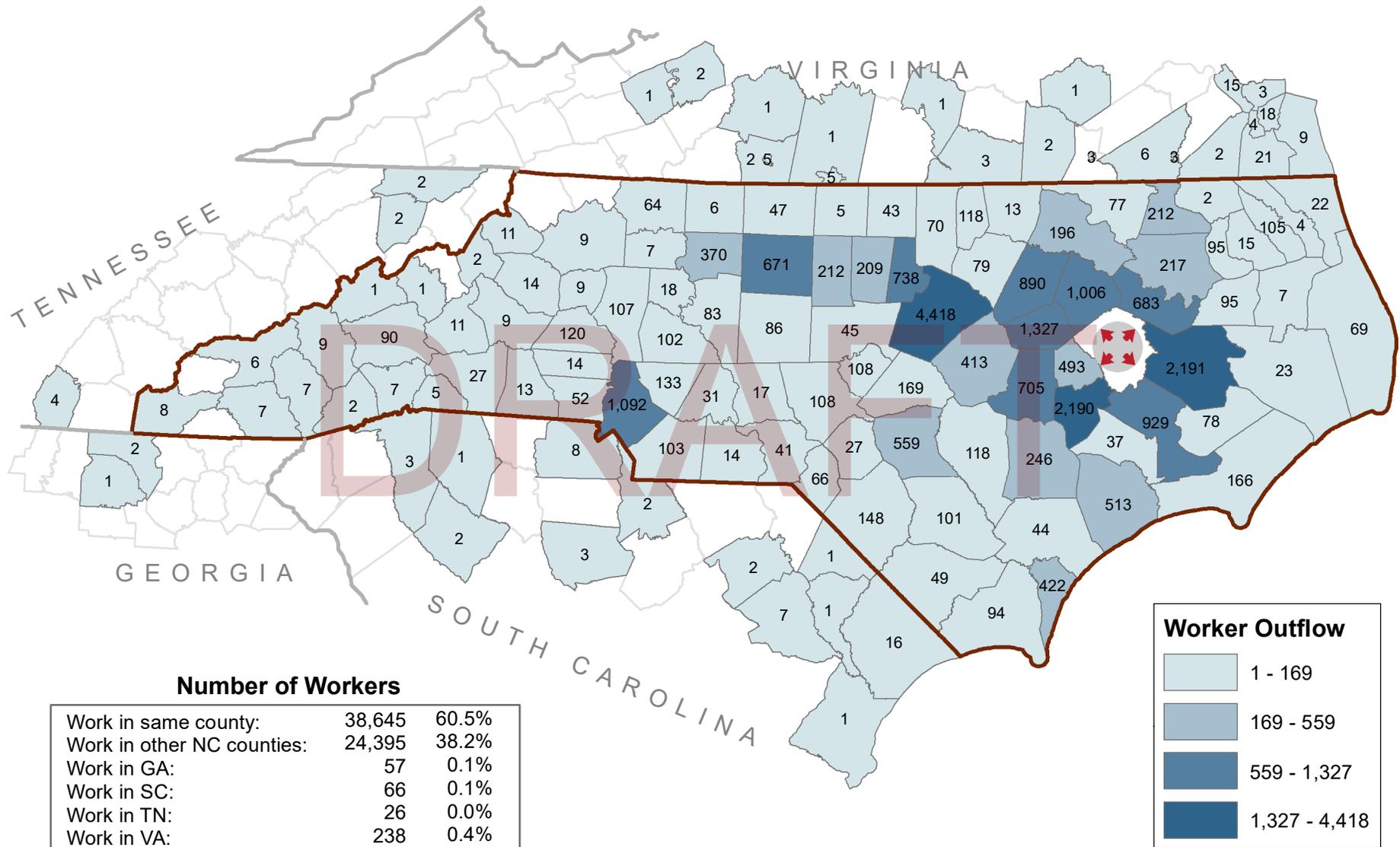
## Number of Workers

Work in same county:	846	18.2%
Work in other NC counties:	3,139	67.4%
Work in GA:	1	0.0%
Work in SC:	3	0.1%
Work in TN:	1	0.0%
Work in VA:	635	13.6%
Work in all other States	31	0.7%
<b>Total:</b>	<b>4,656</b>	<b>100%</b>





# Workers Commuting out of Pitt County, North Carolina



## Number of Workers

Work in same county:	38,645	60.5%
Work in other NC counties:	24,395	38.2%
Work in GA:	57	0.1%
Work in SC:	66	0.1%
Work in TN:	26	0.0%
Work in VA:	238	0.4%
Work in all other States	407	0.6%
<b>Total:</b>	<b>63,834</b>	<b>100%</b>

Data Source: US Census Bureau, Center for Economic Studies, LODES, 2016.  
Map Created in October, 2019

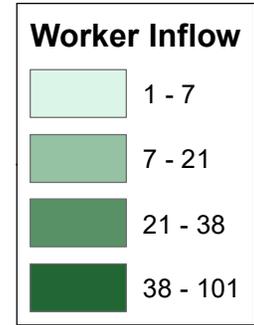
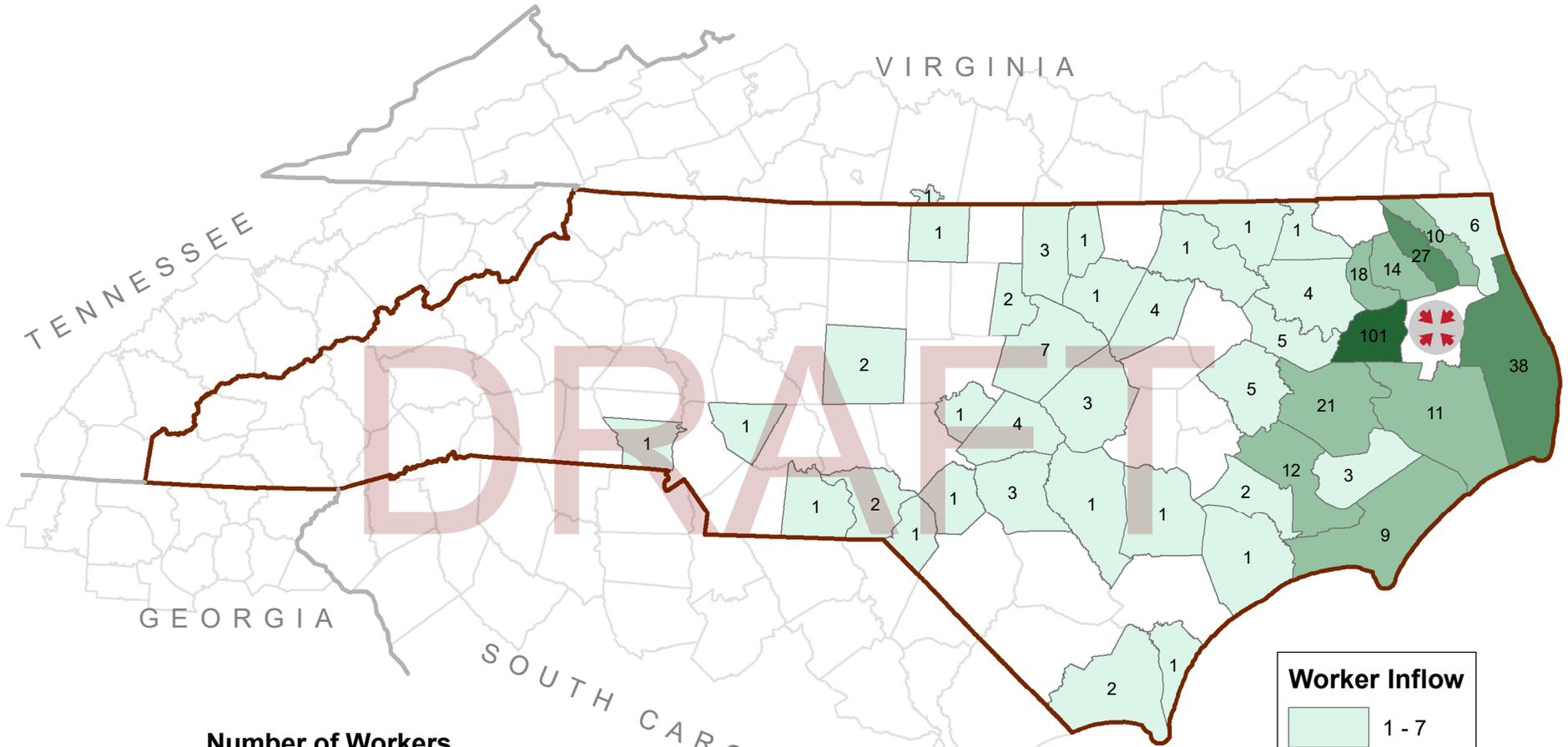
70 Miles



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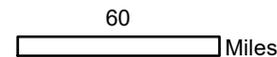
# Workers Commuting into Tyrrell County, North Carolina



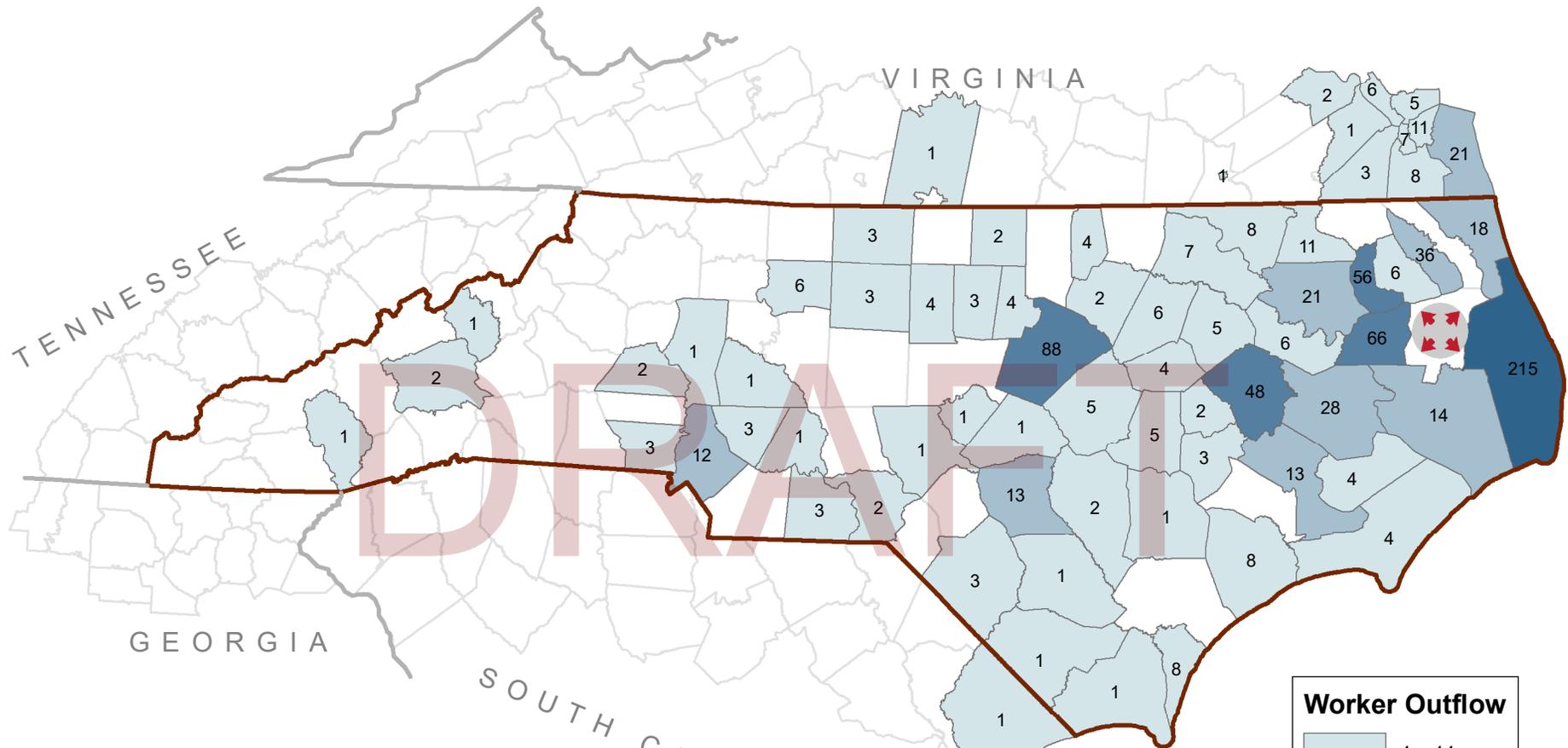
## Number of Workers

Coming from same county:	398	53.4%
Coming from other NC counties:	334	44.8%
Coming from GA:	0	0.0%
Coming from SC:	0	0.0%
Coming from TN:	0	0.0%
Coming from VA:	4	0.5%
Coming from all other States:	9	1.2%
<b>Total:</b>	<b>745</b>	<b>100%</b>

Data Source: US Census Bureau, Center for Economic Studies, LODES, 2015.  
Map Created in October, 2017

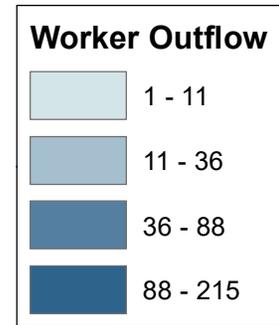


# Workers Commuting out of Tyrrell County, North Carolina

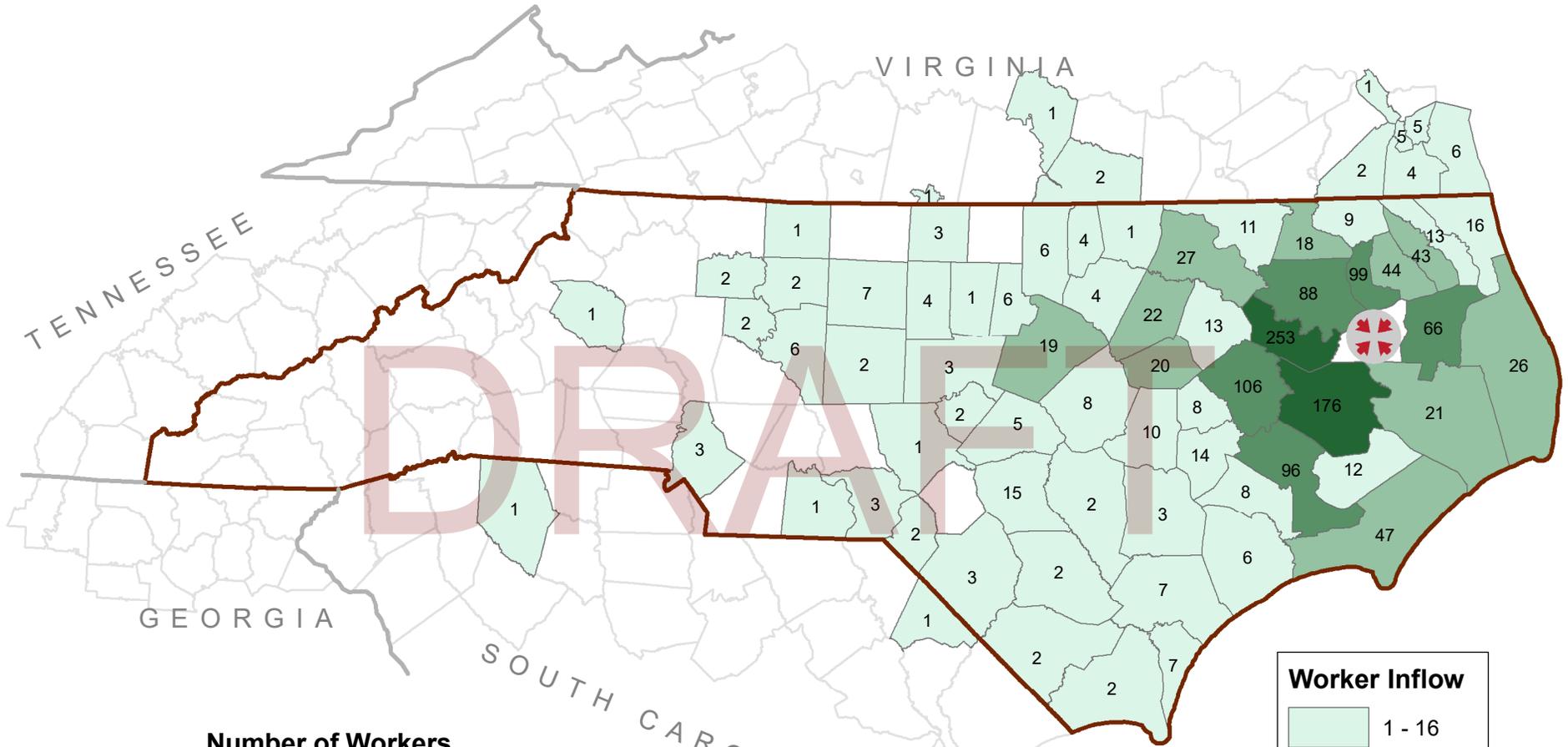


## Number of Workers

Work in same county:	398	31.0%
Work in other NC counties:	783	61.0%
Work in GA:	2	0.2%
Work in SC:	1	0.1%
Work in TN:	0	0.0%
Work in VA:	90	7.0%
Work in all other States	9	0.7%
<b>Total:</b>	<b>1,283</b>	<b>100%</b>

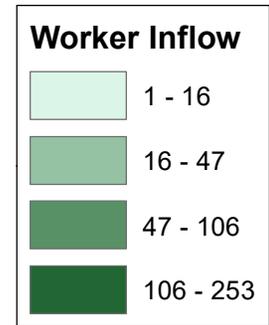


# Workers Commuting into Washington County, North Carolina



## Number of Workers

Coming from same county:	1,173	44.2%
Coming from other NC counties:	1,414	53.3%
Coming from GA:	2	0.1%
Coming from SC:	2	0.1%
Coming from TN:	0	0.0%
Coming from VA:	30	1.1%
Coming from all other States:	32	1.2%
<b>Total:</b>	<b>2,653</b>	<b>100%</b>



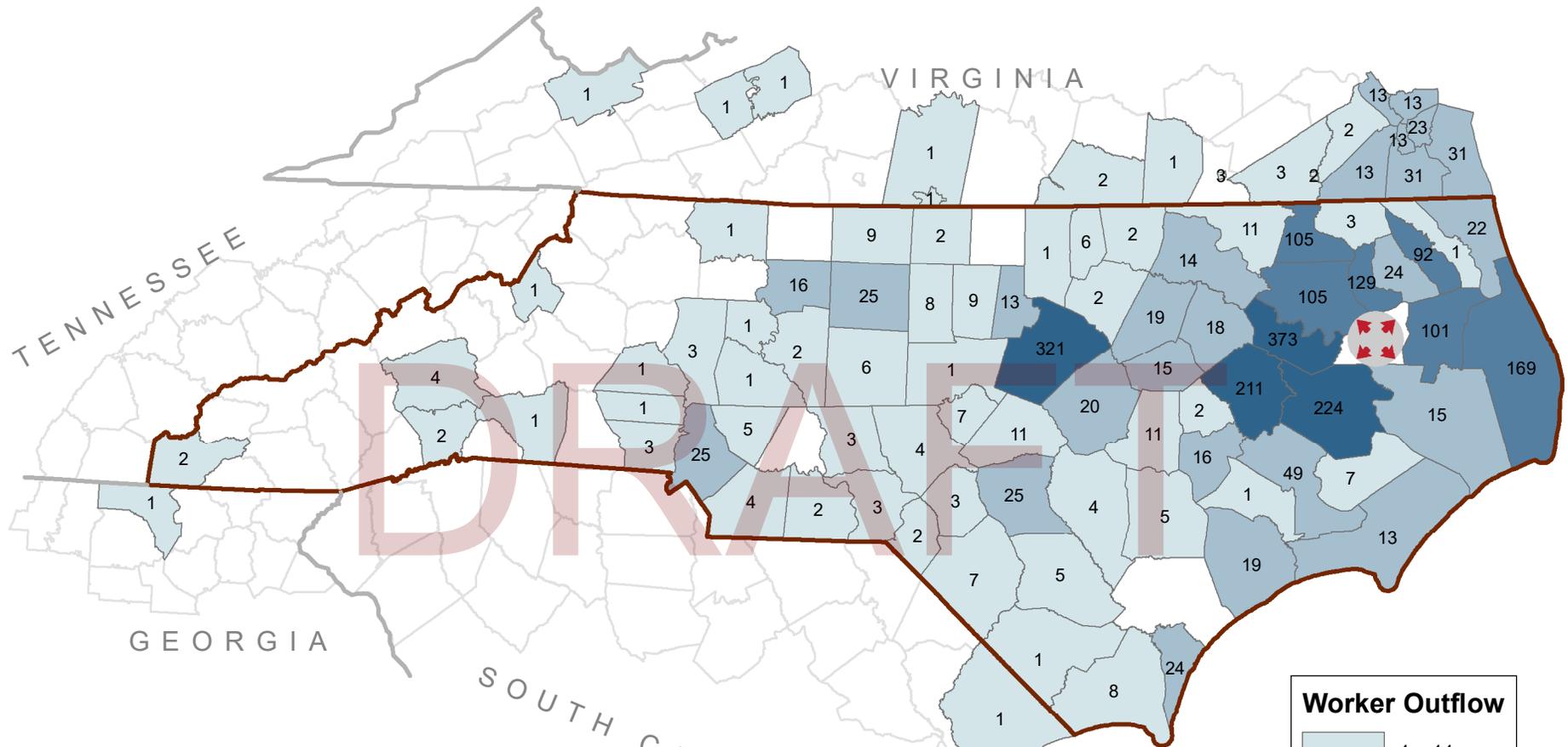
Data Source: US Census Bureau, Center for Economic Studies, LODES, 2015.  
Map Created in October, 2017

60 Miles



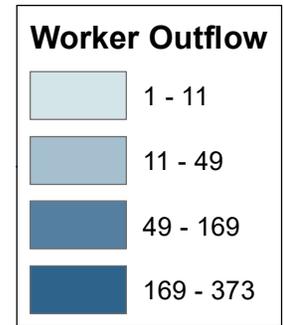
**NORTH CAROLINA**  
DEPARTMENT OF COMMERCE

# Workers Commuting out of Washington County, North Carolina

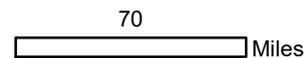


## Number of Workers

Work in same county:	1,173	30.7%
Work in other NC counties:	2,381	62.3%
Work in GA:	8	0.2%
Work in SC:	1	0.0%
Work in TN:	0	0.0%
Work in VA:	231	6.0%
Work in all other States	26	0.7%
<b>Total:</b>	<b>3,820</b>	<b>100%</b>



Data Source: US Census Bureau, Center for Economic Studies, LODES, 2015.  
Map Created in October, 2017



**Appendix D:**  
**Top Employers By County**

**Employer Profile**

**Beaufort County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Beaufort County Schools	Education & Health Services	1000+
2	Pcs Phosphate Company Inc	Manufacturing	500-999
3	Vidant Medical Center	Education & Health Services	250-499
4	Flanders Airpure Nc Division	Manufacturing	250-499
5	Wal-Mart Associates Inc	Trade, Transportation, & Utilities	250-499
6	Austin Maintenance And Construction	Professional & Business Services	250-499
7	County Of Beaufort	Public Administration	250-499
8	Beaufort County Community College	Education & Health Services	250-499
9	City Of Washington	Public Administration	250-499
10	Executive Personnel Group Llc	Professional & Business Services	100-249
11	Food Lion	Trade, Transportation, & Utilities	100-249
12	The Mega Force Staffing Group Inc	Professional & Business Services	100-249
13	Clarcor Engine Mobile Solutions Llc	Manufacturing	100-249
14	Flanders Solutions Llc	Manufacturing	100-249
15	Principle Long Term Care Inc	Education & Health Services	100-249
16	Hackney Kidron	Manufacturing	100-249
17	Lowe's Home Centers Inc	Trade, Transportation, & Utilities	100-249
18	New South Bank	Financial Activities	100-249
19	Idx Impressions Llc	Manufacturing	100-249
20	Camfil Farr Inc	Manufacturing	100-249
21	Ridgewood Rehabilitation And Living	Education & Health Services	100-249
22	Home Life Care Inc	Education & Health Services	100-249
23	Innosource Inc	Professional & Business Services	100-249
24	Sovereign Healthcare Llc	Education & Health Services	100-249
25	Piggly Wiggly	Trade, Transportation, & Utilities	50-99

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Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.  
Notes: County is determined by the address provided by the business.

**Employer Profile**

**Bertie County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Perdue Products Incorporated	Manufacturing	1000+
2	Bertie County Board Of Education	Education & Health Services	500-999
3	Nc Dept Of Public Safety	Public Administration	250-499
4	Qsi	Professional & Business Services	250-499
5	County Of Bertie	Public Administration	100-249
6	Vidant Medical Center	Education & Health Services	100-249
7	Solid Foundation	Education & Health Services	100-249
8	Avoca Inc	Manufacturing	100-249
9	Liberty Healthcare Group Llc	Education & Health Services	50-99
10	Home Life Care Inc	Education & Health Services	50-99
11	Valley Protein Inc	Manufacturing	50-99
12	Golden Peanut Company	Natural Resources & Mining	50-99
13	White Oak Medical Transport Service	Education & Health Services	50-99
14	Food Lion	Trade, Transportation, & Utilities	50-99
15	Heritage Collegiate Leadership Acad	Education & Health Services	50-99
16	Bertie Ambulance Service Inc	Education & Health Services	50-99
17	Brian Ctr Health & Retirement	Education & Health Services	50-99
18	Bojangles Famous Chicken & Biscuits	Leisure & Hospitality	Below 50
19	Town Of Windsor	Public Administration	Below 50
20	U S Department Of Agriculture	Public Administration	Below 50
21	Positive Step Inc	Education & Health Services	Below 50
22	Windsor House	Education & Health Services	Below 50
23	Livermans Metal Recycling Inc	Professional & Business Services	Below 50
24	Powell & Stokes Inc	Trade, Transportation, & Utilities	Below 50
25	Republic Services Inc	Professional & Business Services	Below 50

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Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.  
Notes: County is determined by the address provided by the business.

**Employer Profile**

**Camden County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Camden County Board Of Education	Education & Health Services	250-499
2	County Of Camden	Public Administration	100-249
3	Caci Technology Inc	Professional & Business Services	50-99
4	Swain & Temple Inc	Natural Resources & Mining	Below 50
5	Sxc Health Solutions Inc	Professional & Business Services	Below 50
6	C & L Concrete Works Inc	Construction	Below 50
7	Frog Island Seafood Inc	Manufacturing	Below 50
8	Burkes Outlet Stores Sc Inc	Trade, Transportation, & Utilities	Below 50
9	Lambs Of Camden Inc	Trade, Transportation, & Utilities	Below 50
10	Tidewater Agronomics Inc	Professional & Business Services	Below 50
11	Paychex North America Inc	Professional & Business Services	Below 50
12	Seair Transport Services Inc	Trade, Transportation, & Utilities	Below 50
13	Rickys Welding, Inc.	Other Services	Below 50
14	Briarwood Forest Products Inc	Natural Resources & Mining	Below 50
15	Eastern Carolina Construction Inc	Construction	Below 50
16	Whitco Pest Control Inc	Professional & Business Services	Below 50
17	Itza Boutza Pizza	Leisure & Hospitality	Below 50
18	Colony Tire Corporation	Trade, Transportation, & Utilities	Below 50
19	Elizcity Food Service Llp	Leisure & Hospitality	Below 50
20	Camden County Abc Board	Trade, Transportation, & Utilities	Below 50
21	Rack Room Shoes	Trade, Transportation, & Utilities	Below 50
22	Busy Living Cleaning	Professional & Business Services	Below 50
23	Healthcare Services Group Inc.	Professional & Business Services	Below 50
24	Needham Family Care Home Inc	Education & Health Services	Below 50
25	Dunavants Welding & Steel Inc	Manufacturing	Below 50

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Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.

Notes: County is determined by the address provided by the business.

**Employer Profile**

**Chowan County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Edenton-Chowan Schools	Education & Health Services	250-499
2	Vidant Medical Center	Education & Health Services	250-499
3	Mcherrin Agricultural & Chem Co	Trade, Transportation, & Utilities	250-499
4	Chowan County	Public Administration	100-249
5	Colony Tire Corporation	Trade, Transportation, & Utilities	100-249
6	Regulator Marine Inc	Manufacturing	100-249
7	United Parcel Service Inc.	Trade, Transportation, & Utilities	100-249
8	Seabrook Ingredients	Manufacturing	50-99
9	Principle Long Term Care Inc	Education & Health Services	50-99
10	Food Lion	Trade, Transportation, & Utilities	50-99
11	Home Life Care Inc	Education & Health Services	50-99
12	Town Of Edenton	Public Administration	50-99
13	Life Inc	Education & Health Services	50-99
14	Mitek Industries Inc	Manufacturing	50-99
15	Interim Health Care Morris Group	Professional & Business Services	50-99
16	Economic Improvement Council Inc	Other Services	50-99
17	Mcdonalds	Leisure & Hospitality	50-99
18	Nc Dept Of Transportation	Public Administration	50-99
19	Southern Ag Carriers Inc	Trade, Transportation, & Utilities	50-99
20	Murray L Nixon Fishery Inc	Manufacturing	Below 50
21	Pizza Of Clinton Inc	Leisure & Hospitality	Below 50
22	C A Perry & Son Transit Inc	Trade, Transportation, & Utilities	Below 50
23	Waff Contracting Inc	Construction	Below 50
24	Edenton Motors Inc	Trade, Transportation, & Utilities	Below 50
25	Jla International Inc	Professional & Business Services	Below 50

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Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.

Notes: County is determined by the address provided by the business.

**Employer Profile**

**Currituck County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Currituck County Bd Of Education	Education & Health Services	500-999
2	Currituck County Finance Office	Public Administration	250-499
3	Academi Training Center Llc	Education & Health Services	250-499
4	Sentara Internal Medicine Physician	Education & Health Services	100-249
5	Coastal Staffing	Professional & Business Services	100-249
6	Food Lion	Trade, Transportation, & Utilities	100-249
7	Twiddy & Co Of Duck Inc	Financial Activities	100-249
8	Southland Trade Corp	Trade, Transportation, & Utilities	50-99
9	Carter Lumber Of The South Inc #70	Trade, Transportation, & Utilities	50-99
10	Brindley Beach Vacations & Sales	Financial Activities	50-99
11	Ymca Of South Hampton Roads	Other Services	50-99
12	Hardee's	Leisure & Hospitality	50-99
13	Wyndham Vacation Rentals North Amer	Financial Activities	50-99
14	Sun Realty	Financial Activities	50-99
15	Employers Resource	Professional & Business Services	Below 50
16	Resort Realty	Financial Activities	Below 50
17	Sonic Drive In	Leisure & Hospitality	Below 50
18	Nc Dept Of Transportation	Public Administration	Below 50
19	Coinjock Marina & Restaurant	Leisure & Hospitality	Below 50
20	Dominos Pizza	Leisure & Hospitality	Below 50
21	The Currituck Club	Leisure & Hospitality	Below 50
22	Monarch	Education & Health Services	Below 50
23	Hall Automotive Llc	Trade, Transportation, & Utilities	Below 50
24	Trio	Trade, Transportation, & Utilities	Below 50
25	The Cotton Gin Inc	Trade, Transportation, & Utilities	Below 50

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Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.

Notes: County is determined by the address provided by the business.

**Employer Profile**

**Dare County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Dare County Schools	Education & Health Services	500-999
2	County Of Dare	Public Administration	500-999
3	Carolina Designs Realty Inc	Financial Activities	250-499
4	Vidant Medical Center	Education & Health Services	250-499
5	Nc Dept Of Transportation	Public Administration	250-499
6	Village Realty & Management Service	Financial Activities	250-499
7	Food Lion	Trade, Transportation, & Utilities	250-499
8	Wal-Mart Associates Inc	Trade, Transportation, & Utilities	100-249
9	Spm Resorts Inc	Financial Activities	100-249
10	Trion Solutions Ii Inc.	Professional & Business Services	100-249
11	Spencer Yachts Inc	Manufacturing	100-249
12	Wyndham Vacation Rentals North Amer	Financial Activities	100-249
13	Mcdonalds	Leisure & Hospitality	100-249
14	Harris Teeter	Trade, Transportation, & Utilities	100-249
15	Nc Dept Of Cultural Resources	Leisure & Hospitality	100-249
16	Town Of Kill Devil Hills	Public Administration	100-249
17	Home Depot Usa Inc	Trade, Transportation, & Utilities	100-249
18	National Park Service	Leisure & Hospitality	100-249
19	Town Of Nags Head	Public Administration	100-249
20	Lowe's Home Centers Inc	Trade, Transportation, & Utilities	100-249
21	Sun Realty	Financial Activities	50-99
22	K Mart Corporation Intl Hdq	Trade, Transportation, & Utilities	50-99
23	Sanderling Resort & Spa	Leisure & Hospitality	50-99
24	Hubbell Industrial Controls Inc	Trade, Transportation, & Utilities	50-99
25	Ymca Of South Hampton Roads	Other Services	50-99

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Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.  
Notes: County is determined by the address provided by the business.

**Employer Profile**

**Edgecombe County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Qvc Rocky Mount Inc	Trade, Transportation, & Utilities	1000+
2	City Of Rocky Mount	Public Administration	1000+
3	Edgecombe Tarboro Bd Of Education	Education & Health Services	1000+
4	The Hillshire Brands Company	Manufacturing	500-999
5	Edgecombe County	Public Administration	500-999
6	Vidant Medical Center	Education & Health Services	500-999
7	Mebtel Inc	Information	250-499
8	Edgecombe Community College	Education & Health Services	250-499
9	Carolina System Technology Inc	Manufacturing	250-499
10	Meadowbrook Meat Co Inc	Trade, Transportation, & Utilities	250-499
11	Air System Components Inc	Manufacturing	250-499
12	Nash-Rocky Mount Schools	Education & Health Services	250-499
13	Abb Inc	Manufacturing	250-499
14	Food Lion	Trade, Transportation, & Utilities	100-249
15	Wal-Mart Associates Inc	Trade, Transportation, & Utilities	100-249
16	The Fountains At The Albemarle	Education & Health Services	100-249
17	Town Of Tarboro	Public Administration	100-249
18	U S Postal Service	Trade, Transportation, & Utilities	100-249
19	North East Carolina Preparatory Sch	Education & Health Services	100-249
20	Beverly Health & Rehab Services Inc	Education & Health Services	100-249
21	Bojangles Famous Chicken & Biscuits	Leisure & Hospitality	100-249
22	Superior Essex Energy Llc	Manufacturing	100-249
23	Buffalo Wild Wings	Leisure & Hospitality	100-249
24	Cotton Belt Inc	Manufacturing	100-249
25	Tci Works	Education & Health Services	100-249

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Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.  
Notes: County is determined by the address provided by the business.

**Employer Profile**

**Gates County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Gates County Board Of Education	Education & Health Services	250-499
2	Gates County	Public Administration	50-99
3	Ashton Lewis Lumber Co Inc	Manufacturing	50-99
4	Gates Milling Inc	Manufacturing	Below 50
5	Shoreline Healthcare Management Llc	Information	Below 50
6	Gates House Llc	Education & Health Services	Below 50
7	Family Foods Of Gatesville Inc	Trade, Transportation, & Utilities	Below 50
8	Doris & Rogers Kitchen	Leisure & Hospitality	Below 50
9	Lgc Group Inc	Trade, Transportation, & Utilities	Below 50
10	G & R Steel Construction Llc	Construction	Below 50
11	Sarem Farms Inc	Natural Resources & Mining	Below 50
12	Gates County Rescue Squad	Education & Health Services	Below 50
13	Gates Cotton Gin Inc	Natural Resources & Mining	Below 50
14	Dollar General	Trade, Transportation, & Utilities	Below 50
15	Tarheel Bar B Que Inc	Leisure & Hospitality	Below 50
16	Nc Dept Of Transportation	Public Administration	Below 50
17	National Vision Inc	Trade, Transportation, & Utilities	Below 50
18	Gates County Animal Clinic Pa	Professional & Business Services	Below 50
19	Healthcare Services Group Inc.	Professional & Business Services	Below 50
20	Miller Funeral Home	Other Services	Below 50
21	Dixie Auto Parts	Trade, Transportation, & Utilities	Below 50
22	U S Postal Service	Trade, Transportation, & Utilities	Below 50
23	State Employees Credit Union Inc	Financial Activities	Below 50
24	Gennarelli Concrete Llc	Construction	Below 50
25	Lilley International Inc	Trade, Transportation, & Utilities	Below 50

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Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.

Notes: County is determined by the address provided by the business.

**Employer Profile**

**Halifax County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Halifax Regional Medical Center	Education & Health Services	500-999
2	County Of Halifax	Public Administration	500-999
3	Halifax County Schools	Education & Health Services	500-999
4	Resers Fine Foods Inc	Manufacturing	500-999
5	Roanoke Rapids City Schools	Education & Health Services	250-499
6	Kapstone Kraft Paper Corporation	Manufacturing	250-499
7	Nc Dept Of Public Safety	Public Administration	250-499
8	Wal-Mart Associates Inc	Trade, Transportation, & Utilities	250-499
9	Aaa Carolinas	Professional & Business Services	250-499
10	Food Lion	Trade, Transportation, & Utilities	250-499
11	Rural Health Group Inc	Education & Health Services	250-499
12	Halifax Community College Inc	Education & Health Services	100-249
13	Weldon City Schools	Education & Health Services	100-249
14	Safelite Fulfillment Inc	Other Services	100-249
15	Signature Payroll Services Llc	Professional & Business Services	100-249
16	City Of Roanoke Rapids	Public Administration	100-249
17	New Dixie Oil Corp	Trade, Transportation, & Utilities	100-249
18	Pcb Piezotronics Of North Carolina	Manufacturing	100-249
19	Home Life Care Inc	Education & Health Services	100-249
20	Kennametal Inc	Manufacturing	100-249
21	Patch Rubber Co Inc	Manufacturing	100-249
22	Hardee's	Leisure & Hospitality	100-249
23	Meristar Management Company Llc	Leisure & Hospitality	100-249
24	Lowe's Home Centers Inc	Trade, Transportation, & Utilities	100-249
25	Interim Health Care Morris Group	Professional & Business Services	100-249

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Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.  
Notes: County is determined by the address provided by the business.

**Employer Profile**

**Hertford County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Hertford County Board Of Education	Education & Health Services	500-999
2	Vidant Medical Center	Education & Health Services	500-999
3	Nucor Corporation	Manufacturing	250-499
4	Jemigan Oil Co Inc	Trade, Transportation, & Utilities	250-499
5	Geo Corrections & Detention Inc	Professional & Business Services	250-499
6	Chowan College	Education & Health Services	250-499
7	Hertford County	Public Administration	250-499
8	Wal-Mart Associates Inc	Trade, Transportation, & Utilities	100-249
9	Carolinas Home Care Inc	Education & Health Services	100-249
10	Roanoke-Chowan Community College	Education & Health Services	100-249
11	Signature Payroll Services Llc	Professional & Business Services	100-249
12	Kerr Glass Manufacturing Inc	Manufacturing	100-249
13	Enviva Management Company Llc	Trade, Transportation, & Utilities	100-249
14	Roanoke Chowan Community Health Cen	Education & Health Services	100-249
15	Mcdonalds	Leisure & Hospitality	100-249
16	Nc Dept Of Transportation	Public Administration	100-249
17	Perdue Products Incorporated	Manufacturing	100-249
18	Town Of Ahoskie	Public Administration	100-249
19	Home Life Care Inc	Education & Health Services	100-249
20	Food Lion	Trade, Transportation, & Utilities	100-249
21	Alfiniti	Manufacturing	50-99
22	Rose Brothers Paving Company Inc	Construction	50-99
23	Commercial Ready Mix Products Inc	Manufacturing	50-99
24	Metal Technologies Of Murfreesboro	Manufacturing	50-99
25	Ace Hardware Of Ahoskie Inc	Trade, Transportation, & Utilities	50-99

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Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.

Notes: County is determined by the address provided by the business.

**Employer Profile**

**Hyde County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Nc Dept Of Public Safety	Public Administration	100-249
2	Hyde County Board Of Education	Education & Health Services	100-249
3	Rose Acre Farms	Natural Resources & Mining	100-249
4	County Of Hyde	Public Administration	100-249
5	Itw	Manufacturing	100-249
6	Ocracoke Island Realty	Financial Activities	50-99
7	Mattamuskeet Seafood	Manufacturing	50-99
8	Nc Dept Of Transportation	Public Administration	50-99
9	Liberty Healthcare Group Llc	Education & Health Services	50-99
10	Sawyers Land Developing Co Inc	Construction	Below 50
11	Precision Pallet Llc	Manufacturing	Below 50
12	Martin Lumber Company	Manufacturing	Below 50
13	Williams Seafood Inc	Trade, Transportation, & Utilities	Below 50
14	Martelle's	Leisure & Hospitality	Below 50
15	East Coast Equipment	Trade, Transportation, & Utilities	Below 50
16	National Park Service	Leisure & Hospitality	Below 50
17	Alligator River Growers	Natural Resources & Mining	Below 50
18	Williams Markets Inc	Trade, Transportation, & Utilities	Below 50
19	Ocracoke Variety Store	Trade, Transportation, & Utilities	Below 50
20	Kindred Rehab Services	Education & Health Services	Below 50
21	Yadkin Bank	Financial Activities	Below 50
22	Nc Dept Of Agriculture & Consumer S	Public Administration	Below 50
23	Pantego Overhead Doors Llc	Construction	Below 50
24	Mayo's Commercial Fishing Supply	Manufacturing	Below 50
25	Engelhard Seafood Inc	Trade, Transportation, & Utilities	Below 50

DRAFT

Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.  
Notes: County is determined by the address provided by the business.

**Employer Profile**

**Martin County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Martin County Board Of Education	Education & Health Services	500-999
2	Ann's House Of Nuts Inc	Manufacturing	250-499
3	Wal-Mart Associates Inc	Trade, Transportation, & Utilities	250-499
4	Martin General Hospital	Education & Health Services	100-249
5	County Of Martin	Public Administration	100-249
6	Martin Community College	Education & Health Services	100-249
7	Industrial Manufacturing Co Llc	Manufacturing	100-249
8	Parkdale America Llc	Manufacturing	100-249
9	Piggly Wiggly	Trade, Transportation, & Utilities	100-249
10	Town Of Williamston	Public Administration	100-249
11	Food Lion	Trade, Transportation, & Utilities	100-249
12	Home Life Care Inc	Education & Health Services	100-249
13	Merastar Insurance Company	Financial Activities	50-99
14	Nc Dept Of Transportation	Public Administration	50-99
15	Principle Long Term Care Inc	Education & Health Services	50-99
16	Martin County Residential Svcs Inc	Education & Health Services	50-99
17	Bojangles Famous Chicken & Biscuits	Leisure & Hospitality	50-99
18	Nc Dept Of Health & Human Services	Public Administration	50-99
19	Nc Dept Of Agriculture & Consumer S	Public Administration	50-99
20	Syfan Manufacturing Inc	Manufacturing	50-99
21	Quality Home Staffing Inc	Education & Health Services	50-99
22	Elite Care Inc	Education & Health Services	50-99
23	Victorian Senior Care Communities	Professional & Business Services	50-99
24	Williams Fire Sprinkler Co Inc	Construction	50-99
25	Mcdonald's	Leisure & Hospitality	50-99

DRAFT

Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.  
Notes: County is determined by the address provided by the business.

**Employer Profile**

**Nash County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Hospira Inc	Manufacturing	1000+
2	Nash-Rocky Mount Schools	Education & Health Services	1000+
3	Nash General Hospital	Education & Health Services	1000+
4	Consolidated Diesel Co	Manufacturing	1000+
5	Universal Leaf North America	Manufacturing	1000+
6	Intercall Inc	Professional & Business Services	500-999
7	Wal-Mart Associates Inc	Trade, Transportation, & Utilities	500-999
8	County Of Nash	Public Administration	500-999
9	Pnc Bank Na	Financial Activities	500-999
10	Mclane Mid-Atlantic Inc	Trade, Transportation, & Utilities	500-999
11	Express Temporary Services Inc.	Professional & Business Services	250-499
12	Nash Community College	Education & Health Services	250-499
13	Hardee's	Leisure & Hospitality	250-499
14	Autumn Corporation	Education & Health Services	250-499
15	Kaba Ilco Corporation	Manufacturing	250-499
16	Boice Willis Clinic P A	Education & Health Services	250-499
17	Nc Dept Of Public Safety	Public Administration	250-499
18	The Cheesecake Factory Bakery Inc	Leisure & Hospitality	250-499
19	Food Lion	Trade, Transportation, & Utilities	250-499
20	Mcdonalds	Leisure & Hospitality	250-499
21	Edwards Inc	Construction	250-499
22	Honeywell International Inc	Manufacturing	250-499
23	North Carolina Wesleyan College Inc	Education & Health Services	250-499
24	Barnhill Contracting Co	Construction	100-249
25	Manpower Temporary Services	Professional & Business Services	100-249

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Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.

Notes: County is determined by the address provided by the business.

**Employer Profile**

**Northampton County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Lowe's Home Centers Inc	Trade, Transportation, & Utilities	500-999
2	Mcherrin Agricultural & Chem Co	Trade, Transportation, & Utilities	250-499
3	Northampton County Schools	Education & Health Services	250-499
4	County Of Northampton	Public Administration	250-499
5	Gaston College Preparatory	Education & Health Services	100-249
6	Nc Dept Of Public Safety	Public Administration	100-249
7	Smithfield Foods Inc	Manufacturing	100-249
8	Sylvia Allen	Manufacturing	100-249
9	Enviva Management Company Llc	Trade, Transportation, & Utilities	100-249
10	Mcelroy Truck Lines Inc	Trade, Transportation, & Utilities	50-99
11	Fx Gear	Manufacturing	50-99
12	Kind Hearts Home Health Care Inc	Education & Health Services	50-99
13	Georgia-Pacific Llc	Manufacturing	50-99
14	Rich Square Health Care Center	Education & Health Services	50-99
15	Resinal Corp	Manufacturing	50-99
16	K & K Home Health Care	Education & Health Services	50-99
17	Choanoke Area Development Assoc	Other Services	50-99
18	Us Utility Electrical Services Corp	Construction	50-99
19	Rv Assited Living Llc	Education & Health Services	50-99
20	Principle Long Term Care Inc	Education & Health Services	50-99
21	Theratique Llc	Education & Health Services	50-99
22	Hampton Manor	Education & Health Services	50-99
23	Glover Construction Company Inc	Construction	50-99
24	Clements Mechanical Inc	Construction	50-99
25	Northeastern Home Care	Education & Health Services	Below 50

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Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.  
Notes: County is determined by the address provided by the business.

**Employer Profile**

**Pasquotank County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Pasquotank County Board Of Ed	Education & Health Services	1000+
2	Sentara Albemarle Medical Center	Education & Health Services	500-999
3	U S Department Of Homeland Security	Public Administration	500-999
4	Elizabeth City State University	Education & Health Services	250-499
5	Wal-Mart Associates Inc	Trade, Transportation, & Utilities	250-499
6	County Of Pasquotank	Public Administration	250-499
7	Nc Dept Of Public Safety	Public Administration	250-499
8	College Of The Albemarle	Education & Health Services	250-499
9	Ollie's Bargain Outlet	Trade, Transportation, & Utilities	250-499
10	District Health Dept Of Albemarle	Education & Health Services	250-499
11	City Of Elizabeth City	Public Administration	250-499
12	Whitestone East Inc	Professional & Business Services	100-249
13	D R S Technical Services	Trade, Transportation, & Utilities	100-249
14	Food Lion	Trade, Transportation, & Utilities	100-249
15	Carolina Adventist Retirement	Education & Health Services	100-249
16	Moneysworth Linen Services Inc	Other Services	100-249
17	Urs Federal Services Inc	Trade, Transportation, & Utilities	100-249
18	Mcdonalds	Leisure & Hospitality	100-249
19	Lowe's Home Centers Inc	Trade, Transportation, & Utilities	100-249
20	Bank Of Hampton Roads	Financial Activities	100-249
21	Farm Frest	Trade, Transportation, & Utilities	100-249
22	Ymca Of South Hampton Roads	Other Services	100-249
23	Y-Tech Services Inc	Trade, Transportation, & Utilities	50-99
24	Kindred Nursing Centers East Llc	Education & Health Services	50-99
25	J W Jones Lumber Co Inc	Manufacturing	50-99

DRAFT

Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.  
Notes: County is determined by the address provided by the business.

**Employer Profile**

**Perquimans County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Perquimans County Schools	Education & Health Services	250-499
2	Perquimans County	Public Administration	100-249
3	Guest Services Inc	Leisure & Hospitality	100-249
4	Food Lion	Trade, Transportation, & Utilities	50-99
5	Albermarle Plantation	Leisure & Hospitality	50-99
6	Nc Dept Of Transportation	Public Administration	50-99
7	Ssc Hertford Operating Company Llc	Education & Health Services	Below 50
8	Hardee's	Leisure & Hospitality	Below 50
9	Albermarle Electric Membership Corp	Trade, Transportation, & Utilities	Below 50
10	Mcdonalds	Leisure & Hospitality	Below 50
11	Albermarle Commission	Public Administration	Below 50
12	Parkway Ag Supply Llc	Trade, Transportation, & Utilities	Below 50
13	U S Postal Service	Trade, Transportation, & Utilities	Below 50
14	Rps Inc	Trade, Transportation, & Utilities	Below 50
15	Captain Bobs	Leisure & Hospitality	Below 50
16	Town Of Hertford	Public Administration	Below 50
17	Tommy's Pizza	Leisure & Hospitality	Below 50
18	Inner Banks Inn Llc	Leisure & Hospitality	Below 50
19	R & S Logging Inc	Natural Resources & Mining	Below 50
20	Reed Oil Co	Trade, Transportation, & Utilities	Below 50
21	Northeast Academy For Aerospace And	Education & Health Services	Below 50
22	Coastal Carolina Family Practice Pa	Education & Health Services	Below 50
23	Woodards Pharmacy Inc	Trade, Transportation, & Utilities	Below 50
24	Whitehurst Sand Company (A Corp)	Construction	Below 50
25	252 Grill Inc	Leisure & Hospitality	Below 50

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Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.

Notes: County is determined by the address provided by the business.

**Employer Profile**

**Pitt County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Vidant Medical Center	Education & Health Services	1000+
2	East Carolina University	Education & Health Services	1000+
3	Pitt County Board Of Education	Education & Health Services	1000+
4	Wal-Mart Associates Inc	Trade, Transportation, & Utilities	1000+
5	Pitt Community College	Education & Health Services	1000+
6	Nacco Materials Handling Group Inc	Manufacturing	1000+
7	Pitt County	Public Administration	1000+
8	Patheon Manufacturing Services Llc	Manufacturing	500-999
9	Alliance One International Inc	Manufacturing	500-999
10	City Of Greenville	Public Administration	500-999
11	Food Lion	Trade, Transportation, & Utilities	500-999
12	Asmo Greenville Of North Carolina	Manufacturing	500-999
13	Wells Fargo Bank Na (A Corp)	Financial Activities	500-999
14	Physicians East Pa	Education & Health Services	500-999
15	Dixon Foods Group Inc	Leisure & Hospitality	500-999
16	Aramark Food And Support Services	Professional & Business Services	500-999
17	Greenville Utilities Commission	Trade, Transportation, & Utilities	250-499
18	Convergys Customer Mgmt Group	Professional & Business Services	250-499
19	Executive Personnel Group Llc	Professional & Business Services	250-499
20	Bojangles Famous Chicken & Biscuits	Leisure & Hospitality	250-499
21	Metrics Inc	Manufacturing	250-499
22	Attends Healthcare Products Inc.	Manufacturing	250-499
23	Vidant Medical Group Llc	Professional & Business Services	250-499
24	Overtons Inc	Trade, Transportation, & Utilities	250-499
25	Dsm Dyneema Llc	Manufacturing	250-499

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Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.

Notes: County is determined by the address provided by the business.

**Employer Profile**

**Tyrrell County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Nc Dept Of Public Safety	Public Administration	100-249
2	Tyrrell County Board Of Education	Education & Health Services	100-249
3	Whitecap Linen	Other Services	100-249
4	County Of Tyrrell	Public Administration	50-99
5	Food Lion	Trade, Transportation, & Utilities	50-99
6	Capt Charlies Seafood Inc	Manufacturing	50-99
7	Cherry Farms Seed Company Inc	Natural Resources & Mining	Below 50
8	Black Gold Farms Inc	Natural Resources & Mining	Below 50
9	Armstrong & Son Heating & Air Llc	Construction	Below 50
10	Eagle Mart 2	Trade, Transportation, & Utilities	Below 50
11	Nc Dept Of Transportation	Public Administration	Below 50
12	Partnership For The Sounds Inc	Professional & Business Services	Below 50
13	Summerell Holdings Llc	Leisure & Hospitality	Below 50
14	David Armstrong Services Llc	Construction	Below 50
15	National Park Service	Leisure & Hospitality	Below 50
16	Cherry & Bateman Farms Llc	Natural Resources & Mining	Below 50
17	Columbia Pharmacy Inc	Trade, Transportation, & Utilities	Below 50
18	Hwy 55 Burgers Shakes & Fries	Leisure & Hospitality	Below 50
19	Wilcohes Llc	Trade, Transportation, & Utilities	Below 50
20	Scuppernong Farm	Natural Resources & Mining	Below 50
21	Double Dee Farms Inc	Natural Resources & Mining	Below 50
22	Diamonite Rotary Tools Of Nc	Manufacturing	Below 50
23	Rose Welding & Crane Service Inc	Other Services	Below 50
24	Admin Office Of The Courts	Public Administration	Below 50
25	Tommy Phelps Farm	Natural Resources & Mining	Below 50

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Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.

Notes: County is determined by the address provided by the business.

**Employer Profile**

**Washington County**

**2015 4th Quarter**

**Top 25 Employers**

Rank	Company	Industry	Employment Range
1	Domtar Paper Company Llc	Manufacturing	250-499
2	Washington County Bd Of Education	Education & Health Services	250-499
3	County Of Washington	Public Administration	100-249
4	Weyerhaeuser Co (A Corp)	Manufacturing	100-249
5	Principle Long Term Care Inc	Education & Health Services	100-249
6	Washington County Hospital	Education & Health Services	100-249
7	Home Life Care Inc	Education & Health Services	50-99
8	District Health Dept Martin	Public Administration	50-99
9	Mackeys Ferry Sawmill Inc	Manufacturing	50-99
10	Wilcohes Llc	Trade, Transportation, & Utilities	50-99
11	Food Lion	Trade, Transportation, & Utilities	50-99
12	Mcdonalds	Leisure & Hospitality	50-99
13	Feyer Ford And Mercury Inc	Trade, Transportation, & Utilities	50-99
14	Salem Carriers Inc	Trade, Transportation, & Utilities	50-99
15	Bojangles Famous Chicken & Biscuits	Leisure & Hospitality	Below 50
16	Town Of Plymouth	Public Administration	Below 50
17	Interim Health Care Morris Group	Professional & Business Services	Below 50
18	Edsel G Barnes Inc	Natural Resources & Mining	Below 50
19	Walkers Golden Skillet	Leisure & Hospitality	Below 50
20	Cypress Manor	Education & Health Services	Below 50
21	Diversified Wood Products Inc	Manufacturing	Below 50
22	Lake Phelps Grain Inc	Trade, Transportation, & Utilities	Below 50
23	Nc Dept Of Transportation	Public Administration	Below 50
24	Roanoke Development Inc	Other Services	Below 50
25	Life Inc	Education & Health Services	Below 50

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Source: NC Commerce, Labor and Economic Analysis Division, Top 25 Employers by NC County.

Notes: County is determined by the address provided by the business.

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**Appendix E:  
Seven Portals Study - Eastern Excerpt**

length. There is an industrial park (Martin Business Park) in close proximity to the airport which also has a rail siding for CSX rail and easy access to US 64. This location provides excellent access to move items via US 64 to connect with I-95 which is approximately 40 miles to the west.

**Import/Export “Megapark” Village:** The Northeast Commission has discussed a number of “out-of-the-box” proposals as potential development opportunities to forge a stronger relationship with the Hampton Roads area and the Virginia Ports. Recent discussions have focused on two different sites along the Chesapeake & Albemarle (C&A) short line rail in the Northeast Region:

Pasquotank County – this site is being marketed under the name “Tanglewood”. The site contains a total of more than 5,000 acres but the discussion has centered on a 400 to 500 acre sub-parcel which is believed to have the best access to US 17 Bypass, the rail line and other infrastructure. This location is less than 50 miles from the Virginia Ports.

Perquimans/Chowan County Border – this site also lies along the C&A rail line and also is located in close proximity to US 17. This location would be more centrally located within the Northeast Region and is about 60 to 65 miles from the Virginia Ports.

Further negotiations with Virginia representatives and identification of additional infrastructure needs will be critical for the potential development of this location.

#### 4.2 **North Carolina’s Eastern Region**

The Eastern Region has identified aerospace, biotech/pharmaceuticals/life science, food processing/agri-industry, marine trades/boat building, military/defense, and tourism and entertainment as target areas. The aerospace industry in the Eastern Region is anchored by the recently opened Spirit AeroSystems airframe facilities in Kinston.<sup>80</sup> Biotech is seeded by several plants along the western edge of the region which are in the immediate orbit of the Triangle.<sup>81</sup> Food processing is supported by the region’s specialization in agriculture and the relatively easy access to markets via the I-95 corridor. Marine trades are supported by contact with the coast and historical specialization. Military support activities are linked to Camp Lejeune and other installations in or near the region. Tourism and recreation are anchored by popular seacoast resort areas and inland nature preserves. Interestingly, the region did not name logistics and distribution as a priority area.

Agricultural crops and meat production remain important to the Eastern portion of the state.<sup>82</sup> In Duplin County, for example, 90 percent of the tax base is directly related to agriculture. Tobacco, in particular, remains important but meat production, chickens, turkeys, and pork, are

<sup>80</sup> NC State University (2009) “Ready to Soar: Aviation and Aerospace in North Carolina.”

<sup>81</sup> UNC Planning professor emeritus Harvey Goldstein has identified such “mid-tech” economic production as a likely growth sector for the state and has suggested that they will likely concentrate in the outer reaches of the state’s two large metropolitan regions.

<sup>82</sup> Mike McLaughlin and Katherine Dunn (2006) “Agriculture: Still King of the Eastern North Carolina Economy?” *North Carolina Insight* 38-63, February.

also significant.<sup>83</sup> Meat production entails the import of feed from the Midwest, largely by rail. Much of the meat produced is shipped via I-95 to markets in the Boston-Washington region. A combination of access to that market, labor costs, and size of rural landholding has been cited as the key location factors for meat production. This agriculturally-linked economic activity is likely to continue operating in dispersed locations, capitalizing on soil quality and labor availability. Should the region need to export large quantities of meat to Asian markets via chartered freighters, the Global TransPark could support that trade and the strong likelihood of a return cargo might attract additional investment and employment to the TransPark. Also, in the future, a multi-modal rail link to the Northeast would be beneficial.

Hog production has been restricted for several years because of issues surrounding waste handling. It is unclear how soon those restrictions may be eased. While some parties suggest that the waste can be used in biofuel production, not all questions have been satisfactorily addressed. In the meantime, young hogs are sometimes transported to locations in nearby states for the final stages of their growth. Much of the hog production occurs in tightly vertically-integrated organizations of contract farming under the supervision of Smithfield Foods and Premium Standard Farms. There have been suggestions that pork has the potential to become a major export product (some is exported already). Personnel from trade associations suggest that ocean carriage would be the most likely mode of transport. Morehead City might prove to be a port of embarkation.

The military may be the region's primary growth driver. Eastern North Carolina is military-friendly, well-prepared to fill the needs of a military which is restructuring its logistics and support (including maintenance, repair, and overhaul activities), reducing its overall spending, and likely preparing for another round of base consolidations. The military sometimes needs access to a large amount of transport capacity on short notice. Global TransPark is designated as an Aerial Port of Embarkation (APOE) for moving troops and materials overseas. Because of this, it may take on a role as a central depot in addition to supplying the capacity to support massive movements of goods and personnel.

Advanced manufacturing in the region may concentrate along the I-95 Corridor as the Triangle Region pushes "mid-tech" activities outward and, possibly, along an envisioned technology corridor stretching between Rocky Mount and Greenville. Spirit AeroSystems promises to continue to grow and, due to the high salaries, have positive effects throughout the region. Most manufacturing in the region, however, will likely locate near I-95 to take advantage of the superior access but also because such locations provide a compromise between access to skilled professionals which are attracted to the well-developed labor market of the Triangle and the cultural, social, and educational amenities it has to offer and the low-cost labor and land markets of the East. The I-95 corridor may also emerge as a center for distribution serving the entire coastal plain to the east and the Triangle to the west.

The Eastern Region also receives an economic boost from amenity-driven tourism and retirement development. As the coast fills, the development has begun to move bayside and inland. The

<sup>83</sup> With the need for food expected to double by 2050, the demand for what the eastern region produces is likely to increase substantially.

influx is likely to continue as baby boom retirement gathers steam. The magnitude and nature of the future stream is uncertain, however. In many ways, the pre-boomers were pushed on a wave of prosperity throughout their careers by the approach of the boomers themselves. A smaller proportion of the larger boomer cohorts may have the savings which many recent in-migrants have had. Now that the real estate bubble has burst, in-migration will be slowed. It is too early to predict the magnitude of the decrease, however. Such migration may be largely limited to the young and old. Aside from Pitt County Memorial Hospital, much of the region lacks adequate sophisticated health care delivery.

One implication of retirement-fueled growth in the Eastern Region is the increasing need for distribution center space. A recent analysis performed by Cushman and Wakefield, a real estate consultancy, indicated that the Raleigh area is a likely growth market for distribution. To be sure, much of the draw is likely the continuing high rates of population growth in the Triangle but, because of land availability, price, and access to I-95, the western edge of the Eastern Region is a likely target for such investment. Distribution centers in that area can easily serve both the Triangle and the entire coastal “fan.”

From all this development, encroachment may be the most significant challenge to the region’s economy. Agriculture is a land-intensive activity which will be threatened if residential encroachment occurs. Land use encroachment would also threaten military operations. Much of the encroachment is caused by amenity-seeking residential development along the seaside and bayside which also benefits the region.

In Eastern North Carolina, US 70 is a vital transportation corridor between Raleigh and Morehead City. It is designated as a major arterial link and a Strategic Highway Corridor in the state’s transportation system reflecting its status as a main street for commerce in the region. Along with its supporting arterial system of roadways, US 70 serves as an essential corridor for commerce, trade and tourism by transporting people, goods and services for the communities along and adjacent to its alignment. It supports at least three major economic sectors. Through its adjacent farm-to-market roads it supports the \$70 billion dollar agricultural industry. The corridor is also the main thoroughfare for Eastern NC’s second major economic engine—military activity—supplying access to three major military bases. US 70 is also a major travel route for the booming tourism trade that sustains our coastal region.

Improving the US 70 corridor to move traffic more efficiently and with greater safety is consistent with the most recent BRAC goals. It is also compatible with the Strategic Highway Corridor strategy to convert the 135-mile corridor into a freeway. At present only 48 miles of the 135 mile route have freeway status. A full-fledged freeway corridor would provide 1) enhanced support for Global Transpark, anchor site for the eastern North Carolina’s emerging aerospace cluster and home of Spirit Aerosystems, 2) an efficient thoroughfare for the movement of troops, equipment and supplies, 3) a distribution system for effective movement of agricultural products from farm to market, 4) a safe and mobile roadway for visitors to our coast, and 5) expanded outreach for the Port of Morehead City.

In the regional investigation, five possible development sites were examined. Three are centered on operating airports; one is based on the Port of Morehead City; and the fifth is a large tract five miles east of Rocky Mount. The airports are the Global TransPark at Kinston Jetport, Jacksonville Airport, and the Rocky Mount Airport.

**Global TransPark:** With the opening of the Spirit AeroSystems manufacturing facility in Kinston on 1 July 2010, the Global TransPark moved into a new era. It is now a critical part of the state’s aerospace industry. It has periodic air cargo flights that transfer airframe components to the Airbus final assembly plant in southern France. Complete assemblies travel by highway to Morehead City and then to Europe by ship. Rail will be an option in the near future as a spur is under construction. If the state exports meat and other products to Asian markets via chartered freighters, Global TransPark can be a natural take-off point. It is also designated as an Aerial Port of Embarkation (APOE) for troops and materials going overseas, which means it can be a critical part of the support infrastructure for military activity in the state. While it is some distance from I-95 and not presently well-connected in terms of interstate connectivity, it may prove to be a distribution center as well. It has a unique statutory authority to engage in land use planning with its constituent counties.<sup>84</sup> It may use this empowerment to the benefit of its constituent counties to create distribution centers closer to I-95.

**Port of Morehead City:** The Port of Morehead City is a natural port. It can maintain depths of 40+ feet without dredging and is only six miles from the open ocean. The port channel depth is 45 feet below mean low water inside the harbor (47 foot outside), and the width of the channel is between 400 and 820 feet, giving it the potential to handle very large container ships. The port has nine berths providing over 5,500 linear feet of ship dockage and 1,487 linear feet of barge dockage. The mean tide change is less than three feet with water speeds of 2-3 knots. There are no overhead navigation obstructions (such as bridges and high tension wires). The port has two turning basins of 1,350 foot and 2,200 foot diameters and depths of 45 and 35 feet, respectively. Presently, it ranks 64<sup>th</sup> in terms of total value handled among US ports. It has an inactive Foreign Trade Zone. On Radio Island, the port has significant amounts of open land that could be used for expansion. Presently, bulk and break bulk commodities are handled as shown in Chapter 2. Most imports are from Mexico, Venezuela, and Indonesia and most exports are to India, Brazil, and China. An average of approximately 120 ships called in each of the last several years. Barge movements were 450 in 2010. In the sense that much of the agricultural production in the state is close by, both crops and meat products, the port could be an export location for such produce. Cold storage facilities would be needed near the port – not necessarily on the port property – and arrangements would have to be made for refrigerated ships to call at the port. The latter would most likely involve some container-handling vessels – much of the agri-business commodities, even bulk and break-bulk, are now being handled by container – so the introduction of container handling equipment at the port – perhaps on Radio Island – would be beneficial. Support for off-shore wind-farm development is another new role that the port could play in the future. Improved highway and rail access and some on-site, landside access improvements – like refurbishment of the bascule bridge to Radio Island – would be needed to spur future growth. On the ocean side,

<sup>84</sup> It might be desirable to give other logistics villages elsewhere in the state this same kind of empowerment, or allow the state to engage in this type of partnering with the counties for logistics investment purposes.

continued maintenance dredging to depths adequate for the ships that call, the re-establishment of container handling capabilities and the development of Radio Island would be key. A particularly knotty problem is provision of competitive rail rates to the port. Presently, the port is served by only one carrier – NS – and consensus is that the rates are not particularly competitive. Since the North Carolina Railroad owns the line that serves the port, perhaps multi-carrier service can be established in the future.

***Rocky Mount Area and Edgecombe County’s Kingsboro-Rose Megasite:*** The Rocky Mount metropolitan area encompasses all of both Edgecombe and Nash counties. The area grew from cotton mill activity associated with proximity to the Tar River. As a connection point in the southeast, Rocky Mount benefited from passenger rail service, which survives to date. The area is in the midst of an economic restructuring, moving away from textiles manufacturing activity and farming. There are important warehousing and distribution activities in the Rocky Mount Area. One of the largest warehouses for QVC, several prepared and fresh food operations (Sara Lee, Cheesecake Factory, and MBN), logistics providers (Crown and McLane) and distributors (Eagle) are in the area. Support from economic development planners has been instrumental in attracting and retaining some of these industries. A foreign trade sub-zone was created for Cummins, and zone boundary re-adjustments have been provided for Crown Logistics and other manufacturers.

The Rocky Mount-Wilson Airport (RWI) supports the area through typical general aviation services, with a few local manufacturers (e.g., Cummins) sporadically bringing in parts needed for time-sensitive manufacturing activities. Water and sewer are available in the area. Land around the airport has been acquired by the county which can support “through the fence” operations (selling hangar space to private parties but with access to the airport). The short concession/lease periods for hangar space on airport land is often viewed as a barrier to generating more general aviation activity. The land can also be used in business/industrial recruitment for activities that could rely on excellent airport access.

The airport is being positioned as a business/corporate airport. Airport staff is collaborating with the Carolinas Gateway Partnership in funding and developing a new business plan that replaces an outdated master plan and solidifies the future strategy as a business airport.

CSX provides the main rail service in the area. The Nash County Railroad is a 15-mile short line railroad that connects to CSX. The railroad is six miles or so from the airport. The railroad service in the area has created opportunities for attracting industrial tenants. Three sites, the Kingsboro-Rose site (CSX), the Corbett Site (Nash County Railroad), and a transloading site (Nash County Railroad) are among the options currently available.

Of the sites available, the Kingsboro-Rose site is the largest with more than 1,300 acres. It is adjacent to the CSX line but no rail spur exists. Water, sewer, and natural gas are all available. Broadband support is good. Electric power is provided by Edgecombe-Martin County Electric Membership Corp. Although the site is currently zoned agricultural/residential (AR 30), all environmental and geotechnical studies to support an industrial site have been completed.

There are three major highways that intersect in Rocky Mount: US Route 64, I-95, and US 301. I-95 runs through a portion of West Rocky Mount, US 64 is a major east-west freeway through the city, and US 301 forms the major north-south thoroughfare through the city. Regionally, the area has interstate-quality roads to Norfolk. Connections south and southeast need improvement. Major projects included in the TIP that would help with site development are: 1) NC 33 from Tarboro to Greenville; 2) the Rocky Mount Northern Connector, with widening to multi-lanes and a new right of way; and 3) the I-95 Interchange with Sunset Avenue.

**Jacksonville Area (supported by Albert J. Ellis Airport):** Albert J. Ellis Airport (OAJ) is a county-owned public-use airport in Onslow County, located approximately ten miles northwest of Jacksonville and Camp Lejeune. The airport has a single 7,100 by 150 foot runway and a passenger terminal with three gates. Open since 1971, the airport is served by Delta Connection to Atlanta and US Airways Express to Charlotte. The airport is served by two cargo aircraft operators which provide services in cooperation with express service providers. The airport is also used by general aviation and the military. An industrial park is located six miles from the airport.

Jacksonville Airport plays an integral role in the regional community by supporting and promoting economic development, including tourism, by enhancing local quality of life by providing air access to desired destinations via the Atlanta and Charlotte hubs, and supporting national security by providing air transportation for local bases. According to recent data, the airport generates 345 jobs with an annual payroll of \$4.4 million and a total economic impact of \$44 million.

The airport's growth strategy is to take a leading role in economic development by providing facilities, such as hangars for business jets, somewhat ahead of demand. Existing cargo traffic is modest and adequately handled on the general aviation apron. Due to its small size, proximity to larger airports, and airline pricing policy, the airport loses a significant proportion of the passenger traffic in its market area. Airport management and their consultants expect the same situation to hold for future traffic growth, with air freight customers tending to truck to the larger airports in Wilmington and Raleigh-Durham. That baseline assessment is tempered, however, by the potential impacts of the FedEx regional hub in Greensboro and by decisions of the military.

If the growth in the military presence continues, Jacksonville airport's role in the region may change to be an increasingly important conduit for military personnel, their dependents, and military contractors. It may therefore be necessary to expand service once traffic reaches thresholds beyond that to the USAir and Delta hubs. In particular, service to Washington, DC, although National Airport is capacity constrained, could become a priority.

#### 4.3 **North Carolina's Southeast**

North Carolina's southeast region enjoys a rich diversity of economic activity. It supports a strong agricultural, wood products and food processing base with such companies as Smithfield Foods, International Paper Company and Campbell Soup. It is also home to high tech companies like GE Nuclear Energy, Pharmaceutical Product Development Company (PPD) and Corning. While the increasing importance of the military is especially important in the Cumberland,

Sampson, Hoke and Robeson County areas, tourism is important in Pender, New Hanover and Brunswick Counties. November 2010 unemployment rates range from a low of 8.4% in Sampson County, significantly below average for North Carolina and the US, to a high of 15.7% in Scotland County, substantially above the unemployment for North Carolina and the US. In 2011, five (5) of the counties in NCSE are Tier 1 counties while three (3) are Tier 3 counties. However, one theme appears to be consistent throughout the region: the importance of logistics to economic development.

The region is strategically located mid-way between Maine and Miami. It is home to the Port of Wilmington providing convenient access for international trade. It is supported by a good and growing network of interstate and state highways providing good trade routes to the North, South and West. It is serviced by two well-maintained airports (Wilmington International and Fayetteville Regional). It is accessible to CSX, Norfolk Southern, and local short line railroads. It is populated with a workforce with a strong work ethic. Three state universities, two private colleges, and eight community colleges are readily available and willing to support workforce development. It is endowed with significant amounts of land ready for development that has, for the most part, infrastructure available to support immediate development (water, sewer, electricity, gas and communications). These assets will serve as the foundation for future economic development throughout the region - a future strong in supply chain logistics.

Agriculture and manufacturing have a long history in the region. The region currently employs some 40,000 people in manufacturing. Other industries employing a large number of workers are agri-business and the food processing industry. Additionally, a significant number of farmers work on fertile land that allows some regional counties to be ranked among the top farm producing counties in the nation.

With regard to the future, the region hopes to build upon this existing base by focusing on nine industrial clusters: building products, advanced textiles, distribution and logistics, building and marine trades, metalworking, food processing and the agri-industry, military contractors, biotechnology, and alternative energy. In addition, the region is considering the aerospace industry as another focus cluster.

While the region has a primary objective of focusing “on short, immediate and long-term economic development strategies aimed at sustainable job creation and industrial investment,”<sup>85</sup> it has several goals or objectives that support the creation of a “Logistics Village” in the region: international marketing, regional workforce analysis, engagement with the Base Closure and Realignment (BRAC) Commission<sup>86</sup> Regional Task Force, renewable energy, and the distribution and logistics. Attainment of each of these goals or objectives will require the region to have a strong foundation in logistics to support a vibrant economy and help the region increase its position in a global marketplace.

Four possible sites were examined for potential establishment of a “Logistics Village”: Laurinburg-Maxton Airport (MEB); Fayetteville Regional Airport (FAY); International Logistics

<sup>85</sup> North Carolina’s Southeast, Strategic Marketing Plan, 2010-2011 p. 10

<sup>86</sup> <http://www.brac.gov>

Park of North Carolina (ILP) and Wilmington International Airport (ILM). As a result of numerous interviews and research conducted to evaluate the four designated sites, the research team added a fifth possible site, a “Virtual Logistics Village” for the Greater Wilmington Area. Each site is unique and each offers different attributes that could support the establishment of a “Logistics Village.”

***Laurinburg-Maxton Area (supported by Laurinburg-Maxton Airport):*** The Laurinburg-Maxton Airport, a finalist site for consideration as North Carolina’s Global TransPark, is located entirely in Scotland County but is immediately adjacent to Robeson County and is operated by the Laurinburg-Maxton Airport Commission that reports to the governing bodies of the cities of Laurinburg and Maxton. MEB offers significant opportunity for development as a result of the availability of developable land, adequate and improving roads, and ready access to most infrastructural needs. The site is also located very close to rapidly expanding Ft. Bragg and Camp McCall and this proximity offers many possibilities for future economic development in the area. With this said, the airport lacks a strategic plan and facilities need major costly improvements. While there are immediate plans and funds available to improve two of the three runways, the improvements do not fill all the needs and requirements to make MEB truly competitive. In addition, the area has access to CSX and short line railroads but to take full advantage of this resource costly rail connections are needed. Finally, while most infrastructure needs are available, they also need upgrades and retrofitting. In order to maximize the potential this area offers, the area needs a champion (a private company or companies, government or the military) that is in a position to provide the necessary resources for upgrades and improvement.

***Fayetteville Area (supported by Fayetteville Regional Airport):*** The well maintained Fayetteville Regional Airport (FAY) is located in Cumberland County and is operated by an Airport Director for the City of Fayetteville. “Proximity” is the key word needed to understand the Fayetteville Regional Airport area and its potential as a “Logistics Village.” The area is geographically well located, has access to CSX, Norfolk Southern and short line railroads. While the connections are not on the airport site, they are all located within the City of Fayetteville. The area is also in close proximity to major interstate highways, the Port of Wilmington, Research Triangle Park, recreational facilities and developable land including shovel ready sites. In addition, and perhaps most significantly, it is located near an expanding Ft. Bragg. This expansion of Ft. Bragg is a result of the Base Closure and Realignment Commission (BRAC). By 2011, Ft. Bragg will be home to the US Army Forces Command (FORSCOM) and the Army Reserve Command (USARC). These moves will have a major impact on economic development in the immediate Fayetteville area and the entire NCSE. Soldiers leaving the military at Ft. Bragg also provide the area with plentiful access to a skilled workforce with good work ethic. For the area to reach its full potential as a “Logistics Village,” the airport’s strategic plan needs to be integrated into the overall economic development efforts of Fayetteville and Cumberland County. FAY also needs better access to capital resources for infrastructure improvements, including cargo facilities, which will enhance economic development efforts. Similar to Laurinburg-Maxton Airport, FAY needs a champion to stimulate development, with the military being the most likely candidate for the foreseeable future.

***International Logistics Park (ILP):*** The International Logistics Park of North Carolina (ILP) is built on the Columbus/Brunswick County line on US 74/76 just 15 miles from the Port of

Wilmington. A joint venture between Brunswick and Columbus Counties, this is an as of yet undeveloped 1,100 acre park that hopes to capitalize upon the “At Port” Logistics Model promoted by the Port of Wilmington. The potential for ILP is tremendous as the result of the vast amount of developable land that includes shovel ready sites. Close proximity to the Port of Wilmington and Wilmington International Airport is also an attribute. Utilities, gas, water electricity and sewer are readily available. Existing roads and planned road projects make ILP very accessible. An added tax advantage for ILP is Tier 1 status for all new projects. A major concern for this site is its risk exposure to the future viability of the Port of Wilmington. ILP also lacks a rail connection; however, located directly across the street is the site of another large industrial park, the Mid-Atlantic Logistics Center, that has CSX rail access. Marketing these two large sites together will enhance the areas potential as a “Logistics Village.” Immediate construction of a lighted intersection at the entrance of these two sites will make the two sites more desirable. Finally, leveraging and promoting together all of the logistics assets of the Wilmington area, including these two industrial sites, creates a very creditable site for a “Logistics Village.”

**Wilmington International Airport (ILM):** The Wilmington International Airport (ILM) is located in New Hanover County and serves southeast North Carolina. The airport, conveniently located off I-40 and I-140, is a modern, underutilized airport that is operated by the New Hanover County Airport Authority. It is a full-service airport that offers commercial, cargo and general aviation facilities. In addition, it provides a “state of the art” Federal Inspection Services (FIS) facility. Runways are adequate and expandable to meet demand. Shovel ready industrial sites that meet the Port of Wilmington’s “At Port” Logistics Model criteria are available at the airport and larger tracks of developable land are located nearby in Pender, Brunswick and Columbus Counties. ILM has existing average to above average basic infrastructure (communications, water, sewer and power). The airport also has at-site rail service with an indirect link to the Port of Wilmington. In addition, the high quality of life in the area provides the ability to attract highly skilled workers. However, a weakness for ILM, like the nearby International Logistics Park, is its risk exposure to the future viability of the Port of Wilmington. Despite this possible weakness, leveraging and promoting together all of the logistics assets of the Wilmington area, including ILM, creates a very creditable site for a “Logistics Village.”

**Port of Wilmington and a “Virtual Logistics Village” for the Greater Wilmington Area:** The final assessment is for a “Virtual Logistics Village” from the Greater Wilmington area that comprises all logistics assets of the region and is coordinated by a centralized facilitating body to work synergistically as a unified and coherent institution. The Wilmington metro area is composed of three counties: New Hanover, Brunswick and Pender. In addition, Columbus County is in close proximity to the Wilmington area and is an equal partner in the development of the International Logistics Park located on the Brunswick/Columbus County line. The area is home to the Port of Wilmington and Wilmington International Airport. Also, CSX rail access is available as are abundant trucking services. Developable land parcels of all sizes are found in the metro area and many are shovel ready. Most of the sites are located within the three major industrial parks: International Logistics Park, Mid-Atlantic Logistics Center, and the Pender Commerce Park. Metro Wilmington also has average to above average basic infrastructure (communications, water, sewer and power) to accommodate growth. Area road access is good and getting better with planned improvements. Finally, as a result of the area’s quality of life,

skilled labor is available and, if specific skills are needed, area educational institutions stand ready to develop needed skills. As a direct result of all these factors, the Wilmington area is strategically positioned to capitalize upon the Port of Wilmington’s “At Port” Logistics Model and thus become a “Virtual Logistics Village”. An inactive Foreign Trade Zone (FTZ) is available at the Port and, as a result, sub-zone status is possible at other area sites. While all components of the “Virtual Logistics Village” are not located in one spot in the metro area, the major components of a village are found in close enough proximity to each other in the Wilmington area. Therefore, in order to create a “Virtual Logistics Village” some infrastructure needs must be addressed and area leaders need to work together and cooperatively leverage regional logistics assets to create synergy in facilitating regional economic development. In addition, leaders should explore the establishment of a “facilitation” group similar to the Aerotropolis Leadership Board in the Piedmont Triad Region. The creation of this “Virtual Logistics Village” will truly allow the Wilmington area to benefit from a global economy. However, there remains one major risk to the successful implementation of a “Virtual Logistics Village”; in order for it to flourish, the Port of Wilmington must remain viable now and far into the future.

In conclusion, as a result of the extensive research into the area conducted by Bryan School professionals and 14 separate interviews with 34 different people representing various organizations in NCSE Region, one fact became evident. In order for NCSE to truly benefit from global trade and be a true participant in the global economy, a viable Port of Wilmington is a necessity. On December 10, 2010, the NC Department of Environment and Natural Resources recently took a giant step forward in this direction when it announced that the Department will partner with the federal government to study the feasibility of improving the Port of Wilmington in order to accommodate larger ships and make the Port of Wilmington more accessible to those ships<sup>87</sup>. Additionally, the North Carolina Maritime Strategy study mentioned previously will also provide guidance for the future direction of maritime support in the state.

#### 4.4 **Research Triangle Regional Partnership**

The Research Triangle Regional Partnership (RTRP), formed in 1994 after several years as the Raleigh-Durham Association, provides economic development leadership for the region through studies aimed at identifying strategies that offer a competitive advantage in attracting companies to the region. In fact, the region added over 110,000 jobs during the period from 2004-2009<sup>88</sup>. This was not a random occurrence, but the result of dedicated effort, and dollar investment, on the part of government and business leaders to join together in a cohesive and cooperative thrust in marketing and soliciting targeted businesses.

The businesses sought after were to be involved in 10 clusters, called “clusters of innovation,” a term that came from another study in 2004<sup>89</sup> where specific industries were targeted to come to

<sup>87</sup> NC Department of Environment and Natural Resources, *Port of Wilmington Upgrades Could Allow for Larger Vessels, Increased Traffic*. Press Release, December 10, 2010.

<sup>88</sup> “State of the Research Triangle Region: An in-depth look at the region’s economic health and competitive position.” RTI International and Research Triangle Regional Partnership, May 21, 2009.

<sup>89</sup> “Staying on Top: Winning the Job Wars of the Future.” Research Triangle Regional Partnership, March 2004.

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# Appendix F: Rural Freight Transport Needs Report



DRAFT

RURAL FREIGHT  
TRANSPORT NEEDS  
RP 2019-17

Global Research Institute | June 2019  
Peter Coclanis, PhD

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# Socioeconomic Context and Development Needs

Global Research Institute | June 2019

## Introduction

This report describes the socioeconomic attributes of rural North Carolina and portrays the associated development needs. It focuses heavily on the northeastern and southwestern portions of the state since those are being used as case study examples. Geographically, it uses the eight statewide planning regions established by the N.C. General Assembly as the basis for identifying the counties that are included within each of these areas.<sup>1</sup> A map of these zones is shown in Figure 1 below.

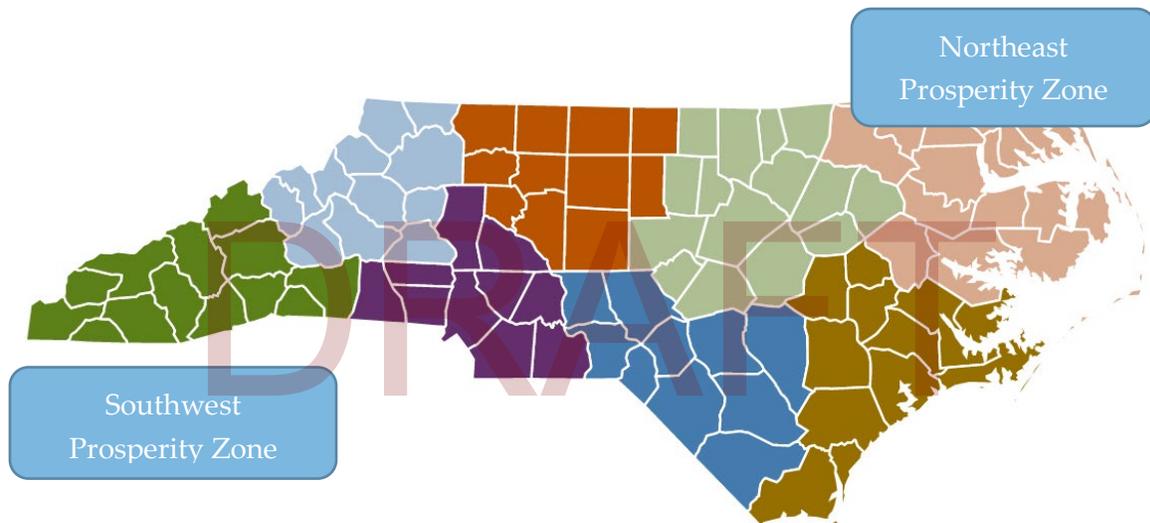


Figure 1: The Eight North Carolina Economic Prosperity Zones

Source: <https://www.nccommerce.com/about-us/nc-prosperity-zones>

## Northeast Prosperity Zone

The Northeast Prosperity Zone is a largely rural and sparsely-populated, 17-county region, whereby counties are divided into two sub-zones – Elizabeth City (10 counties) and Greenville (7 counties):

- *Elizabeth City*: Camden, Chowan, Currituck, Dare, Gates, Hyde, Pasquotank, Perquimans, Tyrrell, and Washington counties
- *Greenville*: Beaufort, Bertie, Halifax, Hertford, Martin, Northampton, and Pitt counties

Areas that fall within the Northeast Prosperity Zone were settled very early by European migrants, both those coming directly from Europe and those coming from adjacent territory in what is now the Commonwealth of Virginia.<sup>2</sup> As of 2017, an estimated 541,000 people—or five of every 100 North Carolinians—lived here.<sup>3</sup>

Once one of the state's more prosperous areas, the Northeast Prosperity Zone today contributes more modestly to the overall economy. Noteworthy trends include the following:

- *Low regional share of state economic activity* - The value of goods and services produced by businesses based in the Northeast Prosperity Zone equaled \$19.3 billion in 2015, the last year with complete estimates. Put differently, the Northeast Prosperity Zone generated \$4 of every \$100 in statewide economic activity.<sup>4</sup>
- *Sixty-five percent of the region's business establishments do not hire employees* - The region contained some 12,000 private business establishments with employees in 2016, the last year with complete data; those firms accounted for 5 percent of the state's employer establishments. The Northeast Prosperity Zone also contained another 34,000 establishments with no employees.<sup>5</sup>
- *People-of-color-owned business share disproportionately low* - Of all business establishments, 25 percent were owned by persons of color in 2012, the last year with data; in contrast, persons of color contributed some 43 percent of the population.<sup>6</sup>
- *Nine percent unemployment rate* - On average, the Northeast Prosperity Zone was home to 5 percent of the state's civilian labor force from 2013-17; of those people, 9 percent, on average, were unemployed.<sup>7</sup>
- *Area labor earnings lower than the state average* - The typical working person (age 25+) residing in the area had, on average, annual labor earnings of \$31,500 from 2013-17, an amount 10 percent less than the statewide figure.<sup>8</sup>
- *Region economically depressed* - On average, 21 percent of the region's population lived in households with incomes below the federal poverty level, with another 22 percent living in households with incomes no greater than twice that level; in all, 43 percent of all residents were poor or near poor.<sup>9</sup>

When such trends are broken out by the area's two sub-prosperity zones, noticeable differences appear between the seven-county region centered on Greenville (Beaufort, Bertie, Halifax, Hertford, Martin, Northampton, and Pitt counties) and the 10-county region centered on Elizabeth City (Camden, Chowan, Currituck, Dare, Gates, Hyde, Pasquotank, Perquimans, Tyrell, and Washington). Pitt County is a regional locus of economic activity.

## **A Modest Contributor to Statewide Economic Output**

The value of goods and services produced by businesses based in the Northeast Prosperity Zone equaled \$19.3 billion in 2015, the last year with complete estimates. Put differently, the Northeast Prosperity Zone generated just \$4 of every \$100 in statewide economic output.<sup>10</sup>

Noteworthy trends include the following:

- *Private sector economy* - The region's private-sector enterprises generated \$15.2 billion in economic activity in 2015, out of a regional total of \$19.3 billion; that translates to \$79 of every \$100 of economic output produced by private businesses.<sup>11</sup>
- *The largest source of economic output was the private service providing sector* - such firms generated \$10.1 billion in economic output, or two-thirds of the private-sector total.<sup>12</sup>
- *Greenville sub-zone more prosperous than Elizabeth City sub-zone* - The total value of goods and services produced by businesses based in the Greenville Sub-Prosperity Zone equaled \$13.5 billion, an amount 2.3 times greater than the \$5.8 billion in economic output produced in the Elizabeth City Sub-Prosperity Zone, despite the inclusion of three additional counties in the Elizabeth City Sub-Prosperity Zone.<sup>13</sup>
- *Pitt County most prosperous county in the region* - The major geographical source of regional output is Pitt County, which is where \$41 of every \$100 originated. Pitt County's \$8 billion in economic output benefited from some \$2.2 billion in public-sector output, especially from activities tied to East Carolina University.<sup>14</sup>
- *Other prosperous counties in the region* - After Pitt County, the largest geographical sources of output were Dare (\$2.3 billion), Beaufort (\$1.6 billion), Halifax (\$1.4 billion), and Pasquotank (\$1.3 billion) counties; when combined with Pitt, these counties accounted for over three-fourths of regional output.<sup>15</sup>
- *Higher per-capita income in Greenville sub-zone* - In 2015, economic output per capita in the Northeast Prosperity Zone was an estimated \$35,839, versus a statewide figure of \$50,136. In the Greenville Sub-Prosperity Zone, the per capita figure was \$36,994, versus \$33,405 in the Elizabeth City Sub-Prosperity Zone.<sup>16</sup>

## **A Private Sector Economy Built on Small, Service-Providing Businesses**

The region contained some 12,000 private business establishments with employees in 2016, the last year with complete data; put differently, the 17-county Northeast Prosperity contains 5 percent of the state's private employer establishments.<sup>17</sup> The region also contained 34,000 establishments with no employees.<sup>18</sup> Noteworthy trends include the following:

- *The entire region was home to 11,789 private business establishments with employees.* Of these establishments, 7,112, or 60 percent, were in the Greenville Sub-Prosperity Zone, while 4,677, or 40 percent, were in the Elizabeth City Sub-Prosperity Zone.<sup>19</sup>

- *The largest geographic concentration of employer establishments was in Pitt County, which contained 3,593 such establishments, or 30 percent. After Pitt County, the most employer establishments were in Dare (1,578), Beaufort (1,099), Halifax (951), and Pasquotank (915) counties; these five counties contained 69 percent of all employer establishments.*<sup>20</sup>
- *Nearly nine of every ten private-sector employer establishments were in the broad service sector. The shares were similar across the two sub-prosperity zones.*<sup>21</sup>
- *The largest concentration of establishments was in the retail trade super-sector (2,267), followed by the health care and social assistance (1,341), other services (1,316), accommodation and food services (1,278), and construction (1,111) super-sectors.*<sup>22</sup>
- *Reliance on agriculture, retail, foodservice - Compared to the overall state, the Northeast Prosperity Zone had higher than expected concentrations of employer establishments (in descending order) in the broad agriculture; retail trade; transportation and warehousing; accommodation and food service; utilities; and health care and social assistance sectors.*<sup>23</sup>
- *Lack of certain industries - Compared to the overall state, the Northeast Prosperity Zone had lower than expected concentrations of employer establishments (in ascending order) in the broad professional, scientific, and technical services; management of companies; manufacturing; wholesale trade; educational services; and administrative and waste management sectors.*<sup>24</sup>
- *Private employer establishments in the region had a total of 149,514 employees in 2016. Establishments in the Greenville Sub-Prosperity Zone employed 2.7 times as many people as did establishments in the Elizabeth City Sub-Prosperity Zone (108,891 as compared with 40,623).*<sup>25</sup>
- *The largest geographic employment center was Pitt County, which contained 61,227 employees, or 41 percent of the regional total. After Pitt County, the largest centers were Dare (14,227), Beaufort (13,552), Halifax (12,633), and Pasquotank (11,235) counties; these five counties contained three-fourths of the region's jobs.*<sup>26</sup>
- *Some 83 percent of regional employees worked in the broad service sector. In the Elizabeth City Sub-Prosperity Zone, 86 percent of employees worked in the service sector, as compared to 81 percent of all employees in Greenville Sub-Prosperity Zone.*<sup>27</sup>
- *The largest concentration of employees was in the health care and social assistance super-sector (30,934), followed by the retail trade (25,577), accommodation and food services (21,358), and manufacturing (16,977) super-sectors.*<sup>28</sup>
- *Most employment in agriculture, real estate, health care, retail, foodservice - Compared to the overall state, the Northeast Prosperity Zone had higher than expected employment (in descending order) in the broad agriculture; real estate; health care and social assistance; retail trade; and accommodation and food service sectors.*<sup>29</sup>
- *Lack of jobs in certain industries - Compared to the whole state, the Northeast Prosperity Zone had lower than expected employment (in ascending order) in the broad utilities; educational services; professional, scientific, and technical services; administrative and*

waste management; arts, entertainment, and recreation; information; and management sectors.<sup>30</sup>

- *Employee size similar to that of the state* - In the Northeast Prosperity Zone, 53 of every 100 employer establishments had no more than four employees in 2016, a share like the statewide one.<sup>31</sup>
- *Smaller numbers of employees* - Compared to the state, the region had greater shares of employer establishments with 5-9 employees (21 percent) and 10-19 employees (14 percent). Put differently, 87 of every 100 employer establishments had no more than 19 employees.<sup>32</sup>
- *Few establishments employing 100 or more people* - Compared to the overall state, the Northeast Prosperity Zone had relatively few large employer establishments, meaning those with 100 or more employees. Only 1 percent of the region's establishments were so large in 2016, versus a statewide share of 2 percent.<sup>33</sup>
- *Most large businesses located in the Greenville sub-zone* - Of the 171 establishments in the Northeast Prosperity Zone that had at least 100 employees in 2016, some 136 of them (80 percent) were in the Greenville Sub-Prosperity Zone.<sup>34</sup>
- *Prevalence of businesses without employees* - The Northeast Prosperity Zone was home to 33,807 non-employer establishments in 2016, the last year with complete data. Some 57 percent of those establishments were in the Greenville Sub-Prosperity Zone, and 43 percent were in the Elizabeth City Sub-Prosperity Zone.<sup>35</sup>
- *Non-employer establishments in the Northeast Prosperity Zone accounted for 5 percent of all such establishments in the state.* Such businesses typically are small, unincorporated ones operated by self-employed persons and typically have at least \$1,000 in annual sales.<sup>36</sup>
- *Non-employer establishments generated \$146 million in annual receipts in 2016.*<sup>37</sup> While modest, the resulting income can be significant for the owners of such establishments.
- *Local, state and federal public employment* - In 2016, the Northeast Prosperity Zone was home to an estimated 343 government establishments that had 15,169 payroll positions. Local governments had the most payroll positions (9,604), followed by the state (4,548) and federal (1,017) governments.<sup>38</sup>
- *Some 21 percent of all public-sector payroll positions in the region are in Pitt County.*<sup>39</sup>

### **A High Proportion of Minority-Owned Businesses**

Of all private business establishments in the Northeast Prosperity Zone, 25 percent were owned by persons of color in 2012, the last year with data; in contrast, persons of color account for some 43 percent of the population.<sup>40</sup> Noteworthy trends include the following:

- *Twenty-five percent of businesses minority-owned* - In 2012, persons of color owned a total of 10,597 business establishments (employer and non-employer), or one-quarter of private

business establishments in the Northeast Prosperity Zone. Statewide, persons of color owned 23 percent of all business establishments.<sup>41</sup>

- *The largest geographic concentration of minority-owned businesses was in Pitt County, which had 3,786 establishments, or 35 percent of the area total. Halifax County accounted for 14 percent of the total, followed by Pasquotank and Beaufort counties (both 9 percent).*<sup>42</sup>
- *Three of every four minority-owned business establishments were owned by persons who identify as Black or African-American, versus a statewide figure of 62 percent.*<sup>43</sup>
- *When compared to other establishments, those owned by persons of color were more apt to be non-employer establishments. Even among employer establishments, minority-owned establishments typically had fewer employees, smaller payrolls, and lower sales.*<sup>44</sup>
- *Minority-owned businesses tend to be smaller than nonminority-owned ones - In Pitt County, for one, nonminority-owned establishments were 7 times more likely than minority-owned establishments to have employees, with annual sales that were 19 times greater. Among employer establishments, nonminority-owned ones had 12 times as many employees and paid 12 times as much in wages than did their minority-owned peers.*<sup>45</sup>

### **A Labor Force Facing Many Challenges**

The Northeast Prosperity Zone was home to, on average, 5 percent of the state's civilian labor force in 2013-17. Compared to the state, workers residing in the area were more apt to be unemployed.<sup>46</sup> Noteworthy trends include the following:

- *From 2013-17, on average, 253,316 people participated in the region's labor force. After subtracting the 1,578 people in the armed services, a total of 251,738 persons were in the civilian labor force. In short, 5 percent of the state's civilian labor force lived in the area.*<sup>47</sup>
- *Working-age population - Across the region, an average of 58 percent of people of working age (ages 16+) participated in the labor force from 2013-17; in contrast, the statewide rate averaged 63 percent.*<sup>48</sup> Compared to the state, a smaller percentage of early-career workers (ages 25-34) participated in the labor force, on average, from 2013-17; across the Northeast Prosperity Zone, 80 percent of such workers were in the labor force versus 83 percent of such workers statewide.<sup>49</sup>
- *On average, prime-age workers (ages 25-64) accounted for 77 percent of the civilian labor force from 2013-17, as compared to a statewide figure of 81 percent. Compared to the state, older workers (ages 65+) accounted for a somewhat higher share of the labor force.*<sup>50</sup>
- *The civilian labor force in the Greenville Sub-Prosperity Zone had a younger age composition than did the civilian labor force in the Elizabeth City Sub-Prosperity Zone, on average, from 2013-17. Workers under the age of 25 accounted for 20 percent of Greenville's labor force, versus 11 percent of Elizabeth City's labor force.*<sup>51</sup>
- *On average, 9 percent of the region's civilian workforce was unemployed from 2013-17, compared to a statewide rate of 7 percent. The 22,803 unemployed persons in the*

Northeast Prosperity Zone accounted for six of every 100 unemployed North Carolinians, on average.<sup>52</sup>

- *Despite having more economic activities and employers, the Greenville sub-zone showed a higher unemployment rate than did the Elizabeth City sub-zone* - The civilian unemployment rate averaged 10 percent in the Greenville Sub-Prosperity Zone from 2013-17, versus 7 percent in the Elizabeth City Sub-Prosperity Zone.<sup>53</sup>
- *Thirteen out of 17 counties show high rates of unemployment* - In terms of individual counties in the Northeast Prosperity Zone, the average civilian unemployment rate ranged from 5 percent in Currituck County to 13 percent in Bertie County. In all, 13 counties had unemployment rates above the statewide rate, including every county in the Greenville Sub-Prosperity Zone.<sup>54</sup>
- *In the region, average unemployment rates from 2013-17 were 2.5 times greater for African-American workers than non-Hispanic White workers (15 percent versus 6 percent); the unemployment rate for Hispanic workers was twice that of non-Hispanic White workers (12 percent versus 6 percent).*<sup>55</sup>
- *Lower levels of education on average* - Among prime-age civilian workers (ages 25-64) residing in the Northeast Prosperity Zone, on average, just 26 percent possessed at least a bachelor's degree from 2013-2017, as compared to 35 percent of all such workers in North Carolina.<sup>56</sup>
- *For employed civilians across the entire Northeast Prosperity Zone, one of every four, on average, worked in the broad educational services, health care, and social assistance sector from 2013-17. That share was higher in the Greenville Sub-Prosperity Zone than in the Elizabeth City Sub-Prosperity Zone.*<sup>57</sup>

### **A Region Challenged by Low Earnings and Incomes**

Compared to the overall state, workers residing in the Northeast Prosperity Zone earned less than did their peers from 2013-17.<sup>58</sup> Lower earnings translate into lower household incomes, which results in higher proportions of people living in poverty and near poverty.

Noteworthy trends include the following:

- *Low wages* - In 2017, the average weekly wage in the Northeast Prosperity Zone was \$737, an amount 22 percent lower than the statewide figure of \$941; average weekly wages in the region were lower than the corresponding statewide figures in every major industrial sector.<sup>59</sup>
- *Goods-producing sectors pay more consistent wages* - The average weekly wage paid in 2017 to positions in the broad service sector totaled \$701 in the Northeast Prosperity Zone versus \$915 statewide; the gap was smaller in the broad goods-producing sector (\$932/week versus \$1,071/week).<sup>60</sup>

- *Lower average earnings* - The typical working person (age 25+) residing in the area had, on average, annual labor earnings of \$31,500 from 2013-17, an amount 10 percent less than the statewide figure.<sup>61</sup>
- *Lower pay compared to state average* - The typical worker (age 25) residing in the area earned less, on average, than did the comparably educated worker in North Carolina.<sup>62</sup>
- *The typical household in the Northeast Prosperity Zone had, on average, an annual income of \$42,500 from 2013-17.* Median household income was higher in the Elizabeth City Sub-Prosperity Zone than in the Greenville Sub-Prosperity Zone (\$50,100 versus \$39,100) due to some high incomes posted in the counties encompassing the Outer Banks.<sup>63</sup>
- *Comparatively lower median household income* - Across the region, median household income from 2013-17 ranged from \$31,300 in Bertie County to \$68,300 in Camden County; in all, 10 counties in the region had median household incomes below the regional value of \$42,500.<sup>64</sup>
- *Only four counties in the region had median household incomes that exceeded the statewide figure of \$50,300 over 2013-17:* Camden, Currituck, Dare, and Gates counties.<sup>65</sup>
- *Lower household incomes than the state average* - Across the region, non-Hispanic White, African-American, and Hispanic households all had lower household incomes than did comparable households in North Carolina; within the region, household incomes were higher for all three groups in the Elizabeth City Sub-Prosperity Zone than in the Greenville Sub-Prosperity Zone.<sup>66</sup>
- *Income by race* - Within the region, the typical non-Hispanic White household had a household income of \$53,600, as compared to \$31,200 for the typical Hispanic household and \$28,700 for the typical African-American household.<sup>67</sup>
- *Lower incomes in African American households* - In 10 counties in the Northeast Prosperity Zone, the income of the typical African-American household was no greater than \$27,000 per year. In Washington County, for instance, half of all African-American households had no more than \$18,900 in annual income.<sup>68</sup>
- *Poverty* - On average, 21 percent of the region's population lived in households with incomes below the federal poverty level, with another 22 percent living in households with incomes no greater than twice that threshold; in all, 43 percent of all residents were poor or near poor.<sup>69</sup>
- *In the region, poverty rates were higher* for African- Americans (32 percent), Hispanics (32 percent), and non-Hispanic Whites (13 percent), than was typical in North Carolina.<sup>70</sup>
- *Over 2013-17, at least one-third of all African-American residents in eight counties lived in households with incomes no greater than the federal poverty level:* Beaufort, Chowan, Halifax, Northampton, Perquimans, Pitt, Tyrrell, and Washington.<sup>71</sup>

- *Deep Poverty* - Across the region, an average of 9 percent of all residents—some 48,000 individuals in all— lived in households with incomes no greater than half the poverty level. The “deep poverty” rate ranged from 4 percent in Currituck County to 14 percent in Washington County; even in Pitt County, the rate was 13 percent.<sup>72</sup>
- *Lack of health insurance coverage* - Across the region, an estimated 13 percent of all residents, on average, lacked health insurance coverage from 2013-17; the share of uninsured individuals ranged from 10 percent in Camden and Gates counties to 17 percent in Tyrell County.<sup>73</sup>
- *Across the region, 36 percent of Hispanics lacked health insurance, as did 14 percent of African-Americans, and 10 percent of non-Hispanic Whites.*<sup>74</sup>
- *When broken out by age, persons ages 25-34 were the most likely regional residents to lack insurance (27 percent) followed by those ages 18-24 (20 percent) and ages 35-64 (16 percent).*<sup>75</sup>

## Regional History

### *European Settlement*

The earliest European settlement of the region under study spilled over from the Virginia Tidewater; indeed, the eastern portions of the region have been tributary to Hampton Roads ever since, and should probably be recognized as such in planning. The region around Albemarle Sound is largely low and swampy—most notably in the case of the Great Dismal Swamp between the Sound and Hampton Roads, but also Washington, Tyrell, Beaufort, and the mainland portions of Hyde and Dare. The swamps were full of cedar, juniper and cypress, forming the foundation for a longstanding lumbering and shingling industry (hampered before the late nineteenth century by poor transportation and low capitalization), but the uplands were sandy-soiled and populated with pine, especially longleaf pine in the western parts of the region. The region was located at the northeastern edge of the great longleaf pine belt running from Tidewater Virginia down the Atlantic Coast and across the Gulf Coast into East Texas. While part of the region, especially the western counties, were amenable to plantation agriculture, and slavery became rooted there early on, the Albemarle never became a great staple-growing region; in the nineteenth century its major export crop was corn. Further obstructing its economic development was the system of shifting barrier islands known as the Outer Banks, which made passage in and out of the Sounds difficult. Only shallow-draft vessels could reliably negotiate the inlets. As a result of all these factors, economic growth around the Sound remained stunted, and the population tended to consist of poor whites forced to the periphery of the Virginia tobacco complex. William Byrd famously described the area as “*Lubberland*,” and most travelers described it as poor and pathetic.

### *Naval Industry and Turpentine*

One source of economic opportunity was naval stores, especially tar. In colonial times the Mother Country needed a reliable source for the Royal Navy, and subsidized its production. In the years prior to the Revolution, naval stores production spread into the Albemarle region from further south, tapping the longleaf forest, and spread from Hyde and Beaufort counties up the Neuse and Tar Rivers. In antebellum times, tar was supplemented by a boom in turpentine production, as turpentine became a popular illuminant in the pre-kerosene era. The high profitability of turpentine attracted large-scale plantation

production; planters accumulated thousands of acres of cheap pine land and put gangs of slaves to work in the turpentine “orchards.” At first the raw sap was exported for distillation, but increasingly turpentine was distilled in local distilleries; by 1860 turpentine distilling was the second-leading manufacturing industry in North Carolina (after flour and meal), enhancing the value-to-weight ratio of raw turpentine and allowing the extension of turpentine production into the interior.

There were severe limits to this economic opportunity, though. Piney-woods regions were thinly populated because of poor soil, and forest-products production was land extensive. Transportation continued to be a problem. Producers around the Albemarle carried tar overland to Norfolk in the eighteenth century, but the trade died out by the end of the century. Further south and west, Pamlico Sound continued to contend with the obstacles to navigation presented by the Outer Banks, and the Neuse and Tar Rivers were too shallow for viable steamboat traffic.

#### *The Prosperous Turpentine Industry and The Need for Transportation*

Moreover, the very prosperity of the turpentine regions drew the interest of powerful commercial competitors for the region’s trade. Economic underdevelopment and obstacles to maritime navigation had always stunted the growth of towns; Edenton, the major town of the Albemarle, was economically tributary to Norfolk. As the nineteenth century progressed, this problem shaped the transportation system in a manner deleterious to the region. The first railroad to penetrate the region was the Petersburg Railroad in Northampton County, followed by the Seaboard and Roanoke, running from Weldon in Halifax County to Portsmouth, Virginia, opposite Norfolk at Hampton Roads. They, along with the Wilmington and Weldon, completed in 1840, diverted the commerce of the Roanoke River, the principal river of the region, northward to Virginia and southward to Wilmington along with the trade of the interior. Only Halifax and Northampton benefitted from these railroads and their connections to Raleigh (via the Raleigh and Gaston) and the Virginia cities. Likewise, the other railroads converging on Hampton Roads and the line from Raleigh to Morehead City gave the region a wide berth; the swamps and estuaries posed major obstacles to routing and construction, and the volume of commerce was inadequate to provide incentives for overcoming them.

The railroads also contributed to some fundamental economic shifts in the 1840s and 1850s. The longleaf forest proved environmentally fragile, thanks especially to wasteful methods of exploitation, and was suffering serious damage in the region by the 1840s. Many of the larger producers began abandoning their orchards, acquiring new lands further south, and moving their skilled and experienced slave work forces there. The land they left behind still had poor soil that was the signature of the piney woods, but the railroads were bringing in imported fertilizers from Baltimore and the Virginia ports, and were making it possible for interior counties such as Halifax, Northampton, Bertie, Martin, and Pitt to shift to cotton production. The coastal counties, however, participated relatively little in staple crop production.

#### *The Civil War and the Northeast*

The Civil War was truly a civil war in the Northeast. The Union took a strategic interest in the region in the interest of the naval blockade, and in 1862 occupied the Outer Banks and the territory around the sounds. Their position was bolstered by the presence of numerous local Unionists motivated by resentment of the planter elite. One major Confederate military offensive in 1864 resulted in the destruction of Plymouth in Washington County.

#### *Post-Civil-War Growth in Transportation and the Economy*

After the war, the late nineteenth century saw somewhat increased economic integration with the outside world. The interior counties, especially, saw intensified railroad development, notably connecting the burgeoning market town of Greenville to the Wilmington and Weldon network. Lines extended to Elizabeth City, Edenton, and other points in the northern Albemarle from Norfolk and Suffolk, Virginia, and to Plymouth, Washington, and Belhaven in the south. Timber production expanded; the eastern swamps had long had a trade in cedar shingles, but lumbermen from the outside, including Union soldiers stationed there during the war, brought in much-needed large scale capital investment, including narrow-gauge railroads. The expansion of bright-leaf tobacco production with the rise of the North Carolina cigarette industry brought a major new crop to interior counties, although it remained unimportant around the Sounds.

#### *Changes in Agriculture and other Extractive Natural Resource-Intensive Industries*

The twentieth century brought major changes to agriculture. Tobacco was stabilized for much of the mid-to-late twentieth century by the system of acreage allotments established during the New Deal. Cotton, however, declined after World War II, to be replaced by other crops such as soybeans and, in counties on the western end of Albemarle Sound adjacent to Virginia, peanuts. The collapse of tenancy that began in the 1930s and continued through the 1960s, along with farm consolidation and mechanization, produced a crisis both for employment and for the traditional service economies of the region's towns. Considerable out-migration resulted, notably to the burgeoning military-industrial complex of Hampton Roads. Other workers flocked to work in numerous small-scale firms popping up in small towns around the region, taking advantage of a large pool of low-skill, low-wage workers who were happy to find employment that reinforced, rather than disrupted, traditional family and community ties. The expanding network of farm-to-market roads facilitated worker commuting from their homes to the new factories, a phenomenon the historian C. Vann Woodward once termed "*rurbanization*."

Another important industry took advantage of the remaining stands of pine trees. As early as 1909, the Roanoke Rapids Paper Company in Halifax County pioneered making kraft paper from southern pine trees using the sulfate method. It was joined in 1937 by a pulp mill in Plymouth, NC which ultimately became a Weyerhaeuser paper mill. These mills, along with the Camp Paper Company mill in nearby Franklin, Virginia (subsequently Union/Camp), not only provided direct employment but also provided a market for small-scale timber cutters in their hinterlands. Unfortunately, this industry, like many others, has been in decline in recent years.

#### *Development of Coastal Areas for Tourism*

Another major mid-twentieth century development was the emergence of the Outer Banks as a tourism magnet. The Banks were long isolated by their turbulent waters, shifting navigation channels, and lack of resources; the only significant export industry was commercial fishing. By the 1920s, however, the automobile age was getting ushered in, and North Carolina's celebrated road-building program had begun. Opening up the Banks to vehicular transportation, though, posed problems similar to those facing railroad builders: vast swamps, numerous water barriers, and shifting channels. The state was reluctant to invest there, but local promoters were able to build a toll bridge connecting Roanoke Island to the beaches in the later 1920s. Other roads and bridges, along with privately-run ferries, tied the Banks to the mainland by the early 1930s. Between the 1930s and early 1950s, federal relief spending from the New Deal, along with private donations from philanthropists such as the Mellons, permitted the establishment of the Cape Hatteras National Seashore in 1952, while other attractions such as the Wright Brothers

Memorial at Kitty Hawk, the restoration of Fort Raleigh on Roanoke Island, and the inauguration of Paul Green's classic outdoor drama "The Lost Colony" began to draw tourists. In the post-World War II era, with the creation of a mass middle class with the time and disposable income for vacationing, along with expanding opportunities for retirement, the Outer Banks have become a major economic engine for the eastern portion of the region, one that places such as Elizabeth City, Edenton, and Plymouth are attempting to cash in on with historical tourist attractions. US Route 64, which connects Martin, Washington, Tyrell, and Dare Counties to the burgeoning Research Triangle, is being upgraded to near-interstate status.

One final recent development of note is the emergence of Greenville, in Pitt County, as a major economic growth pole. Up to the post-World War II era, Greenville was a small marketing center for a black-belt tobacco and cotton-producing region, otherwise chiefly notable as the home of a small state-supported teacher's college. Powerful politicians from Eastern North Carolina were eager to build up the school, and it became East Carolina University in 1967, with a medical school added in the 1970s. Now part of the University of North Carolina system (as is the smaller, historically black Elizabeth City State University), it is the third largest university in the state. At the same time, Greenville became a magnet for high-quality industrial firms such as Burroughs-Wellcome and remains so to this day. Unfortunately for the region, Greenville is located in its far southwestern corner, and so has only limited value as a growth center.



### **Socio-Political Analysis**

From the turn into the 20th century to 1964, the 17 counties in the Northeastern Zone were almost always solidly Democratic in federal and state elections. Now a clear and close partisan divide exists in the Zone. In recent elections, five counties with African-American voting majorities (Bertie, Halifax, Hertford, Northampton, and Washington with 49.9%) remain solidly Democratic. Pitt (usually) –which contains the metropolitan center of Greenville -- and Pasquotank (often barely) –which has the micropolitan and college-town of Elizabeth City -- have been joining them in the Democratic column. Seven counties are now solidly in the Republican column – Beaufort, Camden, Chowan Currituck, Dare, Hyde, Perquimans, and Tyrell). Three counties – Gates, Hyde, and Martin swing back and forth. Yet all three supported President Donald Trump in 2016.

In 2016, Secretary Clinton received a few hundred more votes than Trump, and Democrat Roy Cooper received a few thousand more votes than in Governor McCrory in the Northeastern Zone. If Greenville/Pitt continues to emerge as a metropolitan center, Democrats might benefit from a growing voting base beyond their blackbelt-county support. And as suggested somewhat by the case of Dare County, Democratic prospects in coastal, tourist areas might be improving especially due to environmental issues.

Overall, the population in most counties in the Zone has been getting whiter, more Republican, and showing little sign of liberal metropolitan or urban influence. During the first half of the 20th century, electoral politics in the Northeastern Zone counties was simple: all 17 counties were almost always solid Democratic territory.

In the confusing context of the 1896 election, 11 of its 17 Northeastern counties had either broken away from the Democratic column or continued a pro-Republican trend in supporting McKinley over Bryan. But in the sweeping Democratic comeback election of 1900, only four counties – Camden, Chowan,

Pasquotank, and Perquimans -- stuck with the Republican Roosevelt over Bryan. Then after black freedmen were disenfranchised in North Carolina at the turn of the century, all 17 counties voted for Bryan in 1904 and 1908.

Between 1904-1964, only four counties ever strayed from the Democratic presidential candidate and three did it only once. Four counties – Dare, Hyde, Tyrell, and Washington – broke from the Democratic column when New York’s Catholic Governor Al Smith won the party’s nomination. In 1956 Dare again switched to support Dwight Eisenhower’s re-election. But all Northeastern counties voted for Senator John Kennedy in 1960 as well as President Lyndon Baines Johnson in 1964.

The three-way 1968 presidential melee inaugurated an era of partisan change with a big bang. Democratic presidential candidate Hubert Humphrey won only 5 of 17 Northeastern counties – Bertie, Hertford, Northampton, Tyrell, and Washington. But Richard Nixon won only Dare County. Running on the American Party ticket, Alabama Governor George Wallace won the other 11 counties.

The 1972 election -- in which Democrat candidate George McGovern won only 29% of the vote statewide – witnessed a further seismic break from the Democrats in the Northeastern counties: all Wallace’s 1968 counties and all but one (Northampton 51.4% for McGovern) of Humphrey’s four 1968 counties supported Nixon’s re-election. (Orange County was the only other county in the state to go for McGovern.)

The post-Watergate candidacy of former Georgia Governor Jimmy Carter in 1976 brought all 17 Northeastern counties back to the Democratic line. But in subsequent presidential elections, Northeastern counties slowly started drifting away and mainly staying away from the Democratic column.

The first to leave the Democratic column were Beaufort and Dare in 1980 for Ronald Reagan. Chowan, Currituck, Martin, and Pasquotank joined them for Reagan in 1984. In 1996, Pitt County chose Bob Dole-Jack Kemp over Democratic native sons Clinton and Gore’s bid for a second term. Camden, Hyde, and Perquimans joined the Republican trend in 2000 with support for George W. Bush over Gore. Tyrell in 2008 came over to the Republican column. Martin came over to the Republican side in 1984, 2004, and again in 2016. Gates joined the Republican side in 2016.

While a few of these twelve counties have gravitated back to the Democratic fold in later presidential elections, four Northeastern counties in addition to Northampton have stayed in the Democratic column since 1974. As a result, a clear and evenly balanced partisan divide has developed in the Northeastern Zone. An examination of the 2016 presidential and gubernatorial races exemplify this divide.

Seven Northeastern Zone counties went Democratic in both the presidential and gubernatorial races in 2016. Nine were in the Republican column for both races. Only one county – Martin -- split between support for Trump in the presidential race and Cooper in the gubernatorial race. (The divide among counties in the less competitive US Senate race between GOP incumbent Richard Burr and Democratic challenger Deborah Ross was the same as in the presidential race.) Overall, Clinton outpaced Trump by less than four hundred votes, and Cooper won by less than 5,000 votes in the Northeastern Zone due to their margins of support in such bigger vote counties as Pitt and Halifax.

After the Nixon-McGovern blowout of 1972, four Northeastern counties rejoined Northampton and have stuck with Democratic candidates in every presidential election through 2016. These four counties are Bertie, Halifax, Hertford, and Washington. Both Obama in 2012 and Clinton in 2016 won all of them but Washington with more than 60% of the vote. (Clinton's majorities were still a couple points lower than Obama's 2012 majorities in all these counties).

Although falling below 60%, recent Democratic presidential victories in Washington have still been comfortable. Obama won with 59% in 2012 (and 58.7% in 2008) and Clinton in 2016 received 56.9%. In the 2016 gubernatorial race, Democratic candidate Cooper also won these five counties by very similar margins to Clinton. He won Bertie, Halifax, Hertford, and Northampton by 60% or more and Washington with a comfortable 55.5% percent.

Not coincidentally, registered African-American voters represent more than 50% of total county voters in the four counties where Clinton's and Cooper's majorities exceeded 60%. In descending order, counties are Hertford (63.13%), Bertie (59.63%), Northampton (58.03%), and Halifax (53.60%). African-Americans compose 49.9% of all registered voters in Washington [NC State Election Board 2019 data]. This Democratic five are all non-coastal counties clustered in the central part of the Northeastern Zone. Completing this Democratic group in 2016 were Pitt and Pasquotank.

Pitt is by far the most populous county in the Northeastern Zone. It is a non-coastal county located at the southern-most point in the Northeastern Zone. Pitt is the sole county in the Greenville Metropolitan Statistical Area (MSA). It has 114,718 registered voters (as of 2019) and a total population of 179,042. African-Americans represent 35.16% of the county's total registered voters. Only two other counties in the Northeastern Zone have more than 30,000 registered voters – Halifax (35,216) and Beaufort (31,366). After breaking for Reagan in 1980 and jumping back for Clinton in 1992, Pitt stayed with Republican candidates through the 53.3%'s re-election majority that President Bush received in 2004. Pitt then reversed course and voted for the Democratic presidential candidates in the last three elections. President Obama gained majorities of 54.1% in 2008 and 53.1% in 2012. Clinton gained a smaller 51.9% majority. In the 2016 gubernatorial race, Cooper won a slightly bigger 52.4% majority.

Greenville, with a population of 92,156, is by far the largest city in Pitt county and the Northeastern Zone as well as 10<sup>th</sup> largest in the state (ahead of Asheville at 12<sup>th</sup>). Greenville is home to East Carolina University. Its undergraduate enrollment is 23,265.

Pasquotank is an upper northern county near the Virginia border. With a population of 17,716 (52% African-American), Elizabeth City is the biggest city and the county seat in Pasquotank. It is home to the predominately African-American Elizabeth City State University in the UNC system. Undergraduate enrollment is estimated to be 1,371. After breaking for Reagan in his 1984 re-election bid and staying in the Republican column for Vice-President Bush's 1988 candidacy, Pasquotank has voted for Democratic presidential candidates in the last seven presidential elections. But the Democratic hold on Pasquotank was shaky in 2016. Obama had received 57.5% in 2012 and 56.5% in 2008. But Clinton won there with only a 49.5% plurality. In the gubernatorial race, Cooper received a bare 51.1% majority in the county.

Martin is a non-coastal county directly above Pitt in the Northeastern Zone. After first jumping out of the Democratic column in 1984 and doing it again for President Bush in 2004, Martin returned to the Democratic fold for President Obama. Obama gained a 52.1% majority in 2008 and 51.90% in 2012. But

in 2016 Trump won a 49.3% plurality. However, Roy Cooper gained a bare 51.1% majority against Gov. McCrory. African-Americans represent 42.84% of the county's registered voters.

Beaufort, Dare, and Hyde form a closely clustered trio of counties on the state's eastern coast. Tyrell is nearby on the Albermale Sound. Camden, Chowan, Currituck, and Perquimans (along with the still Democratic Pasquotank) are closely clustered in the state's upper northeastern corner on or near the Virginia border.

Six (6) counties have consistently voted for Republican presidential candidates in the last four presidential elections (2004-2016). These counties are Beaufort, Camden, Chowan, Currituck, Dare, Perquimans and Tyrell. Hyde gave Obama a bare majority (50.3%) in 2008 but re-joined this Republican bloc in 2012 and 2016. Tyrell joined the GOP bloc starting in the 2008 election.

The Republican margin in all eight (8) of these counties has been incrementally increasing each presidential cycle from 2008 to 2016. The six solid Republican counties since 2004 provided comfortable victories of at least 55% of the vote for McCain in 2008. Their majorities for Trump in 2016 exceeded 60% of the vote. The 2016 vote for Trump in both Hyde and Tyrell reached 56%. Moreover, in the 2016 gubernatorial race, Cooper lost all eight of these counties by the same kind of wide margins as Clinton did in the presidential race. Even though Cooper won statewide, these eight Northeastern counties thus did not reflect any kind of split-level Democratic affinity.

Not coincidentally, registered African-Americans in these eight solidly Republican counties now represent far smaller percentages of the total vote than in the six solidly Democratic counties. Tyrell at 31.16%, Chowan at 30%, Beaufort at 24.05%, Perquimans at 22.77% are above the statewide African-American percentage (21%). Dare at 21% is right at the state average. Camden's percentage at 12.93% is well below the state average. The other two have African-American percentages in the low single digits: Currituck is at 5.32% and Dare is all the way down at 1.89%.

The ninth Republican county is Gates. Up until 2016, Gates had been in the Democratic presidential column in every election since 1974. Obama won there by 52.2% in 2008 and 51.7% in 2012. But Gates gave Trump a 53.3% majority over Clinton. And Governor McCrory actually received a slightly larger 54.3% majority over Cooper.

Gates's 33.10% African-American registered vote percentage is higher than the eight other Republican counties in 2016. Gates is clustered with Camden, Chowan, Currituck, and Perquimans in the Zone's upper corner on the Virginia border.

Another way to categorize the Northeastern Zone counties can be based on the last three presidential elections and the 2016 gubernatorial election. The region can be characterized as seven solidly Republican counties, seven solidly Democratic counties, and three swing counties. The seven Democratic counties are Bertie, Halifax, Hertford, Northampton, Pasquotank, Pitt, and Washington. The seven Republican counties are Beaufort, Camden, Chowan, Currituck, Dare, Perquimans, and Tyrell. The three swing counties are Gates, Hyde, and Martin – although all three went for Trump in the 2016 election. In addition, Clinton's as well as Gov. Cooper's 2016 margins of victory were very narrow in Pasquotank.

In 2016 Clinton barely outpolled Trump overall in the Northeastern Zone counties by less than 400 votes (123,929 to 123,534). Cooper gained a somewhat larger victory of over 5,000 votes (125,023 to 119,840). The victories of both Democratic candidates can be attributed to the numerical margins that they were able to run up in the two biggest voting counties – Pitt and Halifax. Clinton won the most populous county of Pitt by 6,133 (41,824 to 35,691). Clinton’s numerical margin of 6,717 (15,748 to 6,717) in Halifax was slightly larger.

Cooper received slightly more votes than Clinton in Pitt and Halifax. But his larger numerical margin was mainly due to a drop-off in McCrory’s vote in both counties. Cooper gained his biggest numerical margin of 9,211 (41,916 to 32,705) in Pitt. He ran up a slightly less margin of 7,191 (16,021 to 8,830) in Halifax. This pattern of drop-off in the McCrory vote was not systematically repeated among all the other Democratic or Republican counties in the Northeastern Zone.

For example, in the third biggest vote county of Beaufort, McCrory received slightly more votes than Trump (14,610 versus 14,543). Still Trump won by the slightly larger numerical margin of 5,779 votes than McCrory’s 5,755 margin because Clinton’s vote was smaller than Cooper’s total (8,855 versus 8,764). McCrory also received slightly more votes than Trump in the Democratic counties of Bertie and Washington and in the Republican counties of Chowan and Tyrell.

As already mentioned, Cooper also won Martin County while Clinton lost it. But the numerical differences were very small. Cooper won the county by 222 votes (6,015 to 5,783) and Clinton lost it by 51 votes (5,897 to 5,846)

Trying to make any solid interpretation of the 2018 congressional election results in the Northeastern Zone is next to impossible. In addition to 2018’s status as a Blue Moon election cycle with no US Senate or Governor race, 3rd District Republican Congressman Walter Jones Jr. ran unopposed. Thus the Republican won all the votes cast even in such a Democratic county as Pasquotank.

The 3rd District covers 8 coastal or water-access counties in the most eastern part of the Northeastern Zone. These counties are Beaufort, Hyde, Dare, Tyrell, Currituck, Pasquotank, and Perquimans. A little over half of voters in Pitt County are also in the 3rd district.

Congressman Walter Jones died from an undisclosed illness on February 10 this year. Under state law, Governor Roy Cooper had to call for special election to fill the vacant seat in the 3rd District. But the Governor has yet to announce a date. [Pippin, “Uncertainty Remains Over Special Election to Fill Jones Seat,” Jacksonville Daily News, 2/17/2019] Jones was starting his 13th term in Congress this year. He was a former Democratic state House member and the son of long-time Democratic Congressman Walter Jones Sr. in the old 1st Congressional District. Before becoming a Republican, Walter Jones Jr. lost his bid to take over from his deceased father in a 1992 special-election Democratic primary. In beating Jones, Eve Clayton became the first African-American to represent North Carolina in Congress since George Henry White was elected for his second and final term in 1898. Clayton was the first African-American female congressional representative in the state’s history. She served five terms in the US House.

In the 1994 “*Gingrich Revolution*” midterm election, Jones moved over to run in the 3rd Congressional District as a Republican and unseated strong Democratic incumbent Martin Lancaster. Over the years, Jones easily beat back Democratic challenges. And later in his term, after he became a critic of the US’s war in Iraq, Jones overcame GOP primary challenges.

Now, after the Republican legislature's gerrymandering earlier in the decade, the population of the 3rd congressional district is 74% white and slightly below the statewide African-American average at 20.55%. A party bloodbath could perhaps take place in a GOP special primary election this year to replace Jones. But barring such an occurrence, the Republican primary winner should be heavily favored. Democrat G. K Butterfield now represents the 1st Congressional District. He was first elected in 2004. From 2015-2017, Butterfield served as head of the Congressional Black Caucus.

In recent years, the Republican legislature has heavily gerrymandered the 1<sup>st</sup> congressional district to pack as many Democratic voters as possible. The district now stretches all the way into Durham at the center of the state. In 2018 Butterfield won the district with an overall 69.85% majority against GOP challenge Roger Allison.

Butterfield won by at least 59% of the vote in 6 of the 7 Northeastern counties in the district. These are Bertie (64.14%), Halifax (62.17%), Hertford (70.58%), and Northampton (63.05%), Washington (59.24%), and a heavily Democratic part of Pitt (69.03%) The majorities were much closer in his two other Northeastern Zone counties – Gates (51.18%) and Martin (52.41%).

A rough indicator of the Democrats' remaining but slight electoral advantage is that its 2018 state House and Senate candidates received more votes in all the Northeastern Zone counties on a total combined or aggregate basis. Democratic State House candidates received 8,865 more votes (97,085 to 88,220) and Democratic State Senate candidates received 5,534 more votes (97,737 to 92,203). Three (3) African-American Democratic Senators represent parts of the Northeastern Zone. But the main district has a Republican Senator. In the House, 5 Republicans and 4 Democrats (3 African-Americans) represent parts of the Zone.

In the State Senate, one Republican (Bob Steinburg) now represents most of the Northeastern Zone counties. The 3 African-American Democrats represent a total of five other counties. (The North Carolina Senate now has a total of 10 African-American – all Democratic --Senators.)

**The State Senate:** District 1 is the main state Senate seat in the Northeastern Zone. Geographically, it is the largest Senate district in the state. The district covers Camden, Chowan, Currituck, Dare, Gates, Hertford, Hyde, Pasquotank, Perquimans Tyrell, and Washington. In 2018 GOP House member Bob Steinburg (age 70) moved to the Senate by beating Democratic Washington County Commissioner D. Cole Phelps (age 29) in an open seat battle by 53.21% (39,815) to 46.79% (35,017) [On the two candidates, see Kozak, "In the NC 1 Senate Race, A Study in Contrasts," Outer Banks Sentinel News, 10/16/18].

The most populous county and Democratic stronghold of Pitt is the sole Northeastern Zone county in State Senate District 5. Small Greene County is also in State Senate 5. In 2018 African-American Democrat Don Davis won Pitt with 55.50% (32,890) in Pitt and 55.34% (36,321) overall in the district. Davis had lost a bid for the state Senate seat in 2010. From 2013 till his election in 2018, Davis had been the mayor of Snow Hill in Greene.

Four other (4) other Northeastern Zone counties – Beaufort, Bertie, Martin, Northampton – are in State Senate District 3. In 2018 African-American Democratic incumbent Erica D. Smith (first elected in 2014)

won 53.86% (33,942) of the vote against Republican Chuck Earley. Senator Smith rolled up impressive margins in the Northeastern Democratic counties of Northampton (62.74%) – her home county and Bertie (62.88%) as well as the non-Northeastern Zone counties of Vance (61.07%) and Warren (66.25%) State Senator Smith more narrowly won Martin with 51.48% of the vote. She lost in Beaufort by 60.76-39.24%.

In late January 2019, State Senator Smith announced her candidacy for the Democratic nomination to challenge GOP US Senator Thom Tillis in 2020 [Grubb, “Teacher Becomes 3rd Democrat to Seek Thom Tillis’ US Senate Seat in 2020,” N&O,1/27/19].

The remaining Northeastern Zone county of Halifax is in State Senate District 4. In 2018 African-American Toby Fitch made a successful comeback to political life and beat Republican Richard Scott with 57.77% (36,471) of the overall vote. Fitch won Halifax with 60.04% (10,338) of the vote. After his election to the state House in 1984, Fitch had risen to become the House Majority Whip under African-American House Speaker Dan Blue in the early 1990s. Fitch retired in 2000. He lives outside the Northeastern Zone in the city of Wilson.

**The State House:** An oddly-numbered collection of 9 state House districts covers some part of the Northeastern Zone. In keeping with the Zone’s overall close partisan divide, 5 of these House members are Republican and 4 House members are Democrats (3 African-Americans).

Three House members represent parts of Pitt County. In 2018 the combined House vote totals in Pitt for the three Democratic and Republican candidates differed by eight votes. The Democratic vote of 29,227 edged out the Republican vote of 29,219. But two Republicans and only one Democrat now represent parts of Pitt in the House.

In House District 8 fresh(woman) African-American Democrat Kandie Smith, who is a former Greenville mayor, represents most of her home city. In 2018 her Pitt vote margin was just big enough (64.65%/a 7,055 margin) to outpace the victory margins in other parts of Pitt by Republican incumbent Greg Murphy (first elected in 2014) Greg Murphy in state House District 9 (59.96%/6,724 margin) and Republican Chris Humphrey (a former losing House candidate) in House District 12 (56.73%/813 margin). Murphy in House 9 represents eastern Pitt; Humphrey in House 12 represents a small slice of Pitt and Lenoir County (where he lives in the town of Kinston).

In 2018 three other Democratic incumbents won by wide margins. Incumbent African-American Howard Hunter (first elected in 2014) from Hertford County won with 59.92% of the vote in District 5 (Gates, Hertford, and Pasquotank). Melvin Wray (first elected in 2004) from Northampton County won with 69.33% of the vote in District 27 (Halifax and Northampton). The only Northeastern Zone county in House District 23 is Martin County; African Democrat (male) Shelly Willingham (first elected in 2014) from Rocky Mount received a 51.1% majority in Martin but a 60.85% majority overall in the district. Two other Republicans also won by wide margins. Political newcomer Keith Kidwell held a Republican seat with a 59.37% (11,134 votes) majority in his home county of Beaufort and won overall with 60.59% (17,247) in District 23 (which also includes the western half of Craven County). Former Chowan County Commissioner Edward Goodwin won more narrowly with a 53.1% majority in District 1 (Bertie, Camden, Chowan, Perquimans, Tyrell, and Washington).

The closest House race involving Northeastern Counties was Republican Bobby Hanig's 55.03-44.97% victory in District 6 over his Democratic female opponent Tess Judge from Dare County. Hanig successfully moved from his former post as chairman of the Currituck County Commissioners by rolling up a 68.23% majority in his home county and a 59.49% majority in the non-Northeastern county of Pamlico. But Democrat Tess Judge won in her home but otherwise Republican-leaning Dare County with a 53.41% majority. She also gained a 52.3% majority in otherwise Republican-leaning Hyde. [On the candidates, see Jurkowitz, "Hanig and Judge Compete for N.C. House Seat," Outer Banks Sentinel News, 10/12/18.]

At the County Commissioner level, Republicans have all the seats in Camden (5-0) and Currituck (6-0) plus strong majorities in Beaufort (5-2) and Dare (5-2). Democrats have all commission seats in Bertie (4-0), Halifax (5-0), Hertford (5-0), Northampton (5-0), and Washington (5-0) and a solid majority in Pitt (6-3), and a one-seat majority in Pasquotank (4-3).

Four counties that have been swinging to support of GOP candidates at the federal and state level still do not have Republican County Commission majorities. These counties are Chowan (3-3-1), Gates (0-5), Martin (1-4), and Tyrell (2-3).

But changes toward the Republicans were still evident in 2018. For example, Democrats had a 5-2 majority in Chowan before the 2018 election. But they lost two incumbents (including the Commission Chair) by wide margins to a Republican and a conservative Unaffiliated candidate. Thus Chowan in effect has a 4-3 Republican-laden conservative majority. Moreover, in Martin County's only County Commissioner race, the Republican candidate took a formerly Democratic seat with a narrow 50.26% majority.

It should also be noted that the otherwise most populous Democratic stronghold of Greenville in Pitt County has had a Republican mayor since 2017. A young (now 36), former college baseball player at East Carolina University named P.J. Connelly won a comfortable 56% majority in a four-way race. Although the mayor's race in Greenville is officially nonpartisan, Connelly has been outspoken about being a Republican and successfully worked to attract the 2020 Republican state Convention to Greenville [See Greenville Daily Reflector, "State GOP Convention is Coning in 2020," 1/23/18].

One notable 2018 victory for Democrats at the County Commissioner level was in Dare County. In addition to Dare Democrat Tess Judge taking the county in her losing 6th District House race, a Democrat (Edwin Bateman) took over a previously Republican at-large (countywide) open seat with a slight majority [8,438 to 7,794] over GOP candidate Anne Petera. [On the candidates, see Wagner, "Bateman and Petera Vie for At-Large Seat," Outer Banks Sentinel News, 10/12/18.]

Not surprisingly, due to the solid Democratic legacy in the Northeastern Zone, most counties still show Democratic (2019) registration numbers significantly ahead of Republican numbers and thus understate current Republican political strength in many Northeastern counties. Only in 3 counties do Republicans have a registration advantage over Democrats: Camden (2,371 to 1,903), Currituck (7,151 to 3,512), Dare (8,811 to 7,877).

Of more note perhaps is the rise of voters in the Northeastern Zone choosing to register as Unaffiliated. In fourteen counties, Unaffiliated voters are now the second largest category. Only in the solidly Republican

county of Beaufort are Unaffiliated voters in third place (12,130D-10,445R-8,696U). Unaffiliated voters are the largest category in Camden (2,949U-2,371R-1,903D), Currituck (7,180U-7,151R-3,572D), and Dare 10,837U to 8,811R- 7,877D). Observers have viewed the strong Unaffiliated trend in such counties as the strong preference of out-of-state white retirees who have moved there over recent years. [See, e.g., Wynne, “Currituck County,” PoliticsNC, 7/16/13] Hyde however is the only county of this trio with any recent evidence of a non-Republican independent streak.

This movement toward at least formal political independence in the 17 counties of the Northeastern Zone however is not as pronounced as in the 13 counties of the Western Zone. There Unaffiliated voters are the biggest category in four counties (including the second biggest county Henderson) and are close to overtaking Democratic registration in the population center of Buncombe. In contrast, Democrats have strong registration advantages in Pitt and other strong voting bases as Halifax and Hertford. As already emphasized, a strong correlation in the Northeastern Zone exists between the African-American percentage share of registered voters and the partisan voting patterns of counties. The five counties with African-American majorities – or close to such a majority -- among registered voters are solidly Democratic. These are Bertie (59.63%), Halifax (53.60%), Hertford (63.13%), Northampton (58.03%), and Washington (49.88%). The eight counties with an African-American share at 31% or less are on the whole solidly Republican. These are Beaufort (24.05%), Camden (12.93%), Chowan (30.18%), Currituck (5.32%), Dare (1.89%), and Hyde (28.X%)

The four counties with current African-American registration shares above 31% and below 45% are Gates (33.1%), Pitt (35.16%), Pasquotank (36.20%), and Martin (42.84%). The fact that Martin could give Donald Trump even a 49.3% overall plurality in 2016 stands out as the most extreme example of Republican partisan support among white voters. In something of a contrast, the small land-locked county of Gates on the Virginia border with an African-American share of 33.1% (in 2019) still managed to give President Obama slight majorities in 2008 and 2012. However, since Gates’ African-American population percentage has been shrinking due to an influx of retirees and white residents from the Virginia Beach area, the African-American registration percentage was probably somewhat higher in 2012 and 2008. [See Wynne, “Gates County,” PoliticsNC, 3/13/13]. In any event, Gates delivered majorities to Trump and McCrory in 2016.

For example, the conservative commentator John Wynne commented in 2013 that Paquotank was the political “exception” to the Republican trend along the Northeastern border due to Elizabeth City State. Because of Elizabeth State’s influence as an economic engine and symbol, the type of white voters attracted to or staying in the county were “not as conservative” and “monolithically Republican.” On the other hand, more white retirees and transplants from the Virginia Beach area continues to put pressure on the Democratic advantage in Pasquotank [Wynne, *supra*]. The influence of Elizabeth City State could also be waning as it continues to struggle with enrollment and financial difficulties.

Pitt appears to be a brighter competitive spot for Democrats. In contrast to Elizabeth City State, East Carolina and especially its medical complex in Greenville continue to demonstrate significant growth. [On the battle in the UNC system over a medical school at East Carolina, see Link, “The East Carolina Challenge,” Chapter 8 in William Friday: Power, Purpose, and American Higher Education (1995) 221-46.] Pitt’s 30.9% college attainment percentage (people 25 and over with college degrees) is slightly above the state average and will probably continue to rise over time. Some political observers attribute the

Democratic turnaround in Pitt and the way that Democrats are hanging on in Pasquotank at least in part to the influence of the UNC system universities in Greenville and Elizabeth City.

Pitt in effect seems to be somewhat fitfully developing a version of the city-based “Atlanta Coalition” featuring upscale whites and mainly downscale African-American voters now delivering Democratic majorities in Mecklenburg, Wake, Guilford, Forsyth, and Durham. As Wynne put it in 2013, “Pitt County is becoming less ‘eastern’ and more of a modern metropolitan county – but it’s not there yet.” [“Pitt County,” PoliticsNC, 2/6/13] Pitt’s future is by no means as assuredly liberal or Democratic as Buncombe’s future in the Western Zone appears to be. It is near impossible to imagine Asheville, Charlotte, Raleigh, Greensboro, or Winston-Salem with such an aggressively Republican mayor as Greenville’s P.J. Connelly.

Still some political observers suggest that the growth of Hispanics and other minorities could soon combine with the significant minority populations in places like Pitt to form non-white voting majorities [On this possibility in Pitt, see, e.g., Wynne, supra]. While the Hispanic/Latino population in Pitt is now above 6%, voter registration barely reaches above 2%. But in Pitt those people not identifying as white represent 55.5% of the population and nearly 45% of registered voters. Still the consistent loyalty of other non-white voters usually does not match African-American support for the Democratic Party.

Another modest trend in favor of Democrats is the relatively less conservative voting patterns of white voters in tourist-based coastal areas. In a 2015 Political Geography article, political scientist Dante Scala and two other scholars pointed out that white voter support for President Obama’s 2008 and 2012 candidacies was stronger in North Carolina’s as well as other “recreational” counties which attract tourists and resident in-migrants than in other rural areas. [See Scala et al, “Red Rural, Blue Rural: Presidential Voting Patterns in a Changing Rural America,” Political Geography (Sept. 2015) 108-118, 113]

The Northeastern Zone counties of Dare as an example of this less conservative pattern. For example, given that Dare’s registered African-American vote percentage was in the low single digits, Hillary Clinton’s garnering 36% there in 2016 can seem rather extraordinary. Dare was Clinton’s best North Carolina county with a population more than 80% white. And in 2018, Democratic candidates managed to win an at-large County Commission seat (Bateman) and gain a county-side majority in a (losing) State House race (Judge) in Dare.

In the spring of 2012, moreover, Dare was one of only 8 North Carolina counties to vote against the state constitutional Amendment 1 ban on same-sex marriage. In contrast, the heavily African-American Democratic stronghold of Hertford County registered 70% support for the ban even though it was President Obama’s second-best North Carolina county in 2012.) [See Janz, “Dare County,” PoliticsNC, 7/23/18, see also Wynne, “Hyde County,” PoliticsNC, 2/20/13 (noting the cluster of “some very liberal whites and a sizable gay community” in Hyde)]

The best example of the county’s liberal streak comes on environmental issues. Both Republican and Democratic candidates in Dare for example readily express their opposition to offshore drilling [See the Outer Banks Sentinel profiles of the 2018 Dare County Commissioner and State House District 6 races cited supra].

Moreover, in 2018, the Republican state legislature’s repeal of a local ban plastic bags became a political flashpoint. Republican State Representative Beverly Boswell from Dare supported the party line and voted for the repeal. Local political observers pointed out that Currituck County Commissioner Bobby Hanig in the GOP primary was able to upset Boswell in her home county by 426 votes and Hanig won district-wide by 411 votes. [Jurkowitz, “Five Takeaways from May 8,” *Outer Banks Sentinel*, 5/11/18]

Nevertheless, as the long and complicated history of the decades-old Bonner Bridge controversy underlines, the intertwining of transportation and environmental concerns can be especially tortuous in Dare. The 2.3-mile bridge replacement connection over the Oregon Inlet long championed by former Senate Democratic leader Mark Basnight is now finally opening. Many political leaders from the county are working for the bridge to be renamed for Basnight. Yet for many years, environmentalists and some transportation experts opposed this short bridge option in favor of a 17-mile option [See, e.g., Keller, “The Basnight Bridge?” *Outer Banks News Sentinel*, 1/15/19; Bunyea, “Bridge Replacement Still Controversial,” *Outer Banks News Sentinel*, 12/7/05].

And far more powerfully than any spots of emerging Democratic strength, the legacy of the past and new trends in the Northeastern Zone may be combining to lock in and enhance Republican prospects. In his 1949 classic work on Southern Politics, V.O. Key explained that the “character of the politics” in especially rural areas throughout the region varied “roughly with the Negro proportion of the population” [Key, *Southern Politics in State and Nation*, 5]. Now, decades after the African-American re-enfranchisement guaranteed under the Voting Rights Act of 1965, Key’s formula still seems to fit the politics of many counties in the Northeastern Zone in a revised but still systematic way:

- Those counties with an African-American voting majority or close to it vote solidly Democratic – for example, Bertie, Halifax, Hertford, Northampton, and Washington.
- But in most counties with even sizable African-American minorities above the state average, white majorities are overwhelmingly backing Republicans in federal and state elections – for example, Beaufort, Chowan, Gates, Martin, and Tyrell.

A recent highly-noted work by a team of Harvard and Stanford political scientists has even argued that the politics of white voters in such places as the Northeastern Zone have “deep roots” in slavery’s legacy. In 1860 the Northeastern Zone contained some of the most “blackbelt” counties in North Carolina and the South with majority-slave populations. Pitt actually had the lowest slave percentage (22%). Camden (29%) was the only other county below thirty percent. While the Harvard-Stanford team did not specifically analyze the Northeastern Zone, they contrasted the conservative white politics in other such historically blackbelt regions with the liberal politics of Asheville where slavery did not dominate economic and political life. (15% slave population in 1860). [Acharya, et. al., *Deep Roots: How Slavery Still Shapes Southern Politics* (2018) 3-5, 98-99, 203, 215-16]

Certainly not all the politics of the Northeastern Zone can be reduced to the matter of race. A “chain reaction” of other issues regarding federal government power has helped to generate the rise of Republicanism in many of its counties. It should also be noted that Dare as well as three other Northeastern counties (Hyde, Tyrell, and Currituck) did not had a proven record of voting discrimination in the second half of the 20th century requiring Justice Department pre-clearance coverage of their election practices under the Voting Rights Act of 1965.

New demographic forces are also helping to shape today's politics in the Northeastern Zone. Most Northeastern counties are becoming whiter with the influx of retirees and transplants from the burgeoning Virginia Beach area across the state border. The exceptions are basically majority-black counties. And while other counties are growing or holding near steady in population, majority-black counties are mainly losing population (whites as well as blacks) – and thus voting strength. From 2010-2016, the percentage population decreases from municipalities in Bertie, Northampton, and Washington were the largest in North Carolina [See Stanford, “Examining Decline in North Carolina’s Municipalities,” Carolina Demography, 7/5/17]. Thus, if the partisan political divide among Northeastern counties simply stays stable, Republican voters will soon outnumber Democrats in the region.

At the same time, despite the influx of new and more affluent white voters, the region is showing little sign of emerging urban or metropolitan centers which have been associated with Democratic influence in the North Carolina Piedmont. The only North Carolina-based Metropolitan Statistical Area (MSA) in the region is Greenville/Pitt. Underlining their lack of connection to the rest of North Carolina, Currituck and Gates are now in the Virginia Beach/Norfolk/Newport News MSA – and more Northeastern counties may be joining them in future years. Six counties (Bertie, Chowan, Hertford, Hyde, Martin, and Washington) are still so rural that they are not even connected to a small-town “micropolitan” job hub. Such counties as Camden and Currituck do not have any incorporated municipalities.

Thus, the Northeastern Zone may be fated to stay even more invisible than the Western Zone in North Carolina's increasingly metropolitan political life.

### **Strengths, Weaknesses, Opportunities and Threats (SWOT)**

Strengths, weaknesses, opportunities and threats are always an important aspect of any region's prospects for economic prosperity.

In the Northeastern Prosperity zone, generally, the following SWOT observations pertain:

#### Strengths

- Outer Banks/natural resource amenities
- Proximity to Virginia Beach (large metro area)
- Two UNC campuses: East Carolina (eastern flagship campus) and Elizabeth City State University
- Pitt County – in the Greenville MSA – is a core metro county that has experienced relatively strong growth since 1990. Pitt grew faster than the state rate in the 1990s (24% vs. 21% statewide) and 2000s (26% vs. 19%), though it has grown slightly slower than the state rate since 2010 (6.5% vs. 7.7%)
- Presence of ECU gives region a high share of 15-24 year-olds: just over 16% of this sub-PZ's population is 15-24, above the state average of 13%.

#### Weaknesses

- It has the smallest population of any region – very low density – and is barely growing. As a region, it is holding at steady population, but this trend masks the significant population decline in many counties.
- Lowest educated, relatively older population
- Potential weakness (?) – high concentration of black residents but overall less diverse than the state (smaller share of Asian and Hispanic residents)

- Youth drain – net out-migration of younger adults very common in many counties and has been ongoing for decades. Has double impact of 1) reducing working-age population immediately and 2) reducing future population growth by reducing size of childbearing population
- Population aging due, in large part, to youth out-migration combined with population aging overall. Older population means that many counties now facing natural decrease, with more deaths than births. This is compounding the net out-migration of young adults and creating a vicious cycle of population loss.
- Nearly all counties except for Pitt County are showing signs of difficulty. The six other counties in the Greenville sub-PZ grew slower than the state rate from 1990-2010 and all have lost population since 2010.
- Greenville sub-PZ includes some of the counties with the largest population losses since 2010, including: Northampton (-10.1%), Bertie (-9.7%), Martin (-7%), and Halifax (-6.1%). Lack of jobs in these regions likely a major factor – more than half of workers from these counties work outside of their county of residence:
- Halifax and Martin have had net out-migration every decade since 1990s. (Halifax one of the most classic examples of “youth drain”, with large, negative out flows of individuals ages 15-24.)
- All counties except Pitt County have classic profiles of youth drain. Overall, there was net loss of individuals in their late 20s and in their 30s and children 5-9 between 2000-10.
- All counties except Pitt County have had both net out-migration and natural decrease since 2010. This underscores the dual challenge of population aging and lack of economic opportunities.
- Lower educational attainment and has not significantly closed gaps with state. In 2017, adults 25+ in this region were more likely to have less than a high school degree than the state average (16% vs. 13%) and were less likely to have an associate degree or higher (33% vs. 39%).

### Opportunities

- Inner Banks development
- Development of Greenville into stronger metropolitan hub. Currently, region is very dispersed in terms of commuting patterns with no clear hub. Neighbors to Pitt commute to Pitt but Dare and Pasquotank are also regional pulls. Outside of region, Rocky Mount, Raleigh, and Virginia Beach metro areas are major destinations.
- An airport in Greenville or stronger train connections
- Develop Greenville into stronger metropolitan hub. Currently, region is very dispersed in terms of commuting patterns with no clear hub. Neighbors to Pitt commute to Pitt but Dare and Pasquotank are also regional pulls. Outside of region, Rocky Mount, Raleigh, and Virginia Beach metro areas are major destinations.
- Identify ways to better integrate Halifax, Northampton, Hertford, and Bertie. Currently, this cluster of counties is not significantly contributing to either the Pitt area workforce or to the workforce in Pasquotank (Elizabeth City), the other primary regional pull.

### Threats

- Hospital closures. Aging individuals with the capacity to leave may choose to relocate due to lack of medical facilities. Lack of high-quality medical care may pose a barrier to development as a retiree destination. Of course, Baby Boomers stop aging into retirement age in 2030 – investing too heavily in attracting retirees and not developing broader opportunities would soon be a losing proposition.
- Lack of internet connectivity/coverage and other resources (e.g., diverse grocery stores, restaurants) that might bring individuals who are able to telework and interested in a coastal,

more rural way of life. Lack of internet connectivity also creates barriers to introduction of innovations such as telehealth.

- Declining population and declining child population = increased risk of school closures, consolidation. Could place increased burdens on schools that are already struggling with relatively lower performance due to high levels of poverty – which means working-age individuals with children may be less likely to relocate to these communities.
- Sea level rise, climate change, and related risks pose challenge to coastal communities.
- Lower home values mean lower property tax base to generate revenue.

### **Elizabeth City Sub-Prosperity Zone**

In the context of Elizabeth City, the following additional observations pertain:

#### Strengths

- Home to Elizabeth City State University
- Outer Banks: Dare, Currituck, and Hyde have some of the largest impacts of tourism. Measured as tax savings per resident due to tourism expenditures (2017 from VisitNC):
  - Dare was #1 - \$2,870
  - Currituck was #3 - \$906
  - Hyde was #4 - \$681
- Dare and Pasquotank both have a strong draw for commuters in the region (see Figure 1 below)
- Virginia Beach is a major destination for workers living in the Elizabeth City sub-PZ
- Higher concentration of adults at older ages indicates appeal to retirees. In 2017:
  - 28% aged 55-74 versus 22% statewide
  - 8% age 75+ vs. 6% statewide

#### Weaknesses

- Growth almost entirely fueled by Currituck and Dare counties, with some growth in Camden. Elizabeth City Sub-PZ had net gain of 1,326 residents since 2010:
  - 2,784 in Currituck
  - 2,179 in Dare
  - 601 in Camden
- Population losses in all other counties except for Perquimans (+21), with heaviest losses in Washington (-1,202), Pasquotank (-918), and Chowan (-688)
- While 7 of the counties are technically within the Virginia Beach CSA, this proximity to a larger metro region has not prevented them from experiencing population losses.
- The rural counties are facing the greatest challenges. Chowan, Hyde, and Washington are completely rural and have faced the most significant population losses since 1990 – and are projected to face the most significant losses going forward.
- The Elizabeth City sub-PZ has the smallest county in the state (Tyrrell) and some of the other smallest counties (e.g., Hyde, which is projected to have below 5,000 residents by 2038). In fact, only 3 of the region's 10 counties had over 25,000 residents in 2017—and they were not far about 25K: Currituck (26.3K), Dare (36.1K), and Pasquotank (39.7K). These small counties will have more limited data available. For example, areas with less than 5,000 residents are not provided in the ACS comparison profile tables due to instability in the estimates, which means that there is no ability to evaluate statistically significant changes year over year and that more data may be

suppressed. Furthermore, **none** of the counties in this region are large enough to be included in the ACS 1-year estimates, meaning that all data on local social and economic conditions is limited to 5-year averages. Moreover, this means that there may be more limited ability to evaluate sub-regions within the counties.

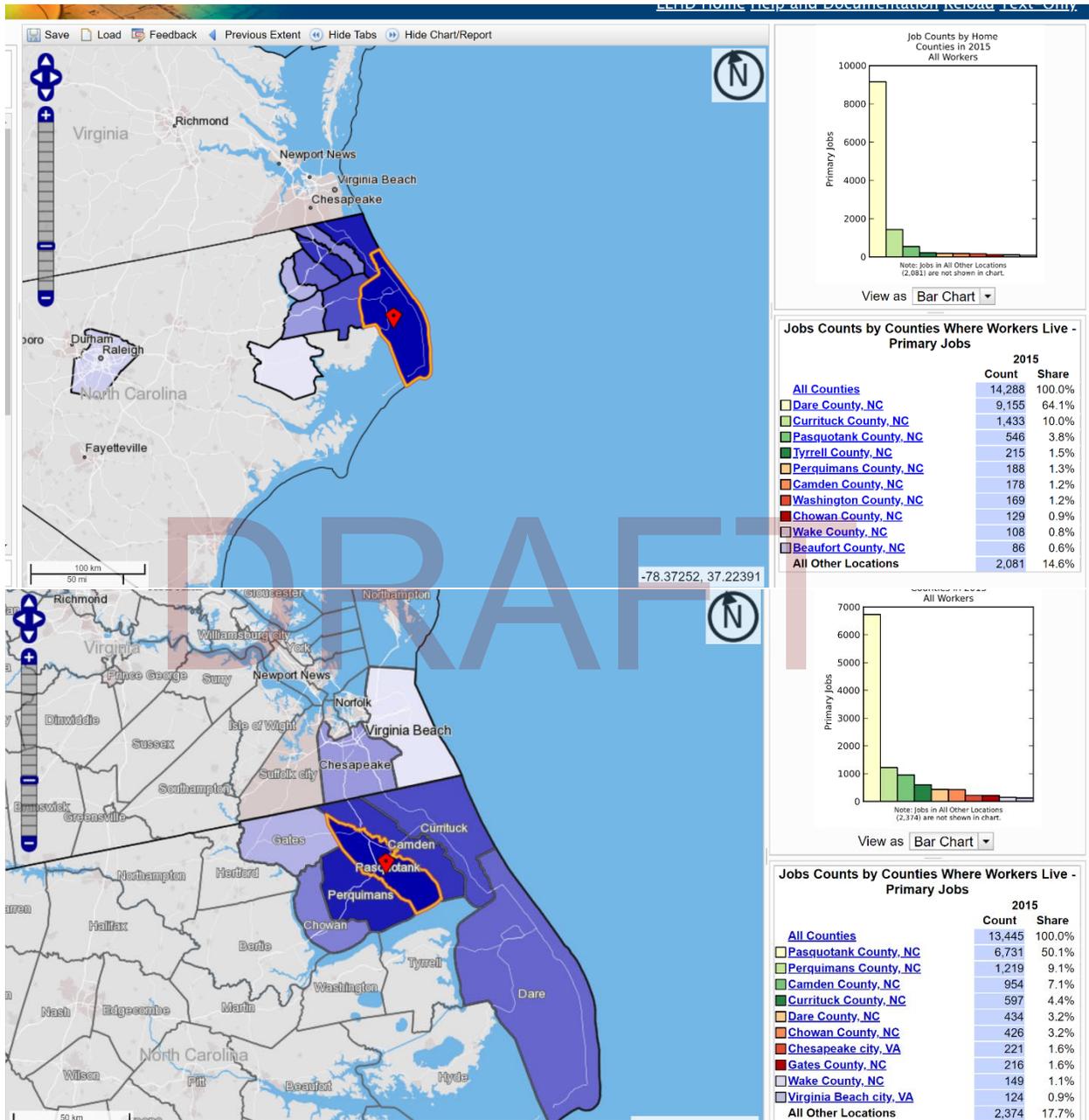


Figure 1: Commuter patterns in northeastern North Carolina

### Opportunities

- Improve opportunities for young/early career adults. Between 2000-2010, region had net in-migration for under 20 and 25-74 but had **net out-migration** for ages 20-24.

- Improve overall educational attainment. Since 1990, region has pulled into alignment with state in terms of adults 25+ with less than a HS diploma (13% in both Elizabeth City PZ and NC overall), but most of the gains have come from increases in adults with a HS diploma or GED or some college/no degree, not because a greater share of adults has an associate degree or higher. In 2017, 30% of Elizabeth City adults 25+ had completed an associate degree or higher, nine percentage points below the statewide rate of 39%.

### Threats

- Sea level rise, climate instability, and related risks could increase costs of living/quality of life and have a significant impact on continued growth and stability in Dare and Currituck. These impacts may be even more harmful to the counties on the Albemarle Sound that have not benefited from recent growth to the same extent as Dare and Currituck.
- Making plans for economic development based on current population projections may be unrealistic. While the Elizabeth City sub-PZ had strong net in-migration in the 1990s (+14K) and 2000s (+18K), net migration into the region has dropped substantially. Between 2010 and 2017, the U.S. Census Bureau estimates that the Elizabeth City sub-PZ has gained just 817 net in-migrants. In contrast, the current projections from the Office of State Budget and Management predict that the region will gain 6,359 net migrants between 2010 and 2020. Net migration for 2020-2030 and 2030-2038 are projected to be even higher, which appears unlikely to occur unless significant changes happen in this region.
- Due to population aging, region is projected to have natural decrease (more deaths than births), with net migration being the only potential source of population growth. Population loss from natural decrease may be even more significant than currently projected if the projected levels of net migration are not met.

### Employment, Demographic and Commutation Patterns

The figures below provide information about employment, demographic, and commutation patterns for counties in the Northeast Prosperity Zone.

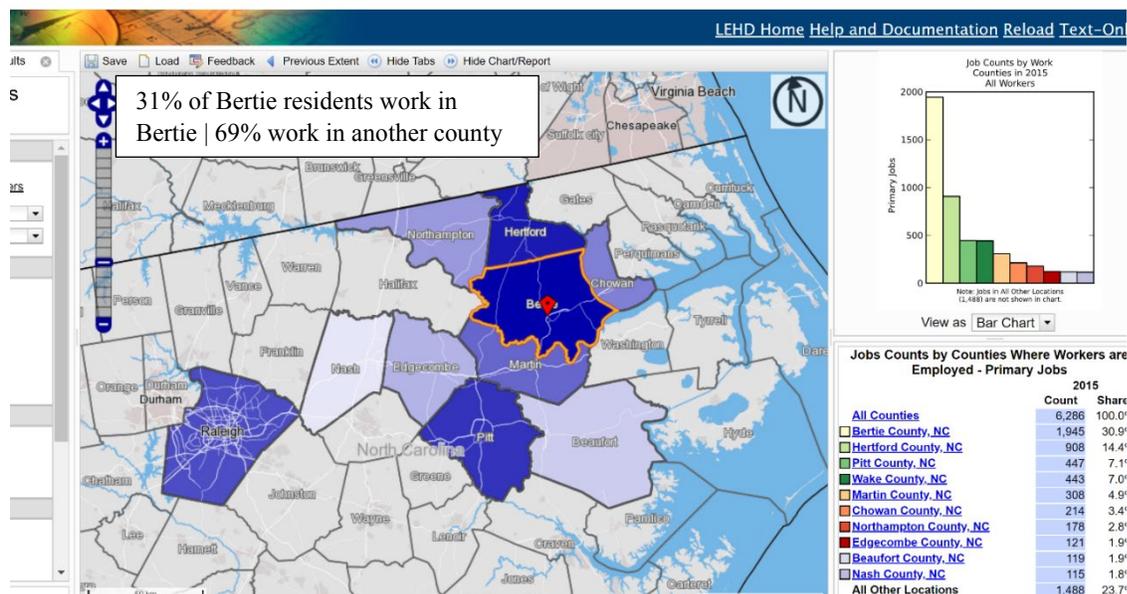


Figure 2: Commuter patterns for Bertie County

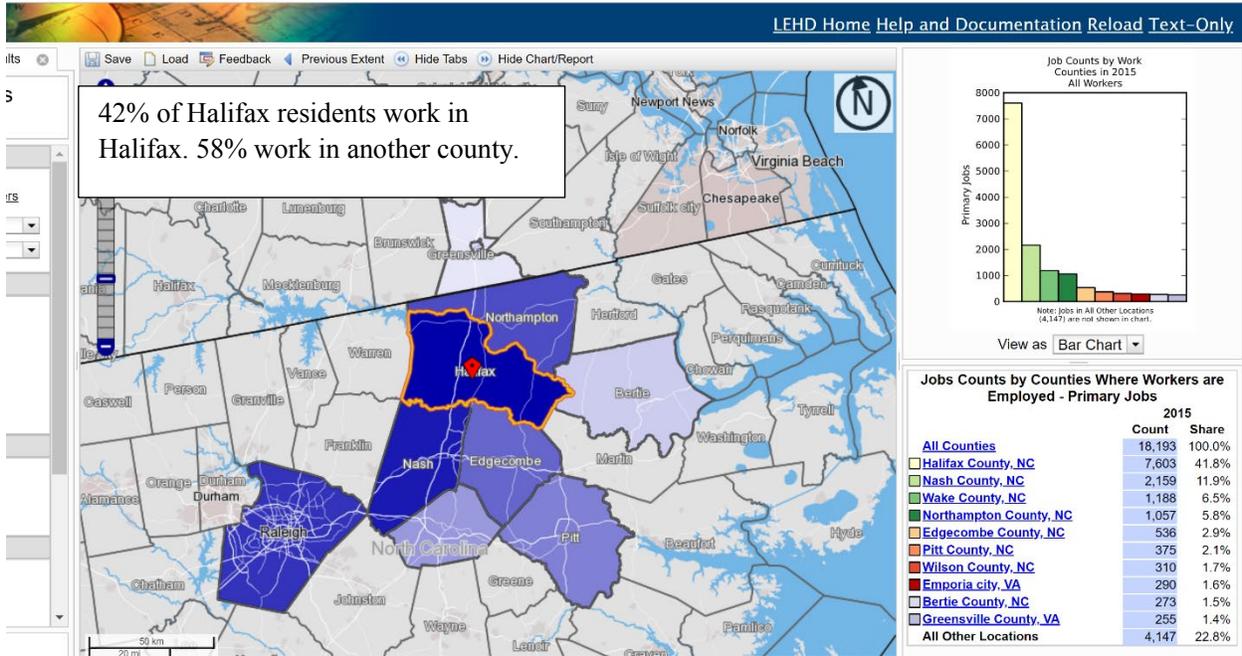


Figure 3 Commuter patterns for Halifax County

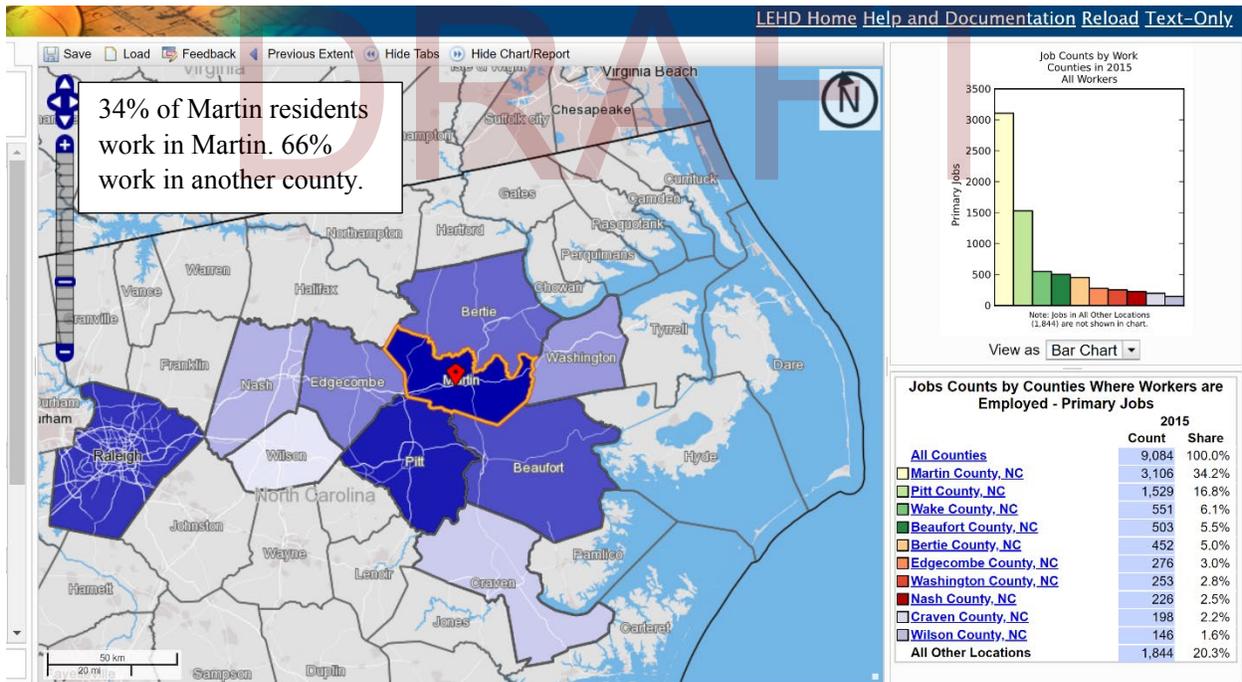


Figure 4: Commuter patterns for Martin County

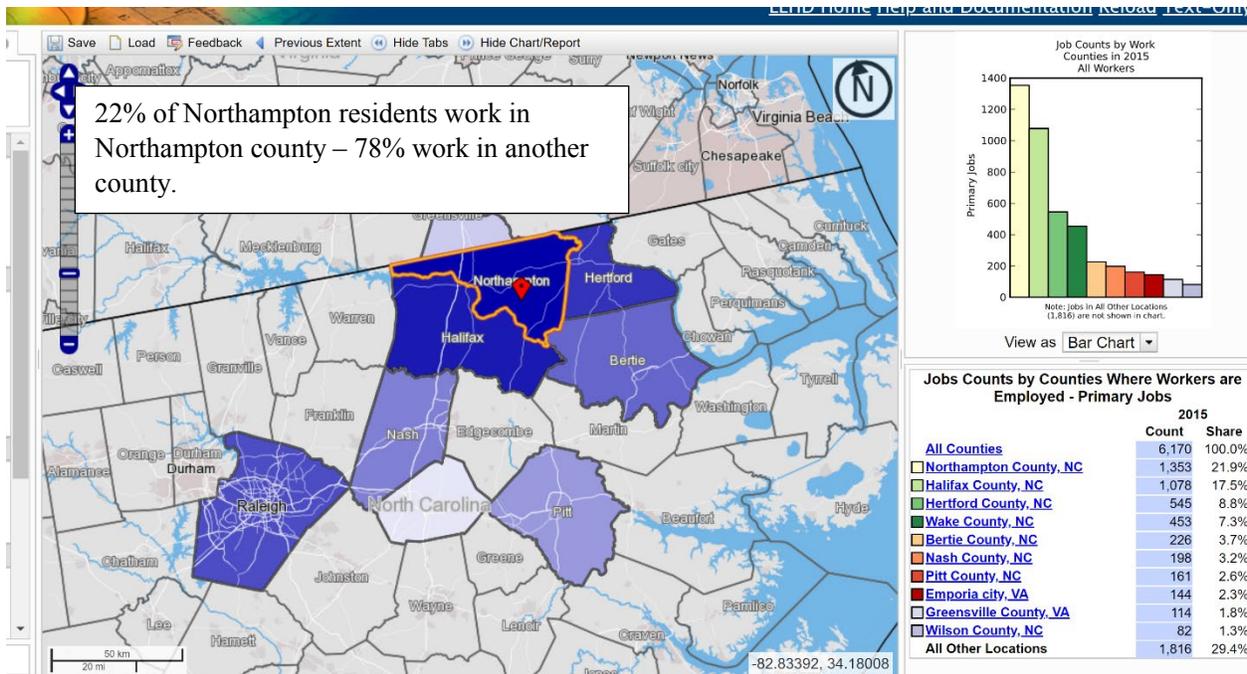


Figure 5: Commuter patterns for Northampton County

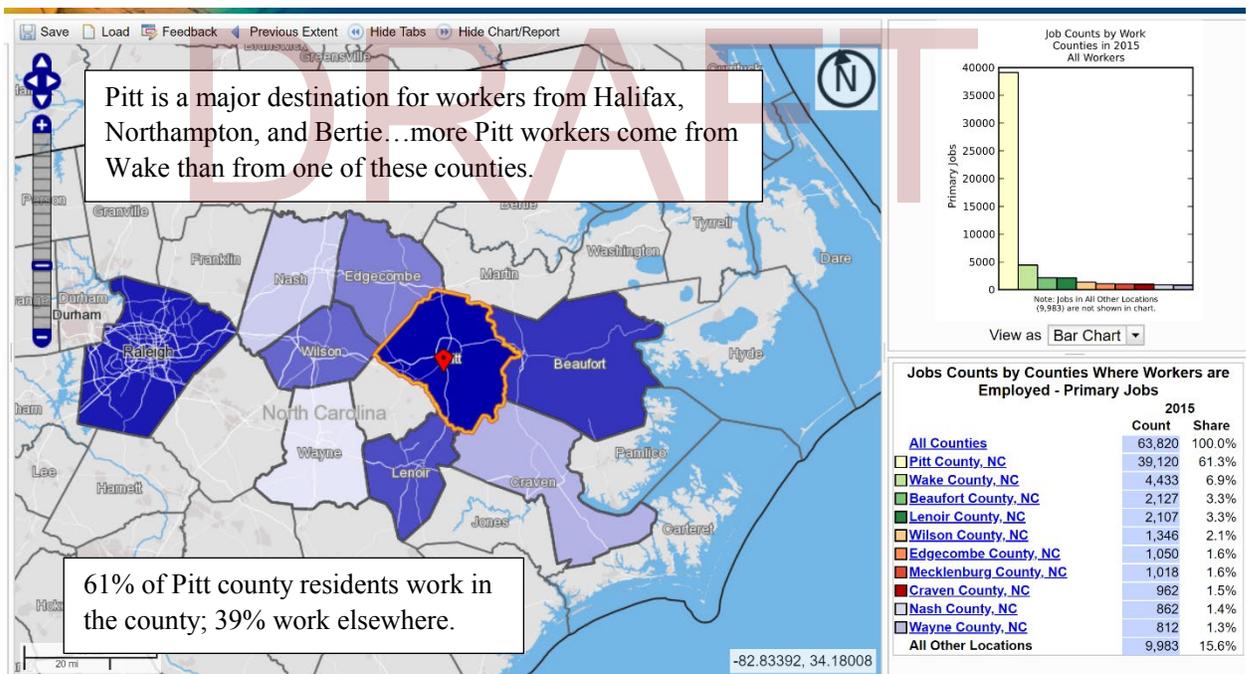


Figure 6: Commuter patterns for Pitt County

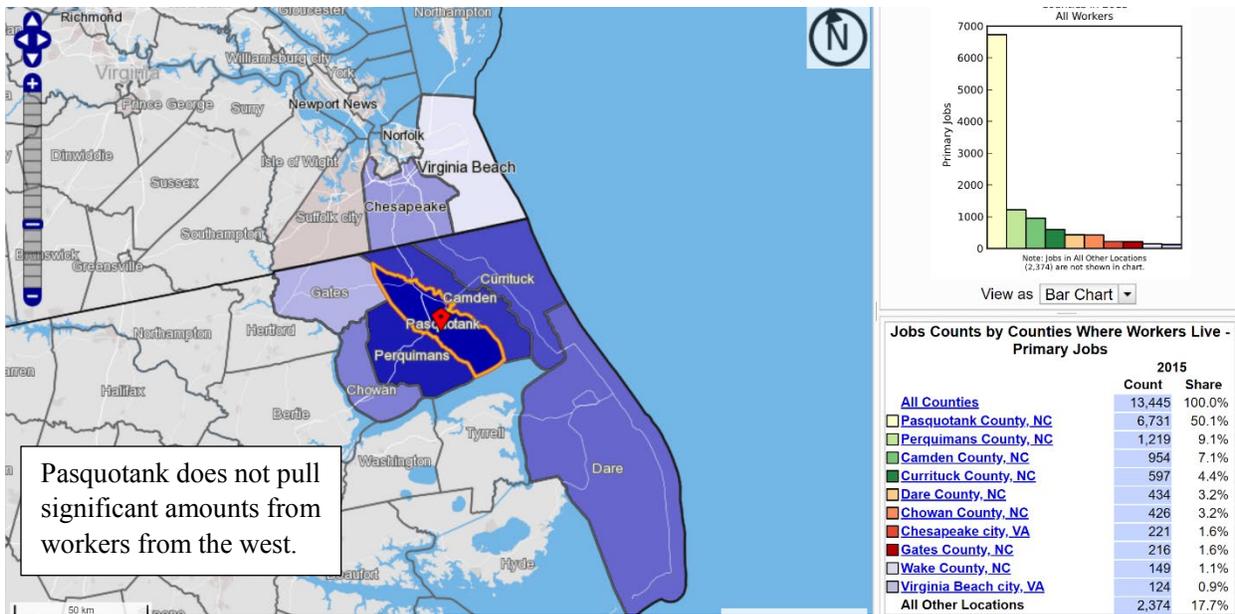


Figure 7: Commuter patterns for Pasquotank County

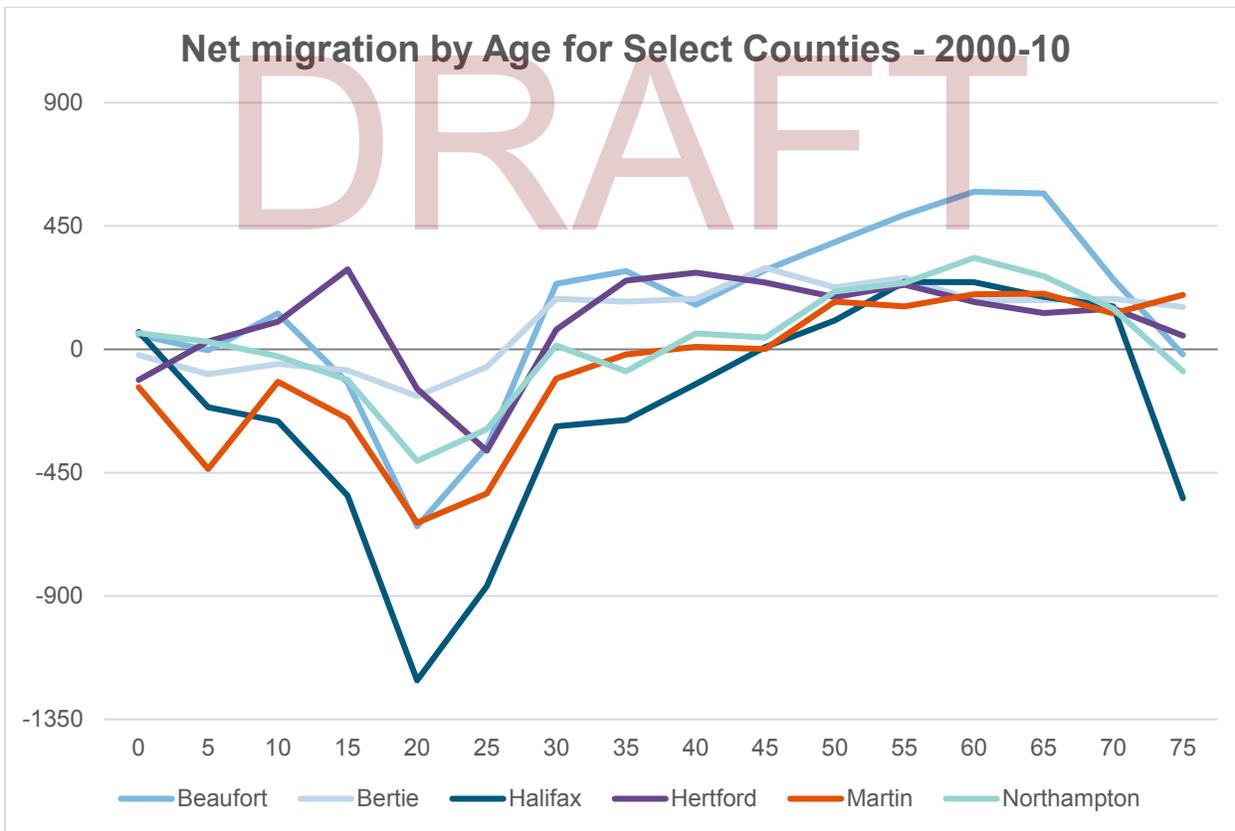


Figure 8: Net migration by age for selected counties – 2000-2010

## Western Prosperity Zone

The Western Prosperity Zone is one of eight statewide planning regions established by the N.C. General Assembly.<sup>1</sup> People of European descent migrated into this 13-county region—a region sandwiched between Tennessee, Georgia, and South Carolina—throughout the 19th century, in the process coming in contact with Native American peoples, notably the Cherokee.<sup>2</sup> In 2017, an estimated 727,000 people—or seven of every 100 North Carolinians—called the region home.<sup>3</sup>

Two sub-prosperity zones are within the region:

- Asheville: Buncombe, Henderson, Madison, Polk, Rutherford, Transylvania
- Waynesville-Franklin: Cherokee, Clary, Graham, Haywood, Jackson, Macon, Swain

The region has historically had an economy dominated by small farmers and merchants, the Western Prosperity Zone today is characterized by such economic trends as the following:

- The value of goods and services produced by businesses based in the Western Prosperity Zone equaled \$23 billion in 2015, the last year with complete estimates. Put differently, the Western Prosperity Zone generated \$5 of every \$100 in statewide economic activity.<sup>4</sup>
- The region contained some 18,000 private business establishments with employees in 2016, the last year with complete data; those firms accounted for 8 percent of the state's employer establishments. The region also contained another 64,000 establishments with no employees.<sup>5</sup>
- Of all business establishments, 8 percent were owned by persons of color in 2012, the last year with data; in contrast, persons of color contributed some 15 percent of the population.<sup>6</sup>
- The Western Prosperity Zone was home to, on average, 7 percent of the state's civilian labor force from 2013-17; of those people, 5 percent, on average, were unemployed.<sup>7</sup>
- The typical working person (age 25+) residing in the area had, on average, annual labor earnings of \$30,700 from 2013-17, an amount 12 percent less than the statewide figure.<sup>8</sup>
- On average, 15 percent of the region's population lived in households with incomes below the federal poverty level, with another 22 percent living in households with incomes no greater than twice that level; in all, 37 percent of all residents were poor or near poor.<sup>9</sup>

When such trends are broken out by the area's two sub-prosperity zones, noticeable differences appear between the six-county region centered on Asheville (Buncombe, Henderson, Madison, Polk, Rutherford, and Transylvania) and the seven-county region centered on Waynesville-

Franklin (Cherokee, Clary, Graham, Haywood, Jackson, Macon, and Swain). Buncombe County is the dominant driver of regional economic activity.

### **A Region Dominated by One Large Source of Economic Output**

The value of goods and services produced by businesses based in the Western Prosperity Zone equaled \$23.2 billion in 2015, the last year with complete estimates. Put differently, the Western Prosperity Zone generated \$5 of every \$100 in statewide economic output.<sup>10</sup> Noteworthy trends include the following:

- The region's private-sector enterprises generated \$19.9 billion in economic activity in 2015, out of a regional total of \$23.2 billion; that translates to \$86 of every \$100.<sup>11</sup>
- The largest source of economic output was the private service providing sector; such firms generated \$14.8 billion in economic output, or three-fourths of the private-sector total.<sup>12</sup>
- The total value of goods and services produced by businesses based in the Asheville Sub-Prosperity Zone equaled \$18.1 billion, an amount 3.5 times greater than the \$5.1 billion in economic output produced in the Waynesville-Franklin Sub-Prosperity Zone.<sup>13</sup>
- The major geographical source of regional output is Buncombe County, which is where \$48 of every \$100 originated. The county's \$11.2 billion in economic output was tied to diverse private and public activities centered in Asheville, the state's 10th most populous city.<sup>14</sup>
- After Buncombe County, the largest geographical sources of output were Henderson (\$3.9 billion), Rutherford (\$1.5 billion), Haywood (\$1.3 billion), and Jackson (\$1.3 billion) counties; when combined with Buncombe, these counties accounted for 83 percent of area output.<sup>15</sup>
- In 2015, economic output per capita in the Western Prosperity Zone was an estimated \$32,500 versus a statewide figure of \$50,100. In the Asheville Sub-Prosperity Zone, the per capita figure was \$35,500, versus \$25,500 in the Waynesville-Franklin Sub-Prosperity Zone.<sup>16</sup>

### **A Geographically Concentrated Private Sector**

The region contained some 18,400 private business establishments with employees in 2016, the last year with complete data; put differently, the 13-county Western Prosperity Zone contained 8 percent of the state's private employer establishments.<sup>17</sup> The region also contained 64,100 establishments with no employees.<sup>18</sup> Noteworthy trends include the following:

- The entire region was home to 18,400 private business establishments with employees. Of these establishments, 13,700, or 75 percent, were in the Asheville Sub-Prosperity Zone, while 4,700, or 25 percent, were in the Waynesville-Franklin Sub-Prosperity Zone.<sup>19</sup>

- The largest geographic concentration of employer establishments was in Buncombe County, which contained 8,200 such establishments, or 45 percent. After Buncombe County, the most employer establishments were in Henderson (2,600), Haywood (1,400), Rutherford (1,200), and Macon (1,100) counties; these five counties contained 79 percent of all employer establishments.<sup>20</sup>
- Some 84 percent of private-sector employer establishments were in the broad service sector.<sup>21</sup>
- The largest concentration of establishments was in the retail trade super-sector (3,000), followed by the construction (2,200), other services (2,000), health care and social assistance (1,900), and accommodation and food services (1,900) super-sectors.<sup>22</sup>
- Compared to the whole state, the Western Prosperity Zone had higher than expected concentrations of employer establishments (in descending order) in the broad construction; arts, entertainment, and recreation; utilities; educational services; accommodation and food services; real estate and rental and leasing; and retail trade sectors.<sup>23</sup>
- Compared to the whole state, the Western Prosperity Zone had lower than expected concentrations of employer establishments (in ascending order) in the broad professional, scientific, and technical services; management of companies; transportation and warehousing; wholesale trade; finance; and information sectors.<sup>24</sup>
- Private employer establishments in the region had a total of 231,000 employees in 2016. Establishments in the Asheville Sub-Prosperity Zone employed 3.6 times as many people as did establishments in the Waynesville-Franklin Sub-Prosperity Zone (180,000 versus 51,000).<sup>25</sup>
- The largest geographic employment center was Buncombe County, which contained 117,000 employees, or 51 percent of the regional total. After Buncombe County, the largest centers were Henderson (33,000), Rutherford (16,000), Haywood (15,000), and Jackson (13,000) counties; these five counties contained 84 percent of the region's jobs.<sup>26</sup>
- Some 83 percent of regional employees worked in the broad service sector.<sup>27</sup>
- The largest concentration of employees was in the health care and social assistance super-sector (47,000), followed by the retail trade (39,000), accommodation and food services (37,000), and manufacturing (27,000) super-sectors.<sup>28</sup>
- Compared to the whole state, the Western Prosperity Zone had higher than expected employment (in descending order) in the broad accommodation and food service; health care and social assistance; retail trade; other services; arts, entertainment, and recreation; and construction sectors.<sup>29</sup>
- Compared to the whole state, the Western Prosperity Zone had lower than expected employment (in ascending order) in the broad management of companies; administrative and waste management; finance and insurance; utilities; professional, scientific, and technical services; transportation and warehousing; wholesale trade; agriculture; and information sectors.<sup>30</sup>

- In the Western Prosperity Zone, 58 of every 100 employer establishments had no more than four employees in 2016, a share greater than the statewide one.<sup>31</sup>
- In the Western Prosperity Zone, 88 of every 100 employer establishments had no more than 19 employees.<sup>32</sup>
- The Western Prosperity Zone had about the same share of large employer establishments, meaning those with 100 or more employees, as did the state. Approximately 2 percent of the region's establishments were so large in 2016, the same as the statewide figure.<sup>33</sup>
- Of the 327 establishments in the Western Prosperity Zone that had at least 100 employees in 2016, some 168 of them (51 percent) were in Buncombe County.<sup>34</sup>
- The Western Prosperity Zone had 64,100 non-employer establishments in 2016, the last year with complete data. Some 74 percent of those establishments were in the Asheville Sub-Prosperity Zone, and 26 percent were in the Waynesville-Franklin Sub-Prosperity Zone.<sup>35</sup>
- Non-employer establishments in the Western Prosperity Zone accounted for 9 percent of all such establishments in the state. Such businesses typically are small, unincorporated ones operated by self-employed persons and that have (usually) at least \$1,000 in annual sales.<sup>36</sup>
- Non-employer establishments generated \$2.6 billion in annual receipts in 2016.<sup>37</sup> Of that, \$1.2 billion was generated by establishments located in Buncombe County.
- In 2016, the Western Prosperity Zone was home to an estimated 266 government establishments that had 17,100 payroll positions. Local governments had the most payroll positions (12,500), followed by the state (3,700) and federal (938) governments.<sup>38</sup>
- Some 35 percent of all public-sector payroll jobs in the region are in Buncombe County.<sup>39</sup>

### **A Relatively Small Proportion of Minority-Owned Businesses**

Of all private business establishments in the Western Prosperity Zone, 8 percent were owned by persons of color in 2012, the last year with data; for context, persons of color account for some 15 percent of the population.<sup>40</sup> Noteworthy trends include the following:

- Persons of color owned in 2012 a total of 5,300 business establishments (employer and non-employer), or 8 percent of all establishments in the Western Prosperity Zone. Statewide, persons of color owned 23 percent of all business establishments.<sup>41</sup>
- The largest geographic concentration of minority-owned businesses was in Buncombe County, which had 2,100 establishments, or 40 percent of the area total. Henderson County had 18 percent of the total, followed by Swain and Rutherford counties (both 9 percent).<sup>42</sup>
- When compared to other establishments, those owned by persons of color were more apt to be non-employer establishments. Even among employer establishments, minority-owned establishments typically had fewer employees, smaller payrolls, and lower sales.<sup>43</sup>

- In Buncombe County, for one, nonminority-owned establishments were 16 times more likely than minority-owned establishments to have employees, with annual sales that were 27 times greater. Among employer establishments, nonminority-owned ones had 21 times as many employees and paid 34 times as much in wages than did their minority-owned peers.<sup>44</sup>

### **A Region Home to an Older Labor Force**

The Western Prosperity Zone was home to, on average, 7 percent of the state's civilian labor force in 2013-17. Compared to the whole state, the region's labor force is older.<sup>45</sup> Noteworthy trends include the following:

- From 2013-17, on average, 328,800 people participated in the region's labor force. After subtracting the 400 people in the armed services, a total of 328,400 persons were in the civilian labor force. In short, 7 percent of the state's civilian labor force lived in the area.<sup>46</sup>
- Across the region, an average of 56 percent of people of working age (ages 16+) participated in the labor force from 2013-17; in contrast, the statewide rate averaged 63 percent.<sup>47</sup>
- Compared to the state, about the same percentage of early-career workers (ages 25-34) participated in the labor force, on average, from 2013-17; across the Western Prosperity Zone, 82 percent of such workers were in the labor force, as were 83 percent of such workers statewide.<sup>48</sup>
- On average, prime-age workers (ages 25-64) accounted for 80 percent of the civilian labor force from 2013-17, as compared to a statewide figure of 81 percent. Compared to the state, older workers (ages 65+) accounted for a higher share of the civilian labor force.<sup>49</sup>
- On average of 5 percent of the region's civilian workforce was unemployed from 2013-17, compared to a statewide rate of 7 percent. The 17,600 unemployed persons in the region accounted for five of every 100 unemployed North Carolinians, on average.<sup>50</sup>
- The civilian unemployment rate averaged 5 percent in the Asheville Sub-Prosperity Zone from 2013-17, versus 6 percent in the Waynesville-Franklin Sub-Prosperity Zone.<sup>51</sup>
- In terms of individual counties in the Western Prosperity Zone, the average civilian unemployment rate ranged from 4 percent in Henderson County to 9 percent in Rutherford County.<sup>52</sup>
- In the region, average unemployment rates from 2013-17 were 1.9 times greater for African-American workers than non-Hispanic White workers (10 percent versus 5 percent); the unemployment rate for Native American workers was 1.8 times greater than that of non-Hispanic White workers (9 percent versus 5 percent).<sup>53</sup>
- Among prime-age civilian workers (ages 25-64) residing in the Prosperity Zone, on average, 34 percent possessed at least a bachelor's degree from 2013-2017, as did 35 percent of all such workers in North Carolina.<sup>54</sup>

- For employed civilians across the entire Western Prosperity Zone, one of every five, on average, worked in professional occupations from 2013-17. That share was higher in the Asheville Sub-Prosperity Zone than in the Waynesville-Franklin Sub-Prosperity Zone (26 percent versus 18 percent.)<sup>55</sup>

### **A Region Challenged by Low Earnings and Incomes**

Compared to the whole state, workers residing in the Western Prosperity Zone earned less than did their peers from 2013-17.<sup>56</sup> Lower earnings translate into lower household incomes, which results in higher proportions of people living in poverty and near poverty. Noteworthy trends include the following:

- In 2017, the average weekly wage in the Western Prosperity Zone was \$744, an amount 21 percent lower than the statewide figure of \$941; average weekly wages in the region were lower than the corresponding statewide figures in every major industrial sector except for leisure and hospitality services.<sup>57</sup>
- The average weekly wage paid in 2017 to positions in the broad service sector totaled \$715 in the Western Prosperity Zone versus \$915 statewide; the gap was smaller in the broad goods producing sector (\$905/week versus \$1,071/week).<sup>58</sup>
- The typical working person (age 25+) residing in the area had, on average, annual labor earnings of \$30,700 from 2013-17, an amount 12 percent less than the statewide figure.<sup>59</sup>
- In general, the typical worker (ages 25) residing in the area earned less, on average, than did the comparably educated worker in North Carolina.<sup>60</sup>
- The typical household in the Western Prosperity Zone had, on average, an annual income of
- \$45,300 from 2013-17. Median household income was higher in the Asheville Sub-Prosperity Zone than in the Waynesville Sub-Prosperity Zone (\$46,800 versus \$41,400) due to some high incomes logged in the counties in the metropolitan Asheville area.<sup>61</sup>
- Across the region, median household income from 2013-17 ranged from \$35,300 in Swain County to \$50,500 in Henderson County; in all, eight counties in the region had median household incomes below the regional value of \$45,300.<sup>62</sup>
- Across the region, the typical non-Hispanic White, African-American, and Hispanic households all had lower household incomes than did comparable households in North Carolina; within the region, household incomes generally were higher in the Asheville Sub-
- Prosperity Zone than in the Waynesville-Franklin Sub-Prosperity Zone.<sup>63</sup>
- Within the region, the typical non-Hispanic White household had a household income of \$47,100, as compared to \$30,800 for the typical African-American household and \$28,700 for the typical Hispanic household.<sup>64</sup>

- On average, 15 percent of the region’s population lived in households with incomes below the federal poverty level, with another 22 percent living in households with incomes no greater than twice that threshold; in all, 37 percent of all residents were poor or near poor.<sup>65</sup> In the region, poverty rates were higher for non-Hispanic White (13 percent), African-American (27 percent), and Hispanic (32 percent) persons than was typical in North Carolina. And, one-fifth of Native American persons lived in poverty.<sup>66</sup>
- Across the region, an average of 6 percent of all residents—some 41,000 individuals in all— lived in households with incomes no greater than half the poverty level. The “deep poverty” rate ranged from 4 percent in Henderson County to 11 percent in Swain County.<sup>67</sup>
- Across the region, an estimated 13 percent of all residents, on average, lacked health insurance coverage from 2013-17; the share of uninsured individuals ranged from 11 percent in Madison County to 21 percent in Swain County.<sup>68</sup>
- When broken out by age, persons ages 25-34 were the most likely regional residents to lack insurance (27 percent) followed by those ages 18-24 (25 percent) and ages 35-64 (17 percent).<sup>69</sup>

## Regional History

In October 1880, the Western North Carolina Railroad (WNCRR) completed the extension of its line into Asheville, North Carolina.<sup>1</sup> The era of transportation development that followed integrated the southwestern corner of the state (the Western Prosperity Zone counties of Buncombe, Henderson, Madison, Polk, Rutherford, Transylvania, Cherokee, Clay, Graham, Haywood, Jackson, Macon, and Swain) more thoroughly with the state and national economy. However, the era of economic development that followed has remained stubbornly uneven. Asheville has historically been the main driver of the region’s economy, and the city continues to have significant appeal as a tourist destination. The Asheville sub-prosperity zone likewise has enjoyed a greater level of economic growth and stability than the rest of the region. Counties in the Waynesville-Franklin sub-prosperity zone, meanwhile, have historically struggled to find a stable, sustainable economic base. Relying in the late nineteenth and early twentieth century on low-paying extractive industries, namely logging, the western zone attracted some industrial employers by the mid-twentieth century. However, except Buncombe, counties in the western zone have consistently struggled with low-paying jobs and, as a result, outmigration. This uneven historical development, dating to Asheville’s emergence as a vibrant New South town in the late nineteenth century and continuing through the eras of highway expansion and industrial development that followed in the twentieth century, has produced a region with wide disparities in the economy and quality of life of its rural areas and its central metropolitan area.

When the WNCRR reached Asheville, the line split into two branches. A northern branch penetrated the Blue Ridge Mountains and met the East Tennessee and Western North Carolina Railroad (ET&WNC) at the community of Paint Rock, near the state line. Construction on this northern branch was completed by 1885, connecting the state’s principal rail line, the North Carolina Railroad (NCRR), to valuable markets in the upper Mississippi and Ohio Valley. The WNCRR’s southern branch extended 120 miles from

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<sup>1</sup> Ronald D. Eller, *Miners, Millhands, and Mountaineers: Industrialization of the Appalachian South, 1880-1930* (Knoxville, 1982), 99.

Asheville to Ducktown, a copper mining community in the southeastern corner of Tennessee. When the southern branch was completed in 1891, the WNCRR passed through the towns of Waynesville, Bryson City, Bushnell, and Murphy, and it gave the NCRR an entry point to markets in the Tennessee Valley and lower Mississippi.<sup>2</sup>

The extension of the WNCRR made the southwestern region an attractive site for capital investments, opening the region to lumber and mining interests. It also brought tourists attracted to the burgeoning resort town of Asheville and the supposed health benefits of the mountain air. Tourism in Asheville received an additional boost in 1886, with the completion of the Asheville-Spartanburg Railroad. This line allowed for rail access from the South Carolina low country to Western North Carolina, and Asheville soon became a popular destination for Palmetto State elites seeking a more temperate climate during the summer months.<sup>3</sup>

As railroad lines expanded in the late nineteenth century, so too did the Good Roads Movement. A loose coalition of farmers, middle-class reformers, urban bicyclists, and economic boosters, the Good Roads Movement pressured local, state, and federal governments for increased investments in the construction and maintenance of highways. By the early twentieth century, rural communities in southwestern North Carolina would emerge as strong advocates for good roads. Farmers in particular came to value good roads for the improved access to markets and the alternative they provided to the high freight rates of railroads. Initially, however, North Carolina's urban areas were the first to take up the good roads mantle.<sup>4</sup>

Mecklenburg County in 1885 levied the state's first tax to pay for road building, and for several years afterwards, one historian has written, this "remained an isolated action."<sup>5</sup> Rural areas of the southwest, like other parts of the state, resisted the higher taxes associated with road building and instead relied on the less productive "statute labor system." This system required all able-bodied men to devote at least one day a year to road maintenance in their community. Though it kept tax burdens to a minimum, statute labor proved inefficient and rife with corruption. Men selected for road work lacked training in modern road building techniques, and others used connections with local politicians to exempt them from the duty.<sup>6</sup> As economist Cecil Brown summarized in his early history of North Carolina's highway system, the "accomplishments of this ancient labor tax method of road maintenance were distressingly meager."<sup>7</sup>

In the southwestern counties, Asheville became the first to embrace the gospel of good roads. Led by a business community eager to expand its tourism economy, Asheville became in 1899 the site of North Carolina's first locally organized Good Roads Association. Two years later, the arrival of the Good Roads Train—a promotional tool to showcase the benefits of improved roads, funded by the Southern Railroad,

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<sup>2</sup> Stephen Wallace Taylor, *The New South's New Frontier: A Social History of Economic Development in Southwestern North Carolina* (Gainesville, 2001), 16-22.

<sup>3</sup> Richard D. Starnes, *Creating the Land of the Sky: Tourism and Society in Western North Carolina* (Tuscaloosa, AL, 2005), 9.

<sup>4</sup> Taylor, *New South's New Frontier*, 22.

<sup>5</sup> Harry McKown, Jr., "Roads and Reform: The Good Roads Movement in North Carolina," M.A. Thesis, University of North Carolina-Chapel Hill (1972), 8.

<sup>6</sup> Howard Lawrence Preston, *Dirt Roads to Dixie: Accessibility and Modernization in the South, 1885-1935* (Knoxville, 1991), 20-22.

<sup>7</sup> Cecil Kenneth Brown, *The State Highway System of North Carolina: Its Evolution and Present Status* (Chapel Hill, 1931), 9.

the National Good Roads Association, and the federal Office of Road Inquiry—led to the formation of the Appalachian Good Roads Association.

Advocates stressed the possibilities good roads provided for tourism development in mountain communities. While Asheville's status as a railroad hub allowed the town to grow, the North Carolina Good Roads Association lamented that "a large area of our mountain region is practically inaccessible to the tourist and pleasure seeker, and during certain months of the year is inaccessible to the people living in the mountains."<sup>8</sup>

By the 1910s, southwestern counties beyond Buncombe began advocating for good roads. This support stemmed, in part, from a fear that planned long-distance routes would bypass more isolated communities. With automobile ownership on the rise, good roads advocates developed plans for "special highways," long-distance thoroughfares that would be popular with pleasure-seeking motorists. Special highways in or passing through the western region included the Central Highway—an east-to-west route from Morehead City to Asheville to Tennessee, covered today by highways 70 and 321—and the Crest of Blue Ridge Highway, a route covered today by sections of the Blue Ridge Parkway. Special highways depended on private financing, a mostly ineffective method because it failed to generate much support from communities not directly touched by the routes.<sup>9</sup> Southwestern counties in the 1910s were receptive to road building plans, but wanted to ensure that improvements would, as one state representative from Macon County put it, "take care of the little counties."<sup>10</sup>

Southwestern counties had a variety of motivations for joining in the Good Roads Movement, but the possibilities roads held for economic development were the most compelling. As the *Jackson County Journal* put it, "As roads are built you will see this county go forward by leaps and bounds." Opportunities in mining, timber, and the exploitation of other natural resources demanded road improvements, the *Journal* noted, concluding, "The time has come when we must have better roads or we will be practically left off the map."<sup>11</sup>

Statewide good roads activism culminated in 1921, when the General Assembly passed a robust highway bill. The bill called for the use of federal funds, automobile license fees, a new one-cent-per-gallon gasoline tax, and a \$50 million bond issue to fund a statewide highway system. Importantly for smaller counties like those in the southwest, the General Assembly rejected a proposal by some good roads advocates—and endorsed by Governor Cameron Morrison—to create a trunk line highway system. Under such a system, a single trunk line would have run from Wilmington to Charlotte to Asheville but bypassed most of the southwestern region. Instead, the 1921 bill—signed reluctantly by Morrison—called for an expansion system of primary highways connecting all 100 county seats and other principal towns.<sup>12</sup> General Assemblies in the 1920s continued to authorize spending measures for the primary system, and by 1931 the state had completed the system, issuing a total of \$155 million in road bonds and receiving an additional \$16 million in federal aid in the process.<sup>13</sup>

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<sup>8</sup> McKown, "Roads and Reform," 21-31, North Carolina Good Roads Association circular letter quoted at 31.

<sup>9</sup> McKown, "Roads and Reform," 34-39.

<sup>10</sup> Taylor, *New South's New Frontier*, 24.

<sup>11</sup> *Jackson County Journal* quoted in Taylor, *New South's New Frontier*, 25-26.

<sup>12</sup> McKown, "Roads and Reform," 96-100.

<sup>13</sup> Betters, Paul V., ed., *State Centralization in North Carolina* (Washington D.C.: Institute for Government Research of The Brookings Institution, 1932), 63.

The Good Roads Movement in North Carolina succeeded in building thousands of miles of roads. In the process, the movement showed that isolated counties in the southwest were willing to embrace some tax increases and an expanded role for the state government, provided that the connections to greater economic opportunities were clear and persuasive. North Carolinians showed particularly pride in their expanding highway system, and state politicians proclaimed themselves—with some justification - “The Good Roads State.” Economist Cecil Brown endorsed the boast, arguing in his 1931 study that previously isolated and impoverished counties had been “redeemed from their long bondage to mud.”<sup>14</sup>

The expansion of railroads and good roads in the southwest stimulated the region’s economic development, but Asheville was in the best position to take advantage of this wave of transportation improvements. In fact, before the Good Roads Movement Asheville had already emerged as a prominent New South tourist destination. Health tourism became a major industry following the Civil War, as people suffering from respiratory illnesses like tuberculosis found relief in the mountain air, and the area’s abundant mineral springs were thought to be a cure for a variety of maladies. By the late 1880s, however, resort owners in Asheville began targeting recreationalists and turning away guests with contagious diseases to avoid being associated exclusively with the sick. Elites from outside of the state began purchasing seasonal homes in the mountains, a trend that accelerated after the opening of the Biltmore mansion in 1895 confirmed Asheville as an attractive playground for the wealthy.<sup>15</sup>

Increased automobile ownership and improved roads changed the nature of tourism in the southwestern counties, bringing in more middle-class visitors and allowing communities outside of Asheville a better chance to take advantage of out-of-state dollars. The Macon County *Franklin Press*, for example, insisted that with the development of “good hotels and boarding houses, and means of transportation,” the county could “attract thousands of summer visitors.” Haywood and Jackson counties joined Asheville in building new hotels during the 1890s, and an expanded hotel at Hot Springs in Madison County increased the lure of the resort’s mineral pools. Out-of-state developers owned most of the region’s large hotels and resorts. The Hot Springs resort, for example, was purchased in 1884 by a group from New York. The Highlands resort in Macon County was owned by a partnership from Kansas, and outside interests owned major resorts in Jackson and Transylvania counties as well.<sup>16</sup>

Adding to the significance of the tourism industry, many wealthy tourists to Asheville and the surrounding area invested capital in other industries. While enjoying the mountain vistas and cultural amenities in Asheville, many businessmen noticed the region’s abundant forests and mineral deposits. Hotel owners and local boosters began putting out promotional literature that, ironically, advertised both the region’s exploitable natural resources and its beautiful scenery. Executive of northern lumber companies, often after having exhausted the forests in their home states, began buying up land in western North Carolina after noticing the rich hardwoods available while on vacation in Asheville and the surrounding area.<sup>17</sup>

Logging in western North Carolina prior to the 1890s was typically done on a small scale. Mountain farmers engaged in selective cutting as a supplement to their agricultural income, and the amount of

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<sup>14</sup> Brown, *State Highway System*, 247.

<sup>15</sup> Starnes, *Creating the Land of the Sky*, 9-34.

<sup>16</sup> Starnes, *Creating the Land of the Sky*, 40-56, *Franklin Press* quote at 48.

<sup>17</sup> Eller, *Miners, Millhands, and Mountaineers*, 101-102; Starnes, *Creating the Land of the Sky*, 31.

timber cut did not significantly alter the natural environment. That began to change with the expansion of the WNCRR and its branch lines, which, historian Ronald Eller notes, “opened up the timberlands of western North Carolina and North Georgia to exploitation.”<sup>18</sup> With timber resources in the Northeast and Great Lakes region diminished by the late 1880s, northern capitalists turned to the rich forests of the southern Appalachians. Northern lumber companies—and the Glasgow-based Scottish Carolina Timber and Land Company—bought up hundreds of thousands of acres of land, and between 1890 and 1920 engaged in “one of the most frenzied timber booms in American history.”<sup>19</sup>

The most economically significant logging venture during this time was the arrival of the Ohio-based Champion Fibre Company in Haywood County. Champion purchased more than 300,000 acres of land along the Pigeon River, later expanding into Swain County with the purchase of an additional 100,000 acres. Champion established a wood pulp mill and a company town, Canton, in Haywood County to supply its paper mills in Ohio. By the 1910s, Champion employed 7,000 people at its North Carolina operations, Canton had grown to a town of 6,000, and by the 1930s the Canton mill was the largest wood pulp mill in the country.<sup>20</sup>

The rapid growth of the logging industry and subsequent deforestation created tensions with leaders of the region’s other chief industry, tourism. Logging and other extractive industries adversely affected the natural scenery and attractions that made the mountains of the southwestern counties tourist destinations in the first place. As early as the late 1890s, then, tourism boosters began advocating for making a significant section of the southwestern North Carolina mountains a national park. These efforts finally came to fruition when Congress created the Great Smoky Mountains National Park in 1926. State representatives from Buncombe County and Asheville boosters then pressed the General Assembly to create the North Carolina Park Commission, which purchased the land for the park. These actions came despite aggressive lobbying by the Champion Fibre Company and other timber interests. Making a public case through local newspapers, company president Reuben Robertson argued that the “program for the future progress of Western North Carolina cannot be complete or well-balanced if it considers only the tourist business.” Conservationist Horace Kephart countered that timber supplies were already nearing exhaustion in the region and that tourism, in fact, was “the great commercial asset of this country. It last forever and forever grows in value.” While Champion continued to be a major employer in the region, the company lost large tracts of land of eminent domain and the logging industry overall declined with the limited availability of land. By the 1930s, in short, the tourism industry had secured its position of the driving force behind the southwestern region’s economy and politics.<sup>21</sup>

At the dawn of the post-World War II era, North Carolina had considerable reason to boast of its road building progress. Highway travel improved greatly throughout the first half of the twentieth century, and tourist routes like the Blue Ridge Parkway brought tourist dollars to some mountain towns, even if Asheville claimed the lion’s share. But the quality of roads, and their effectiveness in maintaining a climate for economic growth, varied greatly between urban and rural counties. This disparity was clear in the southwestern counties. While the state’s primary highways continued to be well-maintained, the system of secondary roads—the routes emanating off of the primary system, often called “farm-to-market” roads—remained unpaved and, especially in winter months, inaccessible well into the 1940s.

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<sup>18</sup> Eller, *Miners, Millhands, and Mountaineers*, 100.

<sup>19</sup> Eller, *Miners, Millhands, and Mountaineers*, 86-87, 100-106, quote at 87.

<sup>20</sup> Eller, *Miners, Millhands, and Mountaineers*, 108-111.

<sup>21</sup> Starnes, *Creating the Land of the Sky*, 57-63, Robertson and Kephart quotes at 61.

According to the State Highway Commission's Engineer of Statistics and Planning, by 1947 the state was responsible for 49,752 miles of secondary roads, "roughly equivalent to a distance twice around the world," but only 2,856 of those miles were hard-surfaced. By contrast, of the state's 10,342 miles of primary highways, 9,076 were paved.<sup>22</sup>

A few examples illustrate the barriers unpaved roads created for social and economic development in the southwest. Residents of southwestern North Carolina expounded on the difficulties of maintaining industrial employment in communities with subpar roads. A Rutherford County man named Ben Davis, for example, worked along with his wife at a local textile mill. The shoddy condition of roads in Rutherford often kept the Davises' "little Ford" stuck "in a mud hole up over the finders [sic]," forcing them to stay home. "If the condition of the road don't get better," Ben Davis predicted, "we will have to hitch up our horses [and] wagon to get to work and back."<sup>23</sup> Leaders in Saluda, a small community straddling Polk and Henderson counties, told a similar story. Throughout the late nineteenth and early twentieth century, Saluda was a small but thriving town that, thanks to its location on a railroad line, supported a post office, general store, and a canning factory. With the coming of highways and automobile transportation, the community was unable to maintain decent local roads. Without convenient highway access, the cannery closed, sending Saluda on an economic decline, unable to attract new development. According to resident E.K. Moore, by the late 1940s Saluda had become "a blind alley...relegated to the limbo of forgotten things." Moore related his community's transportation-imposed struggles to Governor Scott, to dramatize the importance of improving rural roads. As Moore summarized, quite astutely, "where transportation is poor, industry and enterprise die."<sup>24</sup> Just north of the western prosperity zone, in the similarly underdeveloped county of Mitchell, officials noted the connections between poor roads and agricultural struggles. The local agent for the state Agricultural Cooperative Extension reported that more than 2,000 farmers relied on only 32 miles of hard-surfaced road, a number "about as small as you will find in any county in the state." The agent urged Governor R. Gregg Cherry to use "any influence you might have in helping us to get more and better roads."<sup>25</sup>

The continued shortcomings of rural roads in the southwestern counties, and in rural North Carolina more generally, provided a political opening for Governor W. Kerr Scott. During his campaign for the governorship in 1948, Scott placed roads at the center of his agenda for rural North Carolina. His roads-based populism helped put him in the Governor's mansion, and assured the success of a major secondary road building initiative in his first year in office. That initiative—a public referendum on a \$200 million bond issue—was successful because Scott and his supporters recognized that good roads were crucial to the economic future of rural areas. Specifically, they were crucial to building and maintaining a viable rural industrial economy. Scott focused his administration around a fifteen-point agenda that he labeled his "Go Forward Program." Underpinning the program was his belief that the state lacked adequate public services for the postwar era. Frugal spending throughout the 1940s, Scott explained in his inaugural address, had closed the state's budget deficit and placed it in "sound fiscal position." But in "amassing a hoard of tax dollars," he continued, "we accumulated a vast backlog of urgent public service needs. We

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<sup>22</sup> James S. Burch to A.M. Arnett, May 22, 1947, North Carolina Department of Archives and History [hereafter cited as NCDAH], State Highway Commission Papers, Division of Administration Central File, Box 8, J.S. Burch folder.

<sup>23</sup> Ben Davis to W. Kerr Scott, December 29, 1948, NCDAH, Governor W. Kerr Scott Papers, Subject File 1949, Box 14.

<sup>24</sup> E.K. Moore to W. Kerr Scott, December 9, 1948, NCDAH, W. Kerr Scott Papers, Subject File 1949, Box 14.

<sup>25</sup> L.J.P. Stone to Gregg Cherry, December 20, 1944, NCDAH, R. Gregg Cherry Papers, Box 15, Highways, Public Works, and Prisons folder.

must conclude that we do not have a real surplus, but actually a deficit in public services.” Wiping out those public service deficits, especially in rural areas, was the central goal of the Go Forward program.<sup>26</sup>

Good secondary roads, though, were the centerpiece of the Go Forward program. When Scott took office in January 1949, North Carolina contained more than 62,000 miles of public roads, but less than 16,000 miles—nearly all of them on the primary highway system—were hard-surfaced. To correct this imbalance, Scott called for a special election referendum on a \$200 million bond issue and a one-cent per gallon increase in the gasoline tax, with the money earmarked for improving secondary roads. His stated goal was to pave at least 12,000 miles of road during his four-year term in office (the State Constitution at the time barred governors from seeking re-election).<sup>27</sup>

Rural road improvements took on special urgency in the post-World War II years because American manufacturers were increasingly drawn to rural locations for the establishment of new factories. According to one study, only one-third of all plants built between 1940 and 1947 were in cities of more than 100,000 in population, compared to one-half of all plants established prior to 1940. Towns of less than 10,000 absorbed 30 percent of all new factories established over the same time period, up from 20 percent prior to 1940. “*The process of ruralization is proceeding apace,*” *Management Review* observed in 1948, and this was especially true in the South.<sup>28</sup> This trend became even more pronounced in the 1950s. By the end of the decade, the *Wall Street Journal* reported that “*Federal statisticians now estimate that nearly half of the nation’s factories are outside metropolitan areas.*” Industry experts did not foresee an end to rural industrialization. A spokesman for Fantus Factory Locating Service, one of the nation’s leading corporate relocation firms, predicted that “*In the next decade, it will be the rare exception when a manufacturer decides to build a factory in a big city area.*”<sup>29</sup>

As one of the nation’s least-urbanized states, North Carolina was well-positioned to take advantage of the growing desire of manufacturers to set up their operations in less crowded locations. Aside from Charlotte, no North Carolina city exceeded 100,000 in population, and according to the 1950 Census, roughly two-thirds of the state’s population lived in rural areas. In selling his road building plan, then, Governor Scott frequently remarked on the ongoing trend of rural industrialization. He argued that if North Carolina could make its rural population accessible to new employers it had “a great future as an industrial state,” and could better manage the shift away from an agricultural economy. In an article for the *Charlotte Observer*, he warned that farm mechanization, combined with the dearth factories outside of the Piedmont Crescent, would further entrench rural unemployment. “The mud tax is doing more than any other single factor to block agricultural and industrial expansion,” he wrote. Only swift action on the secondary road system, he maintained, would make the countryside a viable place to do business.<sup>30</sup>

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<sup>26</sup> W. Kerr Scott, “Inaugural Address,” January 6, 1949, in David Leroy Corbitt, ed., *Public Addresses, Letters, and Papers of William Kerr Scott, Governor of North Carolina, 1949-1953* (Raleigh: State Department of Archives and History, 1957).

<sup>27</sup> Scott, “Secondary Road Bond Issue,” Special Message to the General Assembly, January 17, 1949 and “School and Road Bond Election,” Public Address over Radio Station WPTF Raleigh, May 10, 1949, *Public Addresses*.

<sup>28</sup> “Current Trends in Industrial Decentralization,” *Management Review*, November 1948; “When Industry Moves to the Country,” *Management Review*, November 1948.

<sup>29</sup> Alfred L. Malabre Jr., “Factories in Flight,” *Wall Street Journal*, September 7, 1962.

<sup>30</sup> W. Kerr Scott, February 7, 1949, press release for the *Charlotte Observer Annual Farm and Poultry Digest*, NCDHAH, State Highway Commission Papers, Department of Public Relations Main Offices, Box 2, Press Releases and News Items folder.

In his inaugural address, Scott again noted the connections between rural transportation and the ruralization of industry. By improving rural roads, he argued, “we increase our attraction for new industry to locate here. In getting workers to the factory, we have a service of importance almost equal to that of getting the child to school, and getting the farmer’s product to market in good condition.”<sup>31</sup> A few weeks later, when outlining the specifics of the \$200 million bond issue, Scott emphasized that North Carolina could be an attractive site for new industries, as its “many small towns—no large cities—and its thickly populated country sides, is among the ideal areas for decentralized industry.” “Dependable secondary roads leading to the homes of this good labor supply,” he added, “should attract more industry to the state.”<sup>32</sup>

Voters in the southwestern counties were clearly persuaded by Scott’s message. Whether drawn to the promise of bringing new factory jobs to their town, or simply wanting to travel to church and town without stirring up clouds of dirt and dust, southwestern North Carolinians voted overwhelmingly in favor of Scott’s bond issue. In the thirteen counties that make up the western prosperity zone, 68 percent of voters embraced the bond issue. Of the counties that voted in favor of the road plan, six did so with more than 90 percent of the vote. Statewide, the bond issue passed by a comfortable thirteen-point margin. Despite the victory, voting was sharply polarized along geographic lines. Rural counties in the east and west—areas that had largely missed out on the first wave of industrialization, and where roads were especially primitive—were the most enthusiastic backers of the bond issue. Urban counties in the Piedmont rejected the measure. As one historian put it, “the more isolated the county, the larger the affirmative vote.”<sup>33</sup> For example, in four of the most urbanized Piedmont counties (Durham, Forsyth, Guilford, and Mecklenburg) more than 75 percent of voters rejected the ballot measure. And in the west, Buncombe County voters rejected the measure.<sup>34</sup>

With the road bond in effect, the mileage of dependable secondary roads and the accessibility of rural people increased rapidly in the early 1950s. By 1953 the number of paved rural highway miles had increased to 18,182, up from 2,856 in 1947. By 1956 more than 97 percent of rural North Carolinians lived within one mile of a paved highway.<sup>35</sup> “Muddy carts are rarely seen in this state,” former Highway Commission Chairman Alexander Graham said in a 1956 address. “Tire chains are no longer sold as a regular item by filling stations.”<sup>36</sup> Paved roads made immense improvements to rural life. As residents of Hendersonville later wrote, “It is a joy not to have our furniture covered in dust from the road, and certainly it is a pleasure to drive over the paved road instead of a rough gravel one.”<sup>37</sup>

Secondary road progress made a noticeable impact on the state’s industrial recruiting efforts. Boasting of their accomplishments in a 1951 article in the *Engineering News-Record*, the state Highway Commission claimed that freshly paved rural roads were already proving to be a “most profitable investment,” as new industries could now tap the “great reservoirs of labor” in the countryside.<sup>38</sup> Those sentiments were

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<sup>31</sup> Scott, “Inaugural Address,” *Public Addresses*.

<sup>32</sup> Scott, “Secondary Road Bond Issue,” *Public Addresses*.

<sup>33</sup> Coon, “Kerr Scott,” 63.

<sup>34</sup> “How State Voted,” *News and Observer*, June 5, 1949, p. 6.

<sup>35</sup> James S. Burch, “Rural North Carolina Served Well by Paved Roads,” November 1956, NCSA, State Highway Commission Papers, Department of Public Relations, Box 2.

<sup>36</sup> A.H. Graham, “Road Progress,” *We the People*, November 1956, 34.

<sup>37</sup> Letter to Dan Moore, August 21, 1965, NCSA, Governor Dan K. Moore Papers, General Correspondence 1965, Box 44.

<sup>38</sup> “Letter from North Carolina,” *Engineering News-Record*, May 11, 1950.

echoed in a 1950 speech by Highway Chairman Henry Jordan. Addressing a local Lion's Club, Jordan argued that a "balanced road program," one with comparable quality between its primary and secondary routes, was key to creating a balanced economy for the state's future. "The Yankees are invading North Carolina as they never did during the 19<sup>th</sup> Century—but instead of rifles and cannons they are bringing new manufacturing plants," he noted. With many of those manufacturing plants actively seeking rural areas, improved rural transportation was one of the state's most pressing economic imperatives.<sup>39</sup>

With a stronger network of rural roads in place, state leaders and local boosters spent significant energy in the second half of the twentieth century recruiting new manufacturing industries to underdeveloped and isolated rural areas like the southwestern counties. The expansion of Interstate highways, however, arguably lagged the state's local secondary road system. After passage of the Federal Aid Highway Act of 1944, state Departments of Transportation began submitting proposals for interstate routes for their state. North Carolina, according to one historian of the state Department of Transportation, initially "made modest and unimaginative recommendations for statewide routes. . . .state leaders were so focused on [rural secondary] roads that they failed to grasp the future significance of interstate thoroughfares." Still southwestern North Carolina was better serviced by the Interstate system than the northeastern corner. Interstate 40 connected to Asheville before continuing across the Tennessee line. And Interstate 26 extended northward to Asheville as well. By 2003, an extension to I-26 was added through Madison county, north of Asheville, connecting western North Carolina to the southern Ohio Valley and the South Carolina low country. Points west of Asheville, however, were largely left out of the Interstate system, preventing communities there from developing more direct, convenient linkages with Knoxville, Greenville-Spartanburg, or Atlanta.<sup>40</sup>

While manufacturing industries sought out rural and southern locations in the second half of the twentieth century, southwestern North Carolina struggled to take advantage of these trends. By 1960, the thirteen counties of the Western Prosperity Zone claimed a total of 77 manufacturing establishments. Of those, however, more than half (43) were in either Buncombe or Rutherford counties. The counties of Cherokee, Graham, Jackson, Macon, Madison, Polk, and Swain were each listed as having fewer than five manufacturing establishments, while Clay County listed zero.<sup>41</sup> Rural counties that offered significant manufacturing job opportunities, such as Caldwell and Burke, were typically those in the foothills, which had relied on access to the North Carolina Railroad in the late nineteenth century to develop a strong base in the furniture industry.<sup>42</sup> Farther into the mountains, factories became scarcer, as the struggles of Clay County attested. Although the county was, in one reporter's words, "*a delightful amphitheater surrounded by the gigantic peaks of the Smokies*," it lacked the tourist resorts and attractions of nearby Asheville.<sup>43</sup> A local attorney complained that if state officials surveyed the area, they "*would find an entire county with no industrial payroll except one sawmill*."<sup>44</sup> The lack of economic opportunity led to population losses so

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<sup>39</sup> Henry W. Jordan, "A Balanced Road Program for North Carolina," January 23, 1950, State Highway Commission Papers, Department of Public Relations Correspondence, Box 1.

<sup>40</sup> Walter R. Turner, *Paving Tobacco Road: A Century of Progress by the North Carolina Department of Transportation* (Raleigh, 2003), 60.

<sup>41</sup> "Geographic Classification of Manufacturing Establishments in North Carolina by County," *We the People of North Carolina*, November 1960.

<sup>42</sup> Allen W. Trelease, *The North Carolina Railroad, 1849-1871, and the Modernization of North Carolina* (Chapel Hill), 344.

<sup>43</sup> Gordon Greenwood, "Reflections," undated news clipping, NCDAH, Governor Terry Sanford Papers, General Correspondence 1961, Box 31.

<sup>44</sup> Roy Taylor to Luther Hodges, November 30, 1959, NCDAH, Sanford Papers, Box 31.

rapid that local leaders envisioned a bleak future. In one year, an entire graduating class of high school students left the area to find employment, according to a school principal. "*Our great need here is for an industry to help keep our young people at home,*" he stated. "*The older people have the land, and there is no other employment offered in our county. As we keep exporting the best people year after year.*"<sup>45</sup>

The underdevelopment and outmigration of southwestern counties continued into the late twentieth century, even as in the state's metropolitan areas, North Carolina was becoming a beacon on Sunbelt prosperity. In a 1976 *Business Week* survey, North Carolina tied with Texas and California as the state companies would be "most likely to consider" when selecting a new plant site. When the magazine conducted the same survey four years later, North Carolina retained its top spot (tied again with Texas), and contemporaneous surveys by *Forbes* also placed the state within the top three.<sup>46</sup> In 1977, North Carolina set a record for industrial growth, garnering \$1.45 billion in investments in new and expanded factories. From 1977 to 1979, the state had created 90,000 new jobs, more than the previous four years combined.<sup>47</sup> In 1979 alone, North Carolina added more than 37,000 new jobs, the most of any southern state.<sup>48</sup>

In addition to the quantity of new jobs, Governor Jim Hunt also pointed with pride to the "quality and diversity" of North Carolina's industrial development.<sup>49</sup> The opening of new chemical plants, for example, contributed to a more diversified industrial mix. By the late 1970s, approximately 38,000 North Carolinians worked in the chemical industry, a 35 percent increase from the beginning of the decade. The value of shipments in chemical products totaled more than \$3 billion per year, making it the fourth most valuable industry in the state.<sup>50</sup> In addition, while previous eras of industrialization leaned heavily on textiles and apparel, under Hunt the top categories for new industrial investments included petroleum refining, machinery, automobile and truck parts, and electronics and electrical equipment. The arrival of these new industries lessened somewhat the importance of textiles to the state's economy. At the beginning of the 1970s, textiles workers accounted for 40 percent of North Carolina's industrial labor force; by the end of the decade, they accounted for only 30 percent.<sup>51</sup>

While North Carolina's industrial economy became more diverse under Hunt, the results were most noticeable in metropolitan areas. Wake County, for example, gained a total of \$225 million in industrial investments between 1977 and 1981. Those investments created an estimated 6,529 jobs, the vast majority of which were in non-traditional industries. In fact, fewer than 200 of Wake County's new manufacturing jobs were in textiles, apparel, or furniture. Some of the area's most prominent new employers were in higher-paying fields like pharmaceuticals. In 1977, Bristol-Myers, one of the nation's leading pharmaceutical companies, sited a \$23 million factory in Morrisville, a community adjacent to the Research Triangle Park, and in 1980, Ajinomoto, one of Japan's top pharmaceutical companies, located a

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<sup>45</sup> Principal quoted in Greenwood, "Reflections."

<sup>46</sup> "Plant Site Selection: A Survey of *Business Week's* Executive Subscribers in Industry," Hunt Papers, Box 656.

<sup>47</sup> "Statement by Governor Jim Hunt," January 10, 1980, Hunt Papers Box 509.

<sup>48</sup> The 1979 numbers came from a report by the Southern Industrial Development Council. It is important to note that while North Carolina led the region in new job announcements, the council did not count Texas as a part of the South for the purposes of their study. Press Release. "Hunt Says State Leads Region in New Jobs," May 1, 1980, Hunt Papers Box 509.

<sup>49</sup> "Statement by Governor Jim Hunt," January 10, 1980, Hunt Papers Box 509.

<sup>50</sup> "The Chemical Industry in North Carolina," undated, Hunt Papers Box 509.

<sup>51</sup> "Statement by Governor Jim Hunt," January 10, 1980, Hunt Papers Box 509.

\$40 million amino acid processing plant in Raleigh's eastern suburbs.<sup>52</sup> The electronics industry also became an important source of new jobs in the greater Raleigh area, employing more than 15,000 people in at least 25 assembly plants by the late 1970s.<sup>53</sup>

Unfortunately, these types of high wage industries made a limited impact beyond North Carolina's major metropolitan areas. Most of the state's rural communities remained dependent on the low wage industries that North Carolina had attracted for decades. Statewide, more than half of North Carolina's manufacturing jobs were in textiles, furniture, or apparel, where workers earned an average of \$3.28, \$3.36, and \$2.74 per hour, respectively. By way of comparison, factory workers in Ohio made an average of \$7.23 per hour.<sup>54</sup> Moreover, as historian Timothy Minchin has pointed out, these industries were also highly "import-sensitive," leaving workers vulnerable to plant closings and outsourcing.<sup>55</sup>

By the late 1970s, western North Carolina had begun to attract more industrial employment, so much so that according to one study commissioned by Governor Hunt, the western counties were, on a per capita basis, the most industrialized region within the state. Approximately 40 percent of the region's workforce was engaged in manufacturing, compared to 32 percent and 24 percent for the Piedmont and the East, respectively. The problem for workers, however, was that 69 percent of the West's manufacturing jobs were in low wage industries (defined as paying an average annual wage of less than \$8,000), such as textiles and apparel. In the East, 55 percent of manufacturing jobs were in low-wage industries.<sup>56</sup>

Why did incoming high-wage employers tend to bypass North Carolina's rural counties and small towns? Residents and local officials had an opportunity to share their perspective on this question at a series of conferences held in late 1977 on the theme of achieving Balanced Growth. The inability of rural areas to attract better, higher-wage jobs was, in the nearly unanimous opinion of conference attendees, primarily a result of poor infrastructure. Communities by this point, however, had identified more infrastructure needs than simply better roads and highways. While transportation infrastructure remained important, rural communities also found that their water and sewage facilities were inadequate and hindered their ability to sell themselves to new industries. When the governor's office condensed the findings of all Balanced Growth conferences in the West, they found that "the lack of water and sewer facilities" was identified as the "primary impediment to industrial expansion."<sup>57</sup> A similar report on conferences in the East concluded that "Sewage facilities must be upgraded and enlarged."<sup>58</sup>

In addition to water and sewage infrastructure, eastern and western communities also lacked the vocational training and skilled workforce needed to woo employers in high-paying industries. A report

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<sup>52</sup> "Wake County/Morrisville Summary Sheet," October 21, 1981, Hunt Papers Box 656.

<sup>53</sup> Bob Cooper, "New Plant Will Hire 1,000," *Raleigh Times*, September 17, 1979.

<sup>54</sup> "A Balanced Growth Policy for North Carolina: A Proposal for Public Discussion," NCDAAH, Hunt Papers Box 135; Department of Natural and Economic Resources, *Directory of North Carolina Manufacturing Firms, 1976-1977*.

<sup>55</sup> Timothy Minchin, "Shutdowns in the Sunbelt: The Decline of the Textile and Apparel Industry and Deindustrialization in the South," in Robert Zieger, ed., *Life and Labor in the New New South* (Gainesville, 2012), 263.

<sup>56</sup> "Table III: Manufacturing Employment by Wage Characteristics," Hunt Papers Box 135. Note: this study grouped northwestern and southwestern counties into a single region.

<sup>57</sup> "The West: Observations from the Western Counties' Conferences on Balanced Growth and Economic Development," Hunt Papers Box 135.

<sup>58</sup> "The East: Observations from the Eastern Counties' Conferences on Balanced Growth and Economic Development," Hunt Papers Box 135.

summarizing the Balanced Growth conferences in the East noted that “Easterners feel that several industries have been lost due to a lack of appropriately trained labor,” and called for more vocational training “to develop skills of laborers who can then hopefully stay home to work.”<sup>59</sup> Final reports on conferences in the West also called for more community and vocational colleges, along with more training at the high school level, in order to help the region achieve “a more diversified industry mix.”<sup>60</sup>

Most southwestern counties by the late twentieth century also struggled to attract new firms in high-tech industries, which tended to gravitate toward metropolitan areas. In one study, for example, University of North Carolina geographer Emil Malizia found that executives in high-tech industries made relocation and expansion decisions according to different criteria than their counterparts in labor-intensive industries. In Malizia’s survey, high-tech employers rated a rural location as a negative characteristic when selecting a new site for their company. They also placed much more importance on the quality of a community’s infrastructure, school system, and overall quality of life, compared to employers in labor-intensive or low-tech industries.<sup>61</sup> Not surprisingly, then, jobs in new microelectronics and other high-tech industries concentrated in three major metropolitan areas: the Research Triangle, the Piedmont Triad (Greensboro, Winston-Salem, and High Point), and Charlotte-Mecklenburg. As the research director of the state Employment Security Commission acknowledged, by 1982, those three areas accounted for more than three-quarters of the microelectronics jobs in the state.<sup>62</sup>

Besides high-tech employers, manufacturers across a range of industries began to prefer metropolitan or suburban locations by the early 1980s. A survey conducted by *Business Week* in 1980 showed that manufacturers placed increasing importance on a community’s quality of life. The magazine presented executives with a list of factors that companies typically considered when making a new site selection, and asked them to identify which ones they deemed important. Two-thirds of respondents identified “pleasant living conditions for employees” as an important consideration, up from 48 percent for the same survey in 1976. Similarly, 53 percent rated “adequate educational facilities” as an important factor, compared to only 35 percent in 1976. These shifting priorities translated to a growing preference for suburban areas. Fifty-seven percent of respondents said that finding a plant site in a suburban location was important to their company, while only 32 percent said the same for rural areas.<sup>63</sup>

### **Socio-Political Analysis**

Buncombe and Jackson are the only counties in the Southwestern Zone that are not solidly Republican in federal and state elections. Due mainly to its strength in and around the city of Asheville, Buncombe is the one reliable base of Democratic support in the region. While providing a comfortable margin of victory to Donald Trump in 2016, Jackson voted for Barack Obama in 2008 and has constituted contested “purple” territory in a number of other elections. Outside of three Democratic state representatives and one State Senator from Asheville/Buncombe, Jackson has the sole member of the North Carolina General Assembly (Representative Joe Sam Queen) from the Western Zone. Due especially to skillful

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<sup>59</sup> “The East: Observations.”

<sup>60</sup> “The West: Observations.”

<sup>61</sup> Emil E. Malizia, “The Locational Attractiveness of the Southeast to High-Technology Manufacturers,” in Dale Whittington, ed., *High Hopes for High Tech: Microelectronics Policy in North Carolina* (Chapel Hill, 1985), 183-185.

<sup>62</sup> Gregory B. Sampson, “Employment and Earnings in the Semiconductor Electronics Industry: Implications for North Carolina,” in Whittington, ed., *High Hopes for High Tech*, 287.

<sup>63</sup> “Plant Site Selection: A Survey of *Business Week*’s Executive Subscribers in Industry,” Hunt Papers Box 656.

gerrymandering of the Democratic base in Asheville, Republicans hold both congressional seats (District 10 and District 11) in the Western Zone.

Today's Republican ascendancy is not directly due to the tradition of Mountain Republicanism often emphasized in historical and political accounts of Western North Carolina. In the first half of the twentieth century Republicans could be competitive, especially in presidential elections before 1932. But the counties of the Western zone were mainly Democratic and solidly for Franklin Delano Roosevelt in his four elections (and Harry Truman in 1948). In the 1960s, such Republican figures as Charles Taylor (who ultimately held the 11th Congressional District from 1990-2006) started to pioneer a far more uncompromising anti-governmental stance. Current 11th District Congressman Mark Meadows is head of the Republican Freedom Caucus in the US House of Representatives and one of President Trump's closest allies in Congress.

Both the Asheville style of Democratic liberalism and the new kind of Republican conservatism typified by Cong. Meadows represent quite stark ideological persuasions. At the same time, the share of registered "Unaffiliated" voters in the Western Zone significantly exceeds the state average: the number of Unaffiliated voters now almost surpasses the number of Democrats in Buncombe and outpaces both parties in four other counties (Henderson, Jackson, Polk, and Transylvania). Ironically, in the highly polarized atmosphere of the Western Zone counties, one common element in the development of today's liberal and conservative persuasions has been opposition to major infrastructure projects. (See pages 5-7 and 15).

As the Civil War approached, the white citizenry of Appalachian North Carolina was not enthusiastic about secession from the Union. Neither was Governor Zebulon Vance, who was an Asheville native. Governor Vance and the Western counties did not get on board with the Southern cause until the North-South artillery skirmish at Fort Sumner seemed to confirm that the conflict was indeed inevitable. A common historical perception is that this reluctance of Western counties to abandon the Union set the stage for a substantial and even dominant "Mountain Republican legacy." [See Alexander Lamis, *The Two-Party South* (1990) 131,371]

But the post-Civil War strength of North Carolina Mountain Republicanism was quite a relative matter. It mainly stood out in contrast to the usual non-competitive hegemony enjoyed by Democrats in the rest of the state and elsewhere in the state. As V.O. Key put it in 1949, the fact that North Carolina Democrats felt compelled to campaign in the western part of the state was "an indignity to which no other Southern Democrats have to submit with the same regularity." [Key, *Southern Politics* (1949) 285] A number of Western counties could swing out of the Democratic column in special presidential election or a string of them. But a majority of the twelve Western counties often fell in with the rest of the South in supporting the Democratic Party ticket during the first half of the twentieth century. Western Republicans only sporadically won congressional and state legislative seats. [Get more detail from state legislative records]

North Carolina's electoral politics in the 1890s was strikingly fluid and unstable. In a successful revolt with no parallel anywhere else in the post-Reconstruction solid South, a shaky coalition between the Republican Party with support from African-American freedmen and a Populist party of mainly disaffected Democrats took control of the General Assembly in 1894 and won the governorship in 1896. The Democrats staged a literally violent comeback in 1898 and 1900 electoral cycles. Then they brutally disenfranchised African-American voters throughout the state.

Amid this shifting political ground, the 1896 presidential candidacy of populist Nebraska firebrand William Jennings Bryan confused the political situation further by heading the national Democratic ticket. The Nebraskan had a summer home near Asheville and campaigned vigorously throughout the western part of the state. [See D.G. Martin, "Blame it on William Jennings Bryan," Chapelboro.com (9/10/12); citing Anthony, "'Next to Nebraska': North Carolina and William Jennings Bryan's 1896 Campaign" (unpublished Sept. 14, 2012 talk at UNC-CH)]. But the central Democratic stronghold of Buncombe plus a majority of the other 12 counties voted against his first candidacy in 1896. Bryan only won statewide by 2.4% over Republican William McKinley. [See also Faulkner, "North Carolina Democrats and Silver Fusion Politics, 1892-1896," *North Carolina Historical Review* (July 1982) 230-51; McKinney, *Southern Mountain Republicans 1865-1900* (1978).]

Democratic return to statewide control actually did not boost Bryan's margin in 1900 or his subsequent two candidacies. And the Republican vote in the Western Zone counties was again a large part of the story why Bryan only won the state by (even) small(er) margins against McKinley in 1900 as well as Theodore Roosevelt in 1904 and William Howard Taft 1908 (1900/2.1%; 1904/1.5%; 1908/1.7%) While almost every county voted for Bryan once during one of his four candidacies, only two (Haywood and Rutherford) supported all four of them.

All western counties were back in the Democratic column for the candidacy of native Southerner Woodrow Wilson (with Wilmington, North Carolina roots) in 1912. But six smaller counties (Cherokee, Graham, Henderson, Madison, Swain, and Transylvania) bolted to the Republican column against Wilson in 1916 and stayed with GOP candidates through 1928. That year a seismic political disturbance appeared to occur when all the other western counties as well as North Carolina overall voted for the Iowa-transplanted Californian and Quaker Republican Herbert Hoover over the Catholic Democrat and New York Governor Al Smith. "The dread handwriting is on the wall," declared the young Charlotte-based journalist W.J. Cash in 1929. "North Carolina is going Republican." [Cash, "Jehovah of the Tar Heels," *American Mercury* (July 1929) 317]

However, all but one of the Western counties were solidly with FDR in the ensuing Great Depression election of 1932. Cherokee was the only Western county that started with FDR but broke with him in any of his four presidential races. In FDR's 1944 bid for a fourth term, Republican candidate Thomas Dewey eked out a 2,625-2,582 vote margin in this small county on the border with Tennessee. Cherokee moved back to the Democratic column four years later in support of Harry Truman's comeback victory over Dewey.

Yet western support for Republican presidential candidates kept popping up and expanding in the second half of the 20th century. Some political scientists have referred to a process of "split-level realignment" during its last decades in which Republicans started to win presidential and then other federal election results but not so much state and local offices in formerly solid Democratic regions. [See the discussion and sources in Rae, *Southern Democrats* (1994) 51-52, 126, 155, 168] In retrospect, however, it seems clear that the twists and turns toward Republican presidential candidates in NC Western counties as in other Southern places were the harbingers of a more comprehensive partisan -- albeit not totally solid -- realignment.

The most striking western outlier throughout the twentieth century was Madison County. This small and of course overwhelmingly white county on the Northern Blue Ridge border with Tennessee pulled away from Wilson in 1916, voted for FDR's opponent in all four of his races, and stayed in the Republican column through Eisenhower's bid for re-election in 1956. Then, as more Western counties and others across the South started moving toward Republican candidates over the next four decades, Madison actually shifted back to the Democrats.

In 1960 Madison was one of only two western counties (along with Swain) which supported the candidacy of Catholic Bostonian Senator John Kennedy. It did provide Richard Nixon a 49.2% plurality in the three-way 1968 race and a 61.2% majority against George McGovern in 1972 (compared to a 71% majority statewide). But it jumped back into the Democratic column for Georgia's Jimmy Carter in 1976 as well as 1980 and the Arkansas-Tennessee ticket of Bill Clinton and Al Gore in 1992 as well as 1996.

Madison's Democratic streak may well be attributable to the reputed vote-gathering prowess and legacy of the Ponder brothers' machine politics. E.Y. Ponder was elected sheriff by 31 votes in 1950 and did not lose until a former deputy beat him in a 1986 election conducted under FBI monitoring. His cantankerous younger brother Zeno was Madison County's political kingpin. "I believe in a two-party system," Zeno once remarked. "A great big Democratic Party and a little bitty Republican Party."

The State Elections Board overturned the results of Zeno Ponder's 's only foray as a political candidate because he received more votes for State Senate in 1964 than the county's total of registered voters. But he remained politically active behind the scenes until right before his death in the "Gingrich Revolution" year of 1994. State House Speaker Liston Ramsey -- who was first elected in 1960 and served as Madison's County representative until 1991 -- was Zeno's high school and college classmate (at Mars Hill College, then a junior college, in Madison) [See Christensen, "The Ponders' Political Machine," Raleigh News & Observer (March 1, 2014); Finger, "Interview with Zeno Ponder," Southern Oral History Program Collection (March 22, 1974)].

Madison was not always in the decided minority among the Western counties in its support for Democratic presidential candidates during the latter half of the twentieth century. All other Western counties but Henderson supported the successful bids of Texas' Lyndon Baines Johnson in 1964 and Georgia's Jimmy Carter in 1976.

Nevertheless, a seven-county majority -- led by Buncombe together with Cherokee, Graham, Henderson, Macon, Polk, Rutherford, and Transylvania -- moved into the Republican column with Ronald Reagan's unseating of Carter in 1980 and stayed there throughout the rest of the twentieth century. All Western Zone counties supported Reagan's re-election in 1984. Only Swain and Haywood switched to favor Massachusetts Democrat Michael Dukakis in 1988. [On Haywood's historically strong union base among its paper workers, See Vaillancourt, "A Seat at the Table: Organized Labor's Remains Strong in Haywood County," Smoky Mountain News, 8/29/18.] Along with Madison, Jackson was the only other Western county to join the Swain-Haywood duo in supporting the Arkansas-Tennessee ticket of Bill Clinton and Al Gore in 1992 and 1996.

Then in the first decade of the 21st century, all Western counties united behind the presidential bids of George W. Bush in 2000 and 2004. The Democratic candidacies of Al Gore in 2000 and John Kerry in 2004 reached near competitive levels only in Buncombe, Jackson, Swain, and Madison. The historic

successful candidacy of Barack Obama pushed Buncombe and Jackson back into the Democratic column in 2008. But, as detailed later in this memo, the Obama era otherwise became the time when the Republican realignment became obvious below the presidential level throughout the rest of the western counties.

Analysts have debated whether the South's Republican realignment can be understood as a white reaction to the Democratic Party's transformation on the issue of civil rights. That was certainly part of the picture in the counties that now comprise NC's Western Zone. Perhaps the civil rights issue alone would have been sufficient to promote a partisan realignment. But, as political journalist Tom Edsall put it, Democrats faced a "chain reaction" in regions like NC's Western counties on interlocking issue fronts from the 1960s onward [See Edsall, *Chain Reaction: The Impact of Race, Rights, and Taxes on American Politics* (1991)].

Scholars Bruce Stewart and Christopher Manganiello have similarly emphasized "*the growing disenchantment of many western North Carolinians with the Democratic party as a whole.*" In western North Carolina and the rest of the South, as Stewart and Manganiello put it in their recent study, "*white Democrats began to question the direction of the national party. The Kennedy and Johnson administrations' endorsement of the civil rights movement and support for the expansion of the welfare state troubled many white Southerners who had embraced New Deal liberalism. These Democrats wanted the party to reduce government spending, protect states' rights, and restore the racial status quo*" [Stewart and Manganiello, "Watershed Democracy: Rural Environmentalism and the Battle Against TVA in Western North Carolina," *Environmental History* (October 2018)748-773, 756].

But Stewart and Manganiello add one major issue to the chain reaction specific to the NC Western region. This was the grassroots battle which broke out across Western North Carolina against the Tennessee Valley Authority (TVA) during the mid-1960s.

The passage of the TVA Act in 1933 was a centerpiece of FDR's New Deal and a major symbol of regional hope for many Southerners. A mainstream coalition of business leaders, politicians, and many residents throughout Western North Carolina immediately started urging the new TVA to develop a comprehensive flood control plan for the region. The envisioned network of multipurpose dams would also boost the region's horribly depressed economy by stimulating tourism and creating storage for hydropower and stream navigation. (749) But when the TVA in 1965 finally announced such an ambitious water control system for the region's Upper French Broad River basin, a surprising coalition of conservatives and environmentalists emerged to oppose it.

Top Democratic political leaders -- from Senators Everett Jordan (Durham) and Sam Ervin (Morganton) to the region's 11th District Congressman Roy Taylor (Buncombe) -- were fervent supporters of the TVA and its big-dam plan. (755) But in the anti-LBJ backlash mid-term election of 1966, Transylvania County (Brevard) native Charles Taylor jumped to the front of the TVA opposition movement and rode it to a widely-noted upset in the predominately Democratic State House District. (756). In the 1965 General Assembly, only one Republican in the General Assembly came from a county (House member Dean Garren/Hendersonville) in today's Western Zone. But along with Taylor, the GOP added another House member (Edley Hutchins/Black Mountain) for a total of three representatives. Two GOP Senators from Buncombe (Bruce Briggs and Theodore Dent) were also elected in 1966.

Over the next few years, opposition to the TVA big-dam plan became a mass crusade throughout the region. In 1971 the new Environmental Protection Agency issued a report criticizing the environmental impacts of the proposed project (765). By 1972 North Carolina Republican politicians from top to bottom were riding the anti-TVA bandwagon.

GOP Gubernatorial nominee Jim Holshouser (from the Boone/Watauga County area east of the Western Zone) and US Senate candidate Jesse Helms became converts to the cause. Their TVA opposition helped ensure the first sweep of western North Carolina and thus North Carolina overall by statewide Republican candidates below the presidential level since Reconstruction. Charles Taylor moved up to the State Senate (766).

One week after the 1972 election, the TVA formally abandoned its dam project for the Upper French Broad River basin (766). Jimmy Carter's 1976 presidential candidacy triggered a temporary resurgence for Democrats in the West. That year Charles Taylor decided not to run for re-election to the State Senate and returned to private life.

But after making an initial comeback in 1988 and barely losing to incumbent Democrat 11th District Congressman Jamie Clark, Taylor was able to unseat him in 1990. Since Republican Cass Ballenger was the House member in the 10th District, Republicans now represented all the counties in the Western Zone. (Ballenger had taken over the 10th District seat in 1986 after his GOP predecessor Jim Broyhill had first been appointed to the US Senate and then ran for the position but lost to Terry Sanford.)

The 11th District had been flipping back and forth between the two parties after the Republicans won it for the first time in 1980. But Taylor demonstrated a firm grasp on the 11th District for the next seven congressional cycles. And Taylor continued his anti-governmental attacks on the TVA [On Taylor's congressional history with TVA, see his profile in *The Almanac of American Politics 2004* (2003) 1222-24]. After Taylor's extensive financial empire -- including his partnership with a former Russian KGB agent -- continued to come under public scrutiny, he lost to Democrat (and former Washington Redskins quarterback) Heath Shuler in 2006 [See Wilke, "Seat in Congress Helps Mr. Taylor Help His Business," *Wall Street Journal* 10/11/06]; Whitman, "Congressman Develops Ties with Russia," *Associated Press* (9/17/06); Burgess, "Taylor Associates Sentenced in Case," *Hendersonville News* (1/28/2005)].

Almost for sure the Democrats' loss of political control in Western North Carolina could have ultimately taken place without the TVA big-dam issue. But as Stewart and Manganiello have emphasized, it underlines the treacherous cross-ideological turf that Western North Carolina represented for mainstream Democratic governmental action by the 1960s. They cited a statement from Henderson County resident Reba Kilstrom during the TVA controversy as exemplifying this ideological scissors trap. "*[A]nytime we try to change things which God has ordained, such as our rivers and streams, destroying the natural habitat of wild life, which is so necessary to our well-being, we are opening Pandora's box and are in for serious trouble*" (749-50).

In general, the Western opposition to the TVA big-dam plan in the 1960s could be likened to the grassroots revolts across the nation against expressway plans through cities during the same period. [See, e.g., Waldron, "Memphis Debates Road Through a Park," *New York Times* (1/18/70; *Citizens to Preserve Overton Park v. Volpe* 401 US 402 (1971)]. The continuing ideological entrenchment of environmental as well as conservative evangelical sentiment in Western North Carolina could result in its cross-ideological

scissors could be equally or even more threatening to any major infrastructure project today. [On the local controversies surrounding even the construction of the Blue Ridge Parkway during the New Deal era, see Whisnant, *Super-Scenic Motorway: A Blue Ridge Parkway History* (2006).]

In the wake of the 2018 mid-term elections, Buncombe is the only clear Democratic stronghold county in the Western Zone. And Jackson is the only county constituting competitive “purplish” territory for Democrats on an overall basis. But the sources of Democrats’ limited competitive strength in federal and state elections can be more precisely identified as (i) the city of Asheville and the immediate area around it, (ii) other college-town areas, (iii) the largest of the small towns in some outlying counties, and (iv) clusters of minority populations in some outlying counties.

After its slide to Bush in 2000 and 2004, Buncombe has strikingly bucked the Republican trend. It was the only western county won by Hillary Clinton in 2016 (54.3%-40.1%) and Barack Obama in 2012 (55.3-42.8%). Buncombe also delivered a bigger victory to Obama in 2008 (56.32-42.40%).

In 2008 Jackson supported Obama by a far closer margin (51.97-46.57%). After sliding away from Obama to Romney in 2012 (49.4%-48.05%), Jackson emphatically joined the other western counties in 2016 with a double-digit margin (52.7%-41.2%) for President Donald Trump over Clinton. But in the gubernatorial race, Cooper (barely) beat McCrory in Jackson (49.02-48.80%).

In US Senate and gubernatorial elections, many other western counties (such as Henderson, Madison, and Swain) frequently joined Buncombe and Jackson in supporting Democratic Senate and gubernatorial candidates as late as 2008. But beginning with the backlash Tea-Party mid-term elections of 2010, Buncombe and Jackson have been the only counties in the Western Zone voting for a Democratic senatorial or gubernatorial candidate. Buncombe stood alone in its support for Elaine Marshall in the 2010 Senate election and Walter Dalton in the 2012 gubernatorial election. Jackson rejoined Buncombe in the Democratic column for Senator Kay Hagan’s narrow loss in 2014 and Roy Cooper’s even more narrow victory in 2016.

At the state legislative level, Democrats from the Western Zone in the General Assembly are now solely from Buncombe and Jackson. In the 2019 General Assembly, 15 state legislators – 11 House members and 5 Senators -- represent some part of a county in the Western Zone. Of these 15 Western Zone legislators, only 5 are Democrats.

Buncombe’s whole delegation of three House members (Susan Fisher/Dis. 114, John Ager/Dis. 115, and Brian Turner/Dis. 116) and one Senator (Terry Van Duyn) are Democrats.

The other Democrat is House member Joe Sam Queen from Jackson in the musical-chair District 119 (which covers all of Swain and part of Haywood as well). Republican Mike Clampitt had lost challenges to then incumbent Queen in 2012 and 2014 before unseating him in 2016. Queen won back District 119 by a 52.33%-47.67% margin in 2018. Queen ran up a comfortable 1,306 (54.35%-41.65% margin) in Jackson, won the part of Haywood in the district by a closer 52.97%-47.03% (572 votes), and lost the smaller vote in Swain by a 54.78%-42.22% margin (496 votes).

At the local County Commissioner level, Democrats now have close voting majorities in the Buncombe and Jackson. In 2018 Democrats were able to flip a 3-2 margin in their favor on the Jackson County

Commission. They held on to a 4-3 majority on the Buncombe County Commission. (In 2018, Democrats also held on to a 3-2 majority in Swain and expanded 3-2 majority to a 4-1 margin in Madison.)

However, despite its strong Buncombe base and Jackson competitiveness, the Democratic Party has been without a congressional representative from the Western Zone since 2012. The two GOP congressmen with counties in the Western Zone are Patrick McHenry in the 10th District (first elected in 2004 after serving a single term in the state House) and Mark Meadows in the 11th District (first elected in 2013).

As part of their gerrymandering efforts after coming to power in 2011, state legislative Republicans severed most of Asheville from the 11th congressional district. GOP legislators placed it in the highly conservative 10th District which GOP candidates have won continuously since 1968. (McHenry's predecessor GOP representatives were Cass Ballenger and Jim Broyhill.) So along with all of Polk and Rutherford counties from the Western Zone, Asheville is districted with all of Cleveland, Gaston, Lincoln, and parts of Catawba as well as Iredell to its east (All of these other counties are in the same Metropolitan Statistical Area as Charlotte.) McHenry was born in Gastonia and now his residence is in Lincoln County.

The 11th District now includes all the other 9 counties in the Western Zone plus the more north-east counties of Avery, Burke, Caldwell, McDowell, Mitchell, and Yancey. After the Republicans' 2011 gerrymandering of Asheville out of the 11th District, Democrat Heath Shuler retired from Congress and Representative Meadows easily won election in 2012.

When first elected, Representative Meadows' residence was Cashiers in Jackson County (he now lives outside Asheville in Buncombe). Meadows is chair of the highly conservative Freedom Caucus in the US House and is considered to be one of President Trump's closest allies in Congress. Cong. Meadows was supposedly on the short list recently to become the President's new chief of staff [See Murphy and Ordonez, "Meadows Won't be Trump's new Chief of Staff," Raleigh News & Observer (12/12/18)]. Reflecting the ideologically fluid and partisan swing nature of Jackson, Cong. Meadows (barely) won his old home county in 2018 (a 49.35%-47.86) despite the success of Democrats there in other races.

While the district drawing of recently-empowered GOP leaders in the General Assembly has been on the 21st century technological cutting edge, gerrymandering of the Western Zone is hardly unprecedented. As V.O. Key pointed out in 1949, Democrats successfully ensured for the first half of the twentieth century that as few Republicans as possible were elected to Congress even when some western counties were bolting to GOP presidential candidates. What Key called "bacon-strip congressional districts" that the Democrats laid out in mainly horizontal fashion to stretch beyond any cluster of questionable western counties worked to "smother" many Republican congressional prospects [Key, *Southern Politics*, 226].

Inside the Democratic stronghold of Buncombe, Asheville has been the central voting bloc for its candidates. For state and national elections, the North Carolina Board of Elections reports voting results by county but not by city. Yet for 2016 the precinct analysis of the North Carolina Public Press organization confirmed that in the case of Buncombe "*Hillary Clinton claimed a 54 percent majority .... thanks primarily to heavily Democratic Asheville, the region's largest city.*" At the same time, however, Clinton's Buncombe majority was not a "landslide" because "*beyond Asheville, she carried few of the county's small towns and rural precincts*" [Taylor, "Breaking down the Mountains: Precinct-Level Analysis of WNC's Vote," North Carolina Public Press (11/14/16)].

The growth in Democratic voter registration over the last decade demonstrates the party's partisan strength in Asheville. In 2005, the city's registration numbers showed 27,776 Democrats and 12,734 Republicans. Today Democratic registration has grown and Republican registration has shrunk.

While Asheville's city elections are non-partisan, the political profiles of its winners also exhibit a distinctive progressive Democratic bent. In her successful 2017 re-election bid, Mayor Esther Manheimer received endorsements from the AFL-CIO, Sierra Club, Equality NC (gay rights PAC) and Democratic State Senator Terry Van Duyn. She received 80% of the vote against the second-place primary finisher Martin Ramsey – who was a self-described socialist and ran a token campaign. First elected to the City Council in 2009 and then Mayor in 2013, Manheimer (who is white) succeeded Terry Bellamy, another female who was Asheville's first African-American mayor.

Local observers have emphasized the emergence of a progressive majority on Asheville's city council over the last decade. In 2015 stalwart conservative Carl Mumpower, who had served on the city council from 2001-2009, launched an unsuccessful comeback bid because in his view all seven current members were "liberal Democrats" and moving the city in a far-left direction. While disagreeing with Mumpower's conservative views, Asheville Citizen-Times columnist John Boyle in 2015 agreed that the city had a "far left board that represents a certain large slice of Asheville, but it leaves another sizable slice voiceless" [See Burns, "Has Asheville Council Veered Too Far Left?" Asheville Citizen-Times (6/13/15)]. While disagreeing with the notion that Asheville city government had been taken over "*by some far-left faction,*" David Forbes of the Asheville Blade acknowledged that "progressives" were now "*winning repeated majorities in successive elections*" [Forbes, "About Asheville Politics," (7/22/15)].

In 2017, two new members of the council (Vijay Kapoor and Sheneika Smith) with strong endorsements from progressive groups proved to be the two-top vote-getters and were elected along with incumbent Vice-Mayor Gwen Wisler. Before the election, the chairman of the Buncombe Democratic Party (Jeffrey Rose) praised "the overall strength" of the candidate field. In contrast, Republican Party chair Mumpower charged that most candidates exhibited "*a built-in carelessness with other people's money married to bigger government as their lustless answer to social problems*" [Burgess, "Asheville's City Council Candidates Are More Diverse, Qualified and Liberal, Observers Say," (10/7/17)].

The current seven-person city council (including Mayor Manheimer) has a four-woman majority, two African-American members, and only one white male. This demographic diversity is striking in a city with an African-American (12%) and other minority (a little over 8%) populations well below the state average of 22.2% and 14.8%. In April 2018, the Council underlined the extent of its progressive outlook by unanimously issuing statement on its directions to the city police force against cooperation with the deportation efforts of the ICE and thus confirming Asheville as a "sanctuary city" in the view of many conservatives [See City Council Issues Statement Regarding ICE Operations in Asheville Area, 4/19/18].

A contrast can be drawn between the uniformly progressive Asheville City Council and the currently close 4-3 partisan split on the Buncombe County Commission. The contrast can be somewhat questioned because all members of the Asheville City Council are elected on an at-large basis while all Buncombe County Commissioners represent districts. Republicans in the General Assembly have been pushing controversial legislation to turn city council elections into at-district races. As of 2015, respected Western Carolina University political scientist Chris Cooper was quoted as saying that "*there are a sizable number*

*of Republicans in Asheville and a sizable number of old mountain Democrats ... and they're not represented on the Asheville City Council.” [See Boyle, supra]*

Still in a non-binding referendum on the ballot with the 2017 city elections, a 75% super-majority of those Asheville voters who went to the polls opposed the legislative effort to create city council districts. Regardless of the dispute about requiring Asheville's city council to have districts, the registration numbers in Buncombe confirm the lesser strength of Democrats outside Asheville. While now enjoying a 3-1 registration dominance over Republicans in Asheville, Democratic registration in Buncombe outside Asheville is less than 55%. And while Asheville is by far its biggest population center (91,902), the part of Buncombe outside Asheville in total is decidedly larger (165,705).

The North Carolina Public Press' 2016 precinct analysis indeed found that Secretary Clinton in non-Asheville Buncombe had a slight edge only in the town of Woodfin and the western portion of Black Mountain. In contrast, Trump gained “strong support” in the towns of Montreat, Weaversville, as well as Biltmore Forest and won such unincorporated communities as Candler, Enka, Leicester, Swannanoa, Barnardsville, Arden, and Fairview.

Signs indicate that that Democrats made some significant inroads throughout Buncombe during the 2018 cycle. At the local level, one GOP incumbent on the Buncombe County Commission (Robert Pressley) held on to his seat by a narrow 50.96-49.04% margin. But Democratic candidate Quentin Miller became the first African-American sheriff in Buncombe's history with 61% of the vote [Walton, “Democrats Find Widespread Success in County Races,” Mountain Xpress (11/9/18)]. Such an overwhelming victory was especially impressive because of Buncombe's low African-American population (6%).

The 2018 move toward Democrats in Buncombe outside Asheville was even clearer in the state legislative and congressional election results. While 11th District Congressman Meadows in 2016 (barely) won with 50.67% within his mainly non-Asheville slice of Buncombe, he lost that area in 2018 to challenger Philip Price by a 54.16-43.78%. Similarly, while GOP State Senator Chuck Edwards won the Buncombe slice of his district (which is mainly outside Asheville) in 2016, he lost that area of the 48th Senate District by a 52.94-47.06% margin in 2018.

Even with this apparent spread of Democratic strength more throughout Buncombe, it should still be understood that the Democratic base is the city of Asheville not the larger Asheville metropolitan area. The federal Office of Management and Budget (OMB) defines metropolitan statistical areas (MSAs) based on commuting patterns into a central employment hub. According to OMB, the Asheville MSA includes the rest of Buncombe County and all the counties of Haywood, Henderson, and Madison. In recent federal and state elections, the Republican dominance in this trio of outlying counties has either come close to neutralizing or has overwhelmed the leads that the Democrats amass coming out of Asheville/Buncombe.

In 2016, for example, President Trump won the Asheville MSA. Fueled by an Asheville city vote with a super-majority for her which may have reached the 75% level, Secretary Clinton came out of Buncombe with 54% majority amounting to about a 20,000 vote lead. But Trump countered with a 34,226 aggregate margin in Haywood, Henderson, and Madison. In his narrow victory over GOP incumbent Governor McCrory, Attorney General Roy Cooper was able to pull out a win in the Asheville MSA. But the trio of

outlying Republican red counties cut Cooper's Asheville/Buncombe lead of 30,000 votes in half and only a 52% win in the Asheville MSA.

While North Carolina experienced a so-called "Blue Moon" election cycle with no US Senate or governor race, the Asheville MSA's same partisan pattern was evident in the 2018 vote pattern for congressional candidates -- 10th plus 11th Districts -- in the Western Zone. For a mid-term election, overall turnout of registered voters was even more impressive in the Asheville MSA (59%) than the relatively high turnout throughout North Carolina (52.98%) But the rates were still lower than in the 2016 presidential year (69.98% North Carolina). In this lower 2018 turnout context, the combined Asheville/ Buncombe margin of just over 30,000 votes for the losing Democratic candidates in the 10th (David Brown) and 11th Districts (Philip Price) was quite impressive. But the Republican vote in the trio of outlying Asheville MSA counties again cut the Democratic margin in half.

Democratic strength in college town areas has been evident in recent election cycles across the nation. The Chronicle of Higher Education has reported that in 2016, for example, Secretary Clinton overwhelmingly won the home counties of flagship state universities by an average of 18 percentage points and her margin in those counties was on average 11 points higher than her statewide percentages. As a primary example, The Chronicle pointed to North Carolina. While only gaining 46.7% overall, Secretary Clinton swept UNC-CH's home county of Orange with 74% of the vote. [See Najmabadi and Knott, "Yes, You're Right, Colleges Are Liberal Bubbles. Here's the Data," Chronicle of Higher Education (11/14/16)]

The Western Zone does not contain a flagship public university. But state political observers have noted that such four-year higher education institutions as UNC at Asheville (enrollment 3,595) as well as such smaller private schools as Warren Wilson College (enr. 595) and Montreat College (enr. 461) significantly contribute to the liberal political culture of Asheville/Buncombe [See Janz, "Buncombe County," PoliticsNC (3/15/2018)]. Based on volunteered anecdotal student comments, the website Niche.com ranks Warren Wilson as the most liberal and UNC-Asheville as the 5th most liberal college in North Carolina.

Asheville is also a "college town" in terms of its residents' high 48.2% college attainment level (adults above 25 years of age with a bachelor's degree). This almost fifty percent mark significantly exceeds the state average of 29.9% and the national average of 30.9% Indeed Asheville's level exceeds attainment in Charlotte (42.5%), Durham (41.2%), as well as Greensboro (37.4%) while almost matching it in Raleigh (50.0%) and Forsyth (50.2%).

And in Buncombe outside of Asheville, the precincts around Warren Wilson College were one of the few areas where Clinton won. The small town of Woodfin (6,123) was another Buncombe outlier for Clinton and has no four-year higher education institution. But this former manufacturing town in decline on the norther border of Asheville has been enjoying a renaissance as a new affordable suburban residence, and its town center is only two miles from UNC- Asheville.

Observers have also pointed to the town of Cullowhee surrounding Western Carolina University (enr. 11,043) as the strongest hotbed of Democratic support in Jackson. [See Wynne, "Jackson County," PoliticsNC (4/24/13/)]. While Trump in 2016 won by over 10 percentage points and led in every other

precinct in Jackson, Clinton won a majority in the Cullowhee precinct. [Taylor, “Breaking Down the Mountains ...,” North Carolina Public Press (11/14/16)]

The same 2016 pattern occurred in Transylvania County. Trump swept the county by a 59-37% margin. Secretary Clinton lost and usually by big margins throughout precincts in the county. But she won three precincts in the town of Brevard around Brevard College. [Taylor, “Breaking Down the Mountains...”] In Madison, Trump won by 60% overall and carried all precincts. Besides her victory in the precinct around the small town of Hot Springs, the only precinct where Clinton broke 40% was the one in Mars Hill around Mars Hill University.

Outside but near the Western Zone, college-town support for Democrats has been especially evident in Watauga County. In recent elections, Watauga (pop. 51,079) has become an island of narrow blue victories in the otherwise solid red Republican sea of the Fifth Congressional District outside the Democratic stronghold of Winston Salem/Forsyth County. Boone is the largest town in the county (pop. 17,122) and the home of Appalachian State (undergraduate enrollment 16,126) Fueled by her vote in Boone, Clinton won Watauga by a few hundred votes in 2016. [Taylor, “Breaking Down the Mountains ....., NCPP]

The exact relationship between many higher education institutions and the Democratic voting patterns of surrounding areas is subject to debate. But as the NC Public Press wrote in its 2016 analysis, it appears that the “*combination of liberal professors, young millennial students, and ethnically diverse student and staff populations*” has created a progressive core which attracts more like-minded people to live there. At the same time, as the Public Press speculated, the solid Republican vote otherwise in the Western region could involve at least in part a rejection of the perceived “elite ideals” of such educational institutions.

Democrats apparently had some limited bases of competitive support in the biggest of the small towns among some small outlying Western Zone counties which are otherwise voting solidly Republican. No precinct analysis for Western Zone counties is readily available for 2018. But even as unpopular as Hillary Clinton was overall in these outlying counties, the North Carolina Public Press’ 2016 precinct indicated such pockets of support. For example:

- While Henderson County (pop. 106,740/registered voters 86,596) – the second most populous county in the Western Zone -- gave Trump a 61.55-34.08% victory overall in 2016, the precincts in the county seat and biggest town of Hendersonville (pop. 13,137) went for Clinton.
- While Trump won 61.90% in small Polk County (pop. 20,558/registered voters 16,220), Clinton won the largest town of Tryon (pop. 1,646 and home of the Tryon International Equestrian Center).
- A much weaker version of this pattern occurred in Haywood County (pop. 61, 084 /registered voters 45,369): while Trump took the county overall by a 61.60-34.08% margin, Clinton was able to win the central precinct at the heart of the county seat and largest town of Waynesville (pop. 9,971).

As emphasized previously, the western counties are overwhelmingly white and only Buncombe is a solidly Democratic outlier from their Republican pattern of support. But in some other counties, clusters of minority populations contribute to a modicum of Democratic competitiveness. For example:

In Jackson, Native American voters living in a portion of Qualla reservation within the northernmost part of the county can provide a base of Democratic support in addition to voters in the Western Carolina University/Cullowhee area. [Wynne, “Jackson County,” 4/23/13] In 2016, although Trump won in this area heavy with Native American voters, it was the most competitive area for Clinton after Cullowhee. [Taylor, “Breaking Down the Mountains...,” NCPP] (Due to evidence of discrimination against native American voters, Jackson became the only Western Zone county whose electoral practices were subject to the US Justice Department pre-clearance restrictions under the Section 5 of the 1965 Voting Rights Act until the Supreme Court constitutionally annulled them in the 2013 Shelby County v. Holder case.)

Swain County is home to the majority of the Eastern Band of Cherokee. Native American voters compose 29% of the population. Although Trump won Swain overall by about 58%, Secretary Clinton gained a 48% plurality in its eastern precinct around Cherokee. [Id.] In the Polk County town of Tryon, which delivered an outlier victory to Clinton, the African-American population (22%) rivals the state average. The presence of other groups increased Tryon’s minority population into the 25% range.

The previous comments focused on the current contours of two-party electoral politics involving Republicans and Democrats. Political observers however have observed the growth in registered “Unaffiliated” throughout North Carolina and the rest of the nation. Indeed, unaffiliated rank second behind Democrats statewide in North Carolina.

Yet the western part of the state stands out because “Unaffiliated” now represents its largest number of voters. While its politics were distinctive during the first half of the 20th century due to the amount of two-party competition, the partisan independence of voters now puts a new political stamp on the Western Zone.

Observers often point out that Democratic registration totals in Southern states can be inflated; they do not reflect current voting patterns because especially older cohorts of voters have not changed their registration despite becoming reliable Republican voters in state and national elections. That phenomenon is probably contributing to Democratic registration totals being higher in such reliably Republican voting counties as Haywood, Madison, Swain, and Transylvania, as well as the purplish Jackson.

But the more striking pattern is the strength of “Unaffiliated” registration throughout the Western Zone. Unaffiliated is now the first or second registration category in every county except for tiny Graham (total registration 5,571). And Unaffiliated voters now represent the highest total in second-most populous Henderson as well as three other Western Zone counties – Jackson, Polk, and Transylvania. In only six other counties do Unaffiliated voters outstrip Republicans as well as Democrats – nearby Watauga/Boone, New Hanover/Wilmington, Onslow, and three small counties in the Northeastern Zone (Camden, Currituck, and Dare).

In Buncombe, Unaffiliated voters (70,004) are now only 1,500 registered voters behind Democrats (71,589). This near first-place status in Buncombe has no parallel among the state’s five more populous counties. Like Buncombe, all these other high-population counties vote solidly Democratic. But Unaffiliated voters still rank third in Wake County. In Mecklenburg, Guilford, Forsyth, and Durham, Unaffiliated voters significantly outpace Republicans but come nowhere close to matching Democrats.

For several years, the political science literature has been teaching that a large number of Unaffiliated voters and/or those who claim to be “independent” in public opinion surveys turn out to be reliable Democratic or Republican voters [See. E.g., Professor Jon Sides’ summary “Most Political Independents Actually Aren’t,” Washington Post (1/8/14). But the growth in voters refusing to affiliate with the Democrats or Republicans should not be ignored. The political science literature has also recently been pointing out that more and more voters identifying themselves as Democratic and Republicans are “negatively” affiliating with their chosen parties: they oppose the other party rather than positively embrace the one for which they usually vote [See Abramowitz and Weber, “Negative Partisanship: Why Americans Dislike Parties But Act Like Rabid Partisans,” Political Psychology (Feb. 2018) 119-35].

Likely, standard partisan competition with its binary choice between Republicans and Democrats still will endure for a long time. Even with its distinctively strong growth in Unaffiliated voters, the Western Zone has not yet shown any major attraction to third-party candidacies. In 2016, for example, the small average vote of about 3% for Libertarian candidate Gary Johnson in Western Zone counties barely exceeded his state average of 2.74%. Jackson (3.97%), Swain (3.82%), Buncombe (3.08%), Madison (2.98%), Haywood (2.95%), and Henderson (2.79) were the Libertarian candidate’s better-than-state average counties. (Due to the state’s tough ballot requirements, Green Party candidate Jill Stein was not on the ballot and received only 26% of the statewide vote through write-in votes.)

But the possibility of significant partisan instability if not explosiveness in the Western Zone cannot be entirely discounted. Both the left-Democratic and right-Republican outlooks dominant in the Western Zone have insurgent features that fit awkwardly at best with the mainstream traditions in both parties.

On the one hand, the liberal reform tradition of the Democratic Party in North Carolina -- as George Tindall among other historians have demonstrated -- first emerged as a white “business progressivism” during the first decades of the 20th Century. [See Tindall, *The Emergence of the New South, 1913-1945* (1967) 224-25] In the latter half of the 20th Century, this Democratic business progressivism began an uneasy coalescence with African-American voters as they became fully enfranchised across the state. Such major urban population centers as Raleigh, Guilford, Forsyth, and eventually Charlotte began to form versions of what political scientist James Q. Wilson had labeled an “Atlanta coalition” of mainly upscale whites and downscale African-American voters. [Wilson, “The Negro in Politics,” *Daedalus* (Fall 1965) 949-73, 953]

Governors Terry Sanford and Jim Hunt personified this liberalized business progressivism; so did more recent Democratic governors as Mike Easley and Beverly Perdue. Current Democratic Governor Roy Cooper is also a product of this tradition. And all these governors came from Eastern North Carolina (below the Northeastern Zone) [See generally Christensen, *The Paradox of Tar Heel Politics* (2008); Eamon, *The Making of a Southern Democracy: North Carolina Politics from Kerr Scott to Pat McCrory* (2014); Christensen, “Cooper-McCrory Race to be Close, Costly, Conspicuous,” *N&O* 910/13/15)].

But the Western progressivism that has developed out of Asheville does not conform to or feature the key political elements in this Atlanta coalition. As already emphasized, Asheville’s long-time percentage of African-American voters (12%) has been significantly below the state average (in the 20% range) and Buncombe’s percentage remains in the single digits (currently 6%). Moreover, scholars Elizabeth Strom and Robert Kerstein have recently shown that Asheville’s revitalization in recent decades has not depended on the big business-oriented “growth machines” so familiar in the revitalization of other cities

[Strom and Kerstein, “The Homegrown Downtown: Redevelopment in Asheville,” *Urban Affairs Review* (2017) 495-521].

Indeed, as Strom and Kerstein emphasize, Asheville’s revitalization turned on rejecting the “*traditional growth paradigm of megaprojects*” – in particular, a 1981 bond referendum defeat of a corporate-oriented downtown mall project which envisioned demolishing 11 city blocks (502). The ensuing Asheville progressive style has reflected what Professor Ronald Inglehart has called “post-materialist” and journalist David Brooks has characterized as “Bobo” or “bourgeois bohemian.” In political terms, it can be understood as more left-wing due to its strong environmentalist commitments but criticized as “elitist” due to the relative lack of emphasis on economic prosperity-growth concerns of New Dealish Democratic constituencies in North Carolina and elsewhere [See Inglehart, *The Silent Revolution: Changing Values and Political Styles Among Western Publics* (1977); Brooks, *The New Upper Class and How They Got There* (2000)].

On the other end of the political spectrum, today’s Western conservatism is hardly the moderately conservative Mountain Republicanism of yore. Instead the kind of anti-governmental Republican conservatism against TVA pioneered by former 11th District Congressman Charles Taylor and now typified by Cong. Mark Meadows and its state legislators is unapologetically insurgent and populist. It has special appeal with rural white constituencies in outlying and economically distressed areas throughout the Western Zone [On Transylvania County in particular, see the blog post of Southern historian Dan Carter in “Good-Bye to All That?” *Southern Spaces* (12/19/14)].

At the same time, the cross-cutting environmental appeal in the fight against TVA has a living legacy among Western Zone GOP state legislators: Chuck McGrady from Henderson (117th House District) represents something of a mix in the old and new Western Republican traditions. He a former national president of the Sierra Club and an otherwise solidly conservative member elected in the Tea Party election of 2010 when the GOP took over the General Assembly. [See “Chuck McGrady’s Political Summary,” *VoteSmart.org*; and for McGrady’s recent sponsorship of a bipartisan bill to end partisan gerrymandering, see Doran, “Bill May Change Who Draws Districts,” *N&O*, 2/14/19].

Perhaps in this highly polarized atmosphere, common ground can be found in such steps as major infrastructure projects that enhance economic growth and interconnectedness in the Western Zone. But it must be remembered that opposition to these type projects has served as key moments in the development of both today’s Asheville-style liberalism and the now dominant insurgent Republican conservatism’s campaign against TVA.

### **Strengths, Weaknesses, Opportunities and Threats (SWOT)**

Strengths, weaknesses, opportunities, and threats are always an important aspect of any region’s prospects for economic prosperity.

In the Western Prosperity zone, generally, the following SWOT observations pertain:

#### Strengths

- Western Carolina University, UNC-Asheville
- Asheville strong metro area with significant tourism appeal
- Natural amenities that have seen steady growth in an otherwise rural area

- Appeal as retirement destination

### Weaknesses

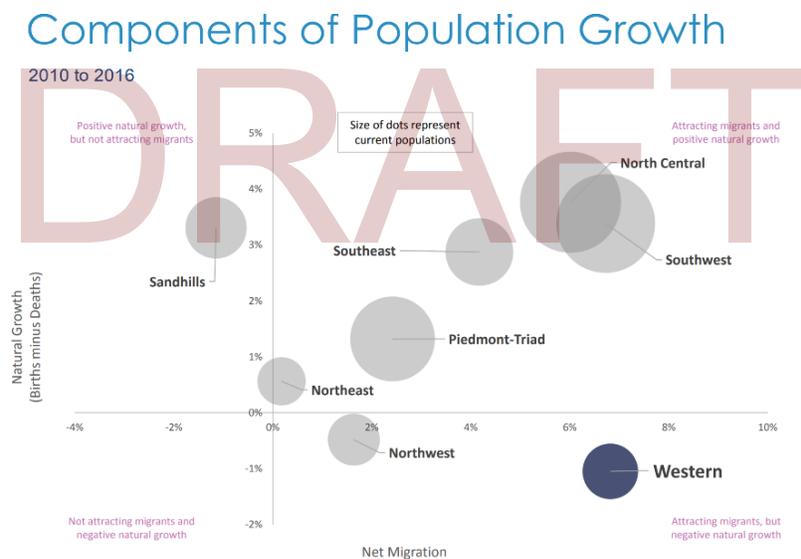
- Population aging: high appeal as retiree destination means that population is relatively older and has more deaths than births. This may create issues for future workforce.
- Emergence as a retiree/tourism destination may increase cost of living, creating affordability challenges for residents who fill those service sector jobs.
- Less diverse than the state overall

### Opportunities

- Build pathways for young adults and working-age adults to stay in the area – currently there is a lot of youth drain of early career adults.

### Threats

- Growth entirely dependent on net migration, much of which is from retirees. Economic downturn could slow growth substantially. Figure 10, below, from LEAD on components of population growth by Prosperity Zone shows that the Western has among the highest growth from net in-migration, but also has the greatest decrease from natural growth or more deaths than births).



Source: North Carolina Office of State Budget and Management  
 Note: Migration calculated relative to most recent Census year (2010).

Figure 10: Population migration in North Carolina

### **Asheville Sub-PZ**

In the context of the Asheville Sub-Prosperity Zone, the following additional observations pertain:

### Strengths

- Steadily increasing population fueled by growth in Buncombe and Henderson. Both counties are core counties in the Asheville metro. Madison, which is an outlying county from Asheville metro, has also experienced steady, strong growth. Henderson has been fastest-growing county in the region, largely due to suburban spillover from Buncombe

- Transylvania County (Brevard micro) had relatively strong growth 1990s-2000s but that slowed down at beginning of 2010-2017. This could be because growth that was fueled by second homes/retirees took a larger hit from the Recession. Time will tell if Transylvania will bounce back as we fully recover from the Great Recession. Polk had similar trends.
- Asheville is a prime tourism destination and that and the surrounding region benefit from a steady flow of tourists.
- Retiree destination. Net migration has been the only driver of growth in this region.
- Relatively educated, potentially because of net in-migration of highly educated retirees. As of 2017, 11% of Asheville sub-PZ adults 25+ had less than a high school diploma, two percentage points below the state rate of 13%. Conversely, they were more likely to have an associate degree or higher (42% vs. 39% statewide).

#### Weaknesses

- Rutherford the only county in this sub-PZ that has not grown since 2010 and it is also the county least integrated into the Asheville sub-PZ. Rutherford is more strongly tied in to Charlotte, Shelby, and Greenville-Spartanburg MSAs than Asheville (in terms of commuting patterns) (See Figure 11)
- Does not have significant pull for young adults. Early career adults/recent college grads barely move to this region compared to individuals from other age groups.
- Relatively older region compared to the state – ages 25-54 smaller share of population (37% vs. 39%) and have fewer under 15 and 15-24. In contrast, 55-74 and 75+ a much higher share of population. As a result, Buncombe is the only county that has had more births than deaths since 2010; all other counties in this region have had natural decrease.

#### Opportunities

- Potential for Montana-esque tourism development – “bring your job with you”? Commuting patterns from Buncombe county may be an artifact of some data errors, but looks like a high degree of people who live in Buncombe work in Mecklenburg, Wake, or the Piedmont – could this be facilitated by high speed internet connections that enable teleworking? And is this a viable strategy for other counties in the area?
- Better opportunities for early career adults may address some of migration patterns observed.
- Counties on SC border are clearly tied to Greenville-Spartanburg MSA – strong commuting patterns from Henderson, Polk, and Rutherford to SC counties.

#### Threats

- Emergence as a retiree/tourism destination may increase cost of living, creating affordability challenges for residents who fill those service sector jobs.
- More tourism = more congestion, more infrastructure demands that can start to threaten natural amenities bringing people to the place to begin with.
- Current growth is entirely dependent on net migration, much of which is from retirees. An economic downturn could slow this growth substantially.
- Additionally, current projections from state demographer suggest more growth from migration than has been seen in recent years. This may be overly optimistic for future planning, or it may be appropriate. The last few years have seen a return to pre-recession growth patterns and it will take some time to see how much things stabilize at current levels.

## **Waynesville-Franklin Sub-PZ**

In the context of the Waynesville-Franklin Sub-Prosperity Zone, the following additional observations pertain:

### Strengths

- Western Carolina University in Jackson County
- All counties have been growing since 1990 except for Graham. One of the few areas in the state where rural counties are actually maintaining growth, in part because their rurality and natural resource amenities are what pull people to the area. (May be the most rural region in the state: 5 of the region's 7 counties are rural.)
- High levels of net in-migration key to the region's growth. Like the Asheville area, this generally reflects the influence of retiree in-migration.

### Weaknesses

- Population aging has had a significant impact on this area for nearly 20 years. Overall, the Waynesville-Franklin area has had natural decrease since 2000 and this is only projected to intensify in coming years. Two counties—Macon and Clay—had more deaths and births in the 1990s, as well.
- Population heavily skewed towards older adults. In 2017, 33% of Waynesville-Franklin residents were 25-54 compared to 39% statewide. The region had a higher share of 55-74 year-olds (29% vs. 22% and 75+ (10% vs. 6%).
- Net out-migration of early career adults over past few decades may be concerning for future economic development. Some of this may reflect the natural outflow of WCU students, but the migration profile shown below highlights how the age structure of net in-migration to the region shifted older in the 2000s.
- Like the Elizabeth City sub-Prosperity Zone, Waynesville-Franklin contains multiple counties with small populations. This means that they may not be able to get data that is as current as data available for other regions.
- Educational attainment has improved, but still lags the state.
  - In 1990, 35% of region adults 25+ had less than a high school diploma; this had declined to 13% in 2017. The state rates were 30% and 13%, respectively.
  - In 2017, 34% of region residents held an associate degree or higher, five percentage points lower than the state average of 39%.

### Opportunities

- Better opportunities for early career adults may address net migration patterns by age.
- Strengthen connection between far west counties and rest of NC. Often just as linked to Georgia or Tennessee as to NC.

### Threats

- Out-migration of 75+ may indicate medical out-migration influenced by hospital closures/medical access.
- Current growth is entirely dependent on net migration, much of which is from retirees. An economic downturn could slow this growth substantially. Additionally, current projections from

state demographer suggest more growth from migration than has been seen in recent years. This may be overly optimistic for future planning, or it may be appropriate. The last few years have seen a return to pre-recession growth patterns and it will take some time to see how much things stabilize at current levels.

### Employment, Demographic, and Commutation Patterns

The figures below provide information about commutation and demographic patterns for counties in the Northeast Prosperity Zone.

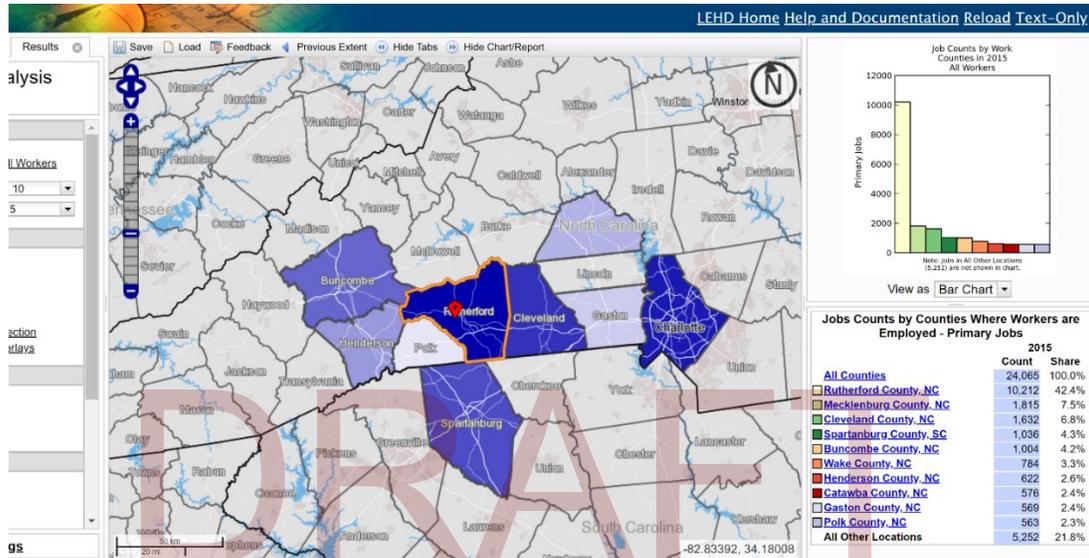


Figure 11: Commutation patterns for Rutherford county

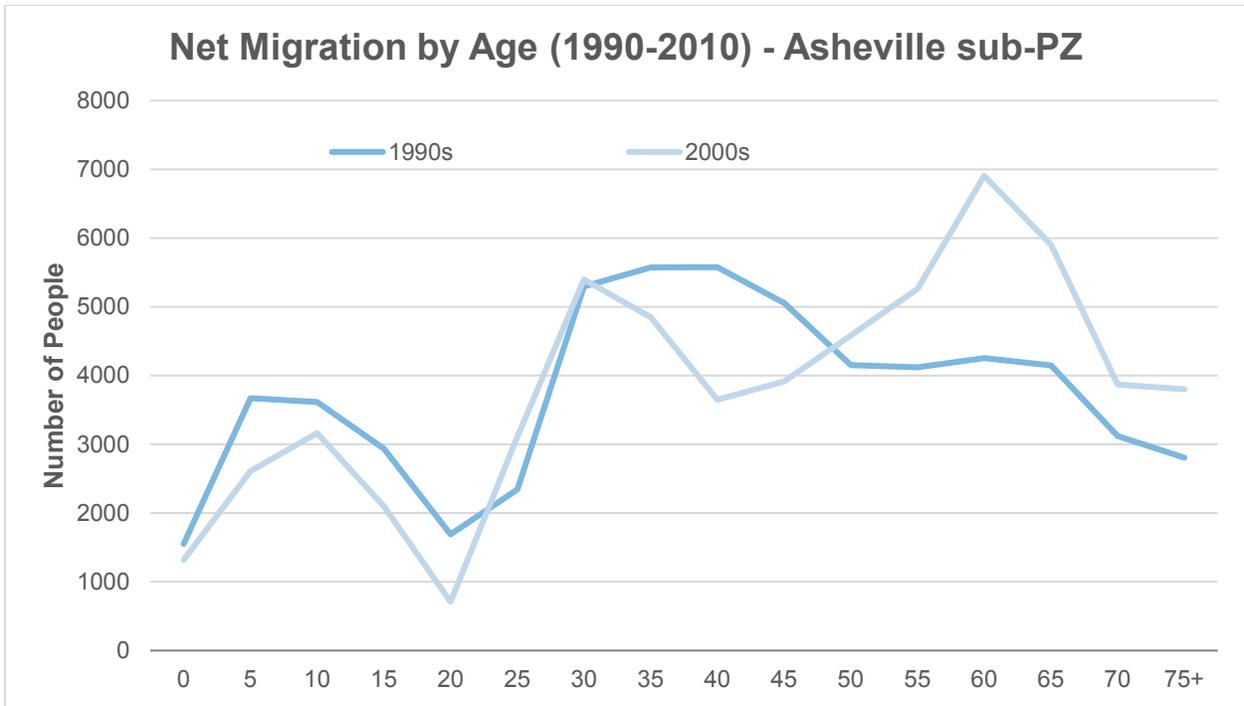


Figure 12: Net migration by age (1990-2010) – Asheville sub-PZ

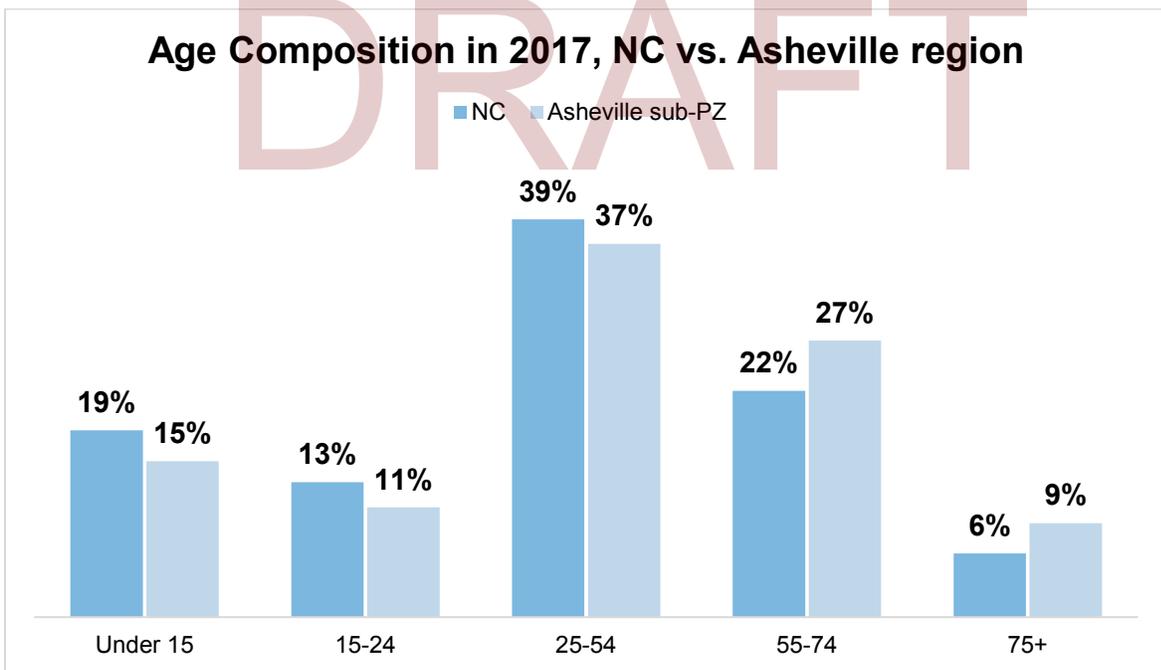


Figure 13: Age composition in 2017, NC versus the Asheville region

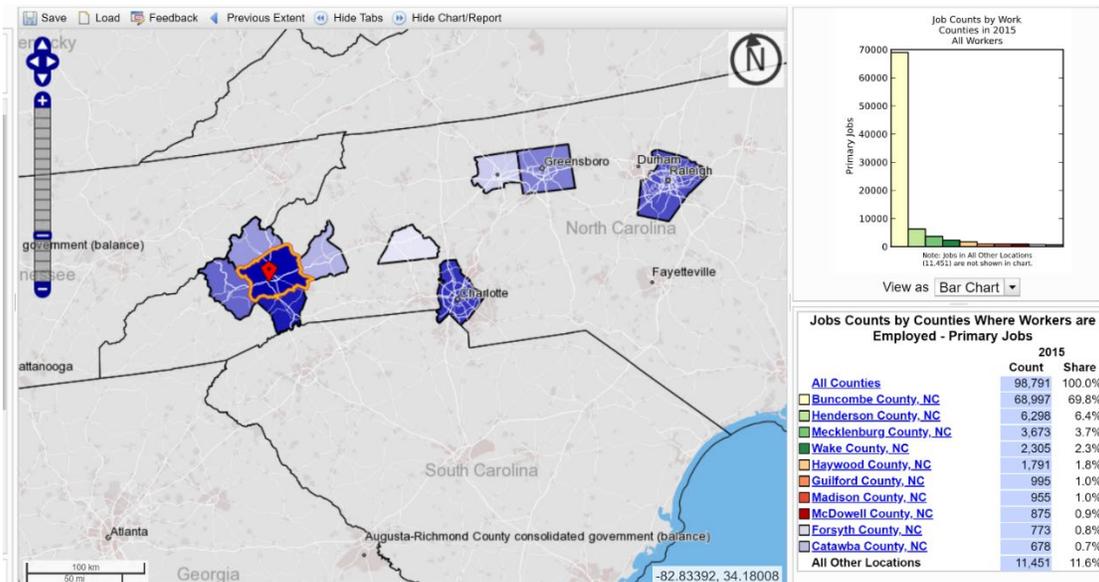


Figure 14: Commuting patterns for Buncombe county

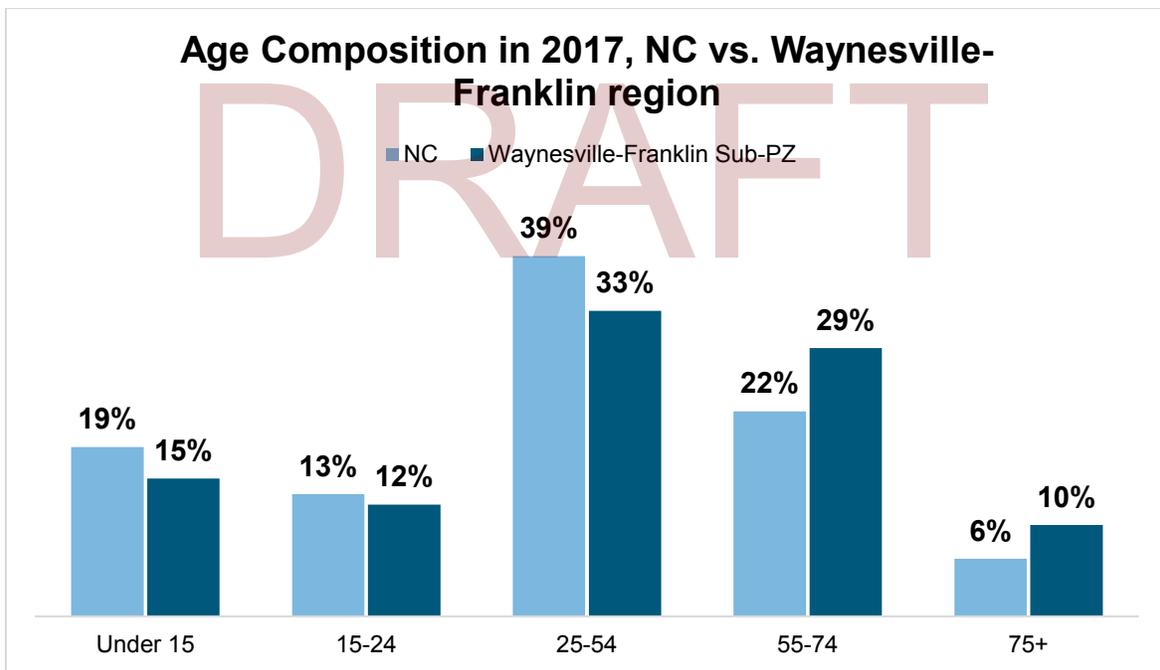


Figure 15: Age composition in 2017, NC versus the Waynesville-Franklin region

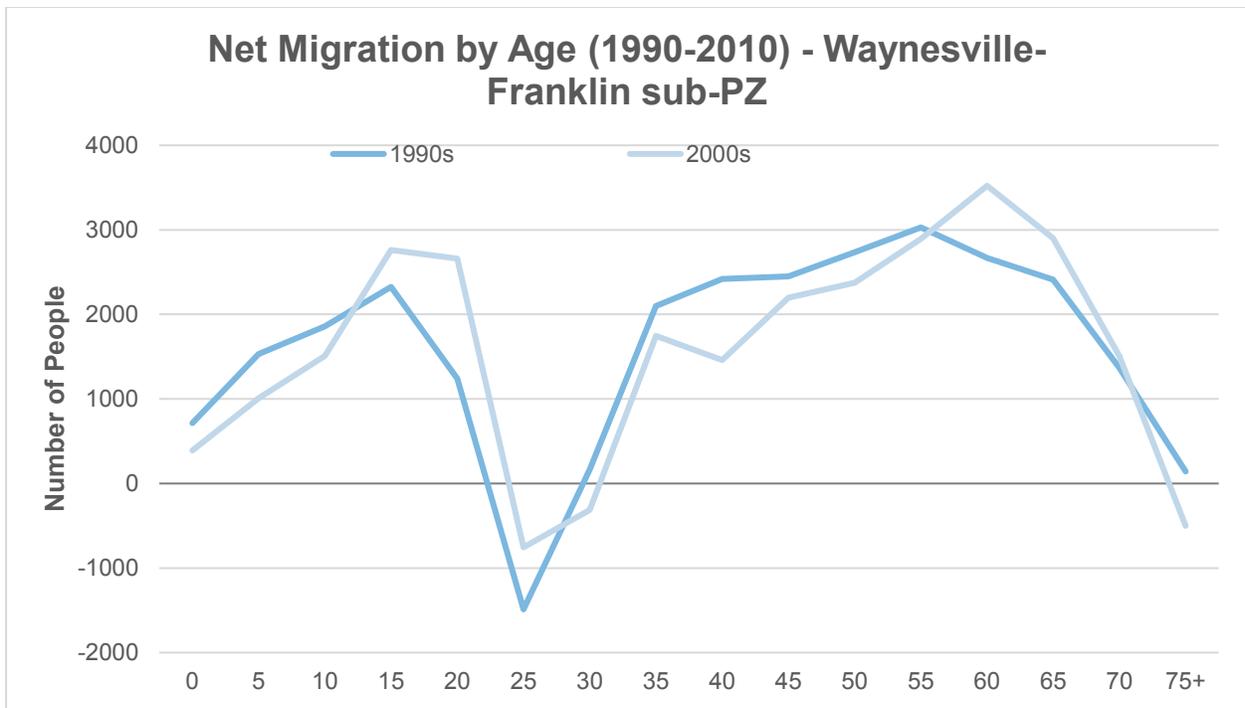


Figure 16: Net migration by age (1990-2010) – Waynesville-Franklin sub-PZ

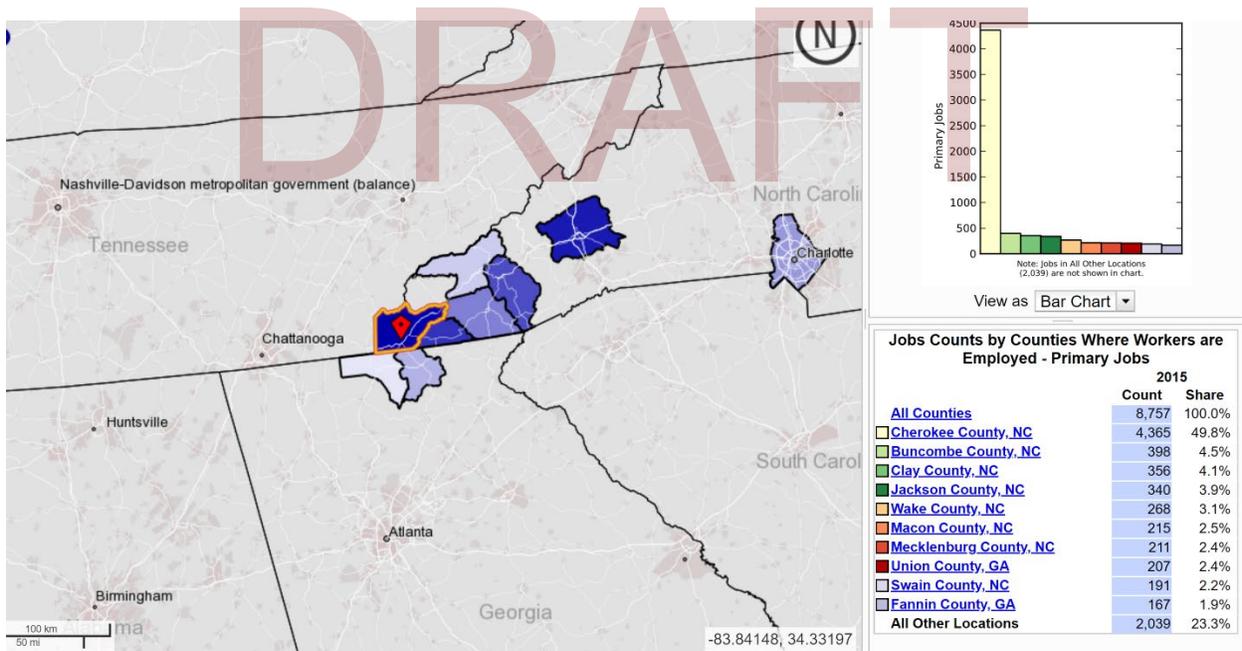
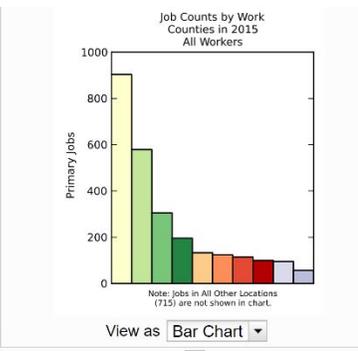
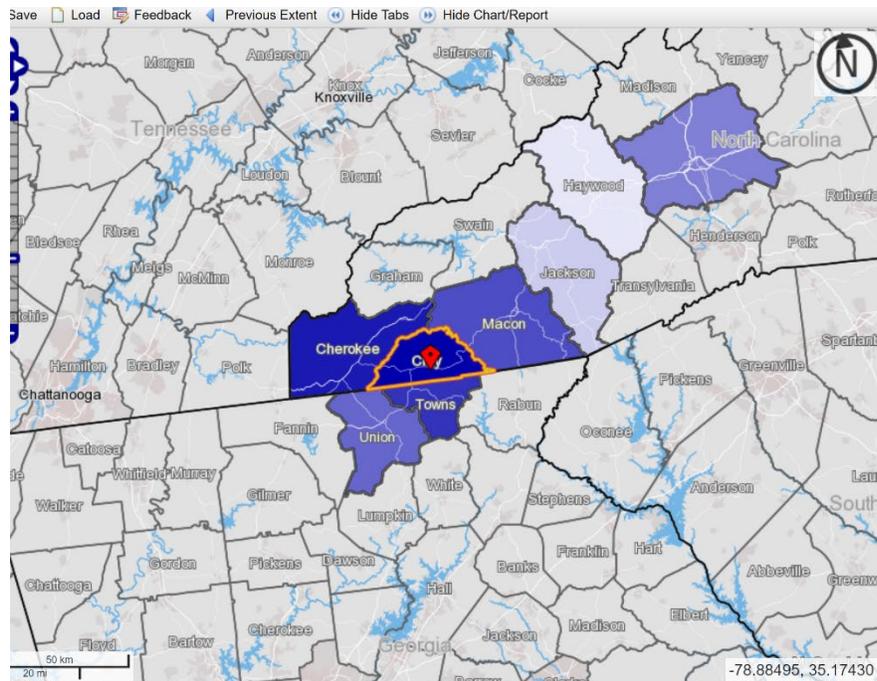


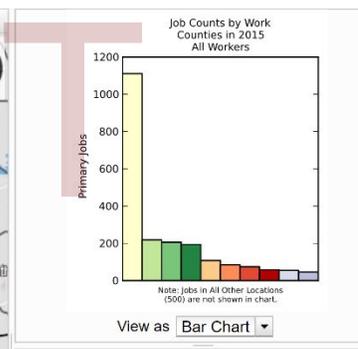
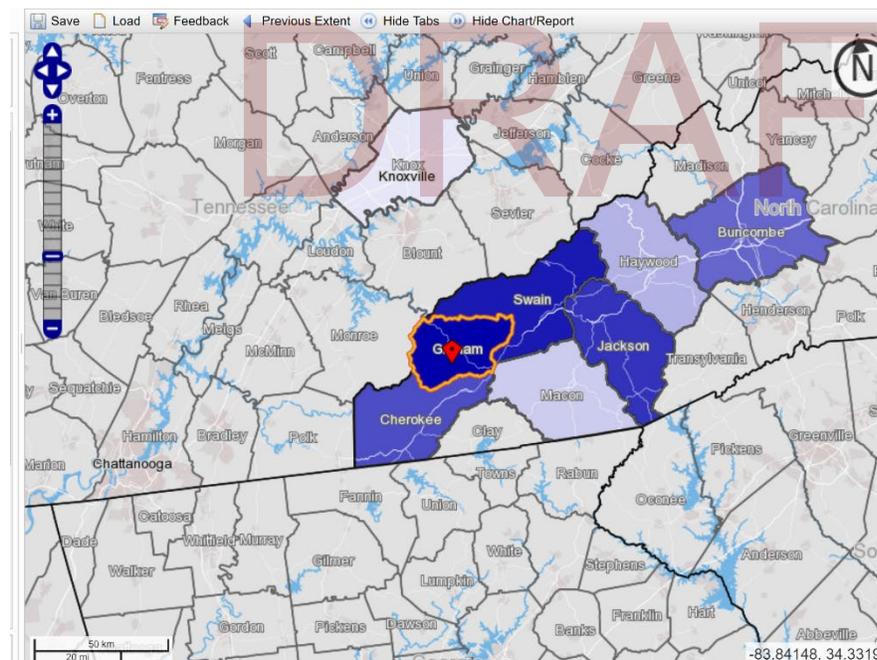
Figure 17 Commuting patterns for Buncombe county



**Jobs Counts by Counties Where Workers are Employed - Primary Jobs**

	2015	Count	Share
<b>All Counties</b>		3,323	100.0%
Clay County, NC		904	27.2%
Cherokee County, NC		579	17.4%
Towns County, GA		305	9.2%
Macon County, NC		196	5.9%
Union County, GA		133	4.0%
Buncombe County, NC		124	3.7%
Wake County, NC		115	3.5%
Mecklenburg County, NC		100	3.0%
Jackson County, NC		95	2.9%
Haywood County, NC		57	1.7%
<b>All Other Locations</b>		715	21.5%

Figure 18: Commuting patterns for Clay county



**Jobs Counts by Counties Where Workers are Employed - Primary Jobs**

	2015	Count	Share
<b>All Counties</b>		2,655	100.0%
Graham County, NC		1,111	41.8%
Swain County, NC		218	8.2%
Jackson County, NC		206	7.8%
Cherokee County, NC		194	7.3%
Buncombe County, NC		108	4.1%
Wake County, NC		85	3.2%
Mecklenburg County, NC		74	2.8%
Haywood County, NC		58	2.2%
Macon County, NC		55	2.1%
Knox County, TN		46	1.7%
<b>All Other Locations</b>		500	18.8%

Figure 19: Commuting patterns for Graham county

# References

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## References for Northeast Prosperity Zone

- <sup>1</sup> N.C. Gen Stat. § 143B-28.1
- <sup>2</sup> State Library of North Carolina, "North Carolina County Development," accessed February 3, 2019, [https://www.ncpedia.org/sites/default/files//print\\_pdf/statelibrarync\\_county\\_development\\_handout.pdf](https://www.ncpedia.org/sites/default/files//print_pdf/statelibrarync_county_development_handout.pdf); and William Powell, *North Carolina: A History* (Chapel Hill, NC: University of North Carolina Press, 1988) 20-22.
- <sup>3</sup> Author's analysis of N.C. Office of State Budget and Management, "2017 Certified County Population Estimates," last revised December 3, 2018, [https://files.nc.gov/ncosbm/demog/countygrowth\\_cert\\_2017.html](https://files.nc.gov/ncosbm/demog/countygrowth_cert_2017.html).
- <sup>4</sup> Author's analysis of U.S. Bureau of Economic Analysis, "Prototype Gross Domestic Product by County, 2012-2015," last revised December 12, 2018, <https://www.bea.gov/data/gdp/gdp-county>.
- <sup>5</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016; and U.S. Census Bureau, Non-employer Statistics, 2016.
- <sup>6</sup> Author's analysis of U.S. Census Bureau, Survey of Business Owners, 2012; and U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>7</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>8</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>9</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>10</sup> Author's analysis of U.S. Bureau of Economic Analysis, "Prototype Gross Domestic Product by County, 2012-2015."
- <sup>11</sup> Author's analysis of U.S. Bureau of Economic Analysis, "Prototype Gross Domestic Product by County, 2012-2015."
- <sup>12</sup> Author's analysis of U.S. Bureau of Economic Analysis, "Prototype Gross Domestic Product by County, 2012-2015."
- <sup>13</sup> Author's analysis of U.S. Bureau of Economic Analysis, "Prototype Gross Domestic Product by County, 2012-2015."
- <sup>14</sup> Author's analysis of U.S. Bureau of Economic Analysis, "Prototype Gross Domestic Product by County, 2012-2015."
- <sup>15</sup> Author's analysis of U.S. Bureau of Economic Analysis, "Prototype Gross Domestic Product by County, 2012-2015."
- <sup>16</sup> Author's analysis of U.S. Bureau of Economic Analysis, "Prototype Gross Domestic Product by County, 2012-2015"; and N.C. Office of State Budget and Management, "2015 Certified County Population Estimates," last revised December 3, 2018, [https://files.nc.gov/ncosbm/demog/countygrowth\\_2015.html](https://files.nc.gov/ncosbm/demog/countygrowth_2015.html).
- <sup>17</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016. Note this data set only captures private-sector business establishments. Government employment is excluded.
- <sup>18</sup> Author's analysis of U.S. Census Bureau, Non-employer Statistics, 2016.
- <sup>19</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>20</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>21</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016. <sup>22</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016. <sup>23</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>24</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>25</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>26</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>27</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>28</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>29</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>30</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>31</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>32</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>33</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>34</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>35</sup> Author's analysis of U.S. Census Bureau, Non-employer Statistics, 2016.
- <sup>36</sup> Author's analysis of U.S. Census Bureau, Non-employer Statistics, 2016.
- <sup>37</sup> Author's analysis of U.S. Census Bureau, Non-employer Statistics, 2016.

- <sup>38</sup> Author's analysis of U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2016. Note that these estimates do not include active-duty military personnel.
- <sup>39</sup> Author's analysis of U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2016.
- <sup>40</sup> Author's analysis of U.S. Census Bureau, Survey of Business Owners, 2012; and U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>41</sup> Author's analysis of U.S. Census Bureau, Survey of Business Owners, 2012.
- <sup>42</sup> Author's analysis of U.S. Census Bureau, Survey of Business Owners, 2012.
- <sup>43</sup> Author's analysis of U.S. Census Bureau, Survey of Business Owners, 2012.
- <sup>44</sup> Author's analysis of U.S. Census Bureau, Survey of Business Owners, 2012.
- <sup>45</sup> Author's analysis of U.S. Census Bureau, Survey of Business Owners, 2012.
- <sup>46</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>47</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>48</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>49</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>50</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>51</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>52</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>53</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>54</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>55</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>56</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>57</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>58</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>59</sup> Author's analysis of U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2016.
- <sup>60</sup> Author's analysis of U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2016.
- <sup>61</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>62</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>63</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>64</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>65</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>66</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>67</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>68</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>69</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>70</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>71</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>72</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>73</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>74</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>75</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.

#### References for Northeast Prosperity Zone

- <sup>1</sup> N.C. Gen Stat. § 143B-28.1
- <sup>2</sup> State Library of North Carolina, "North Carolina County Development," accessed February 3, 2019, [https://www.ncpedia.org/sites/default/files/print\\_pdf/statelibrarync\\_county\\_development\\_handout.pdf](https://www.ncpedia.org/sites/default/files/print_pdf/statelibrarync_county_development_handout.pdf); and William Powell, *North Carolina: A History* (Chapel Hill, NC: University of North Carolina Press, 1988) 99-100.
- <sup>3</sup> Author's analysis of N.C. Office of State Budget and Management, "2017 Certified County Population Estimates," last revised December 3, 2018, [https://files.nc.gov/ncosbm/demog/countygrowth\\_cert\\_2017.html](https://files.nc.gov/ncosbm/demog/countygrowth_cert_2017.html).
- <sup>4</sup> Author's analysis of U.S. Bureau of Economic Analysis, "Prototype Gross Domestic Product by County, 2012-2015," last revised December 12, 2018, <https://www.bea.gov/data/gdp/gdp-county>.

- <sup>5</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016; and U.S. Census Bureau, Nonemployer Statistics, 2016. <sup>6</sup> Author's analysis of U.S. Census Bureau, Survey of Business Owners, 2012; and U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>7</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>8</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>9</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>10</sup> Author's analysis of U.S. Bureau of Economic Analysis, "Prototype Gross Domestic Product by County, 2012-2015."
- <sup>11</sup> Author's analysis of U.S. Bureau of Economic Analysis, "Prototype Gross Domestic Product by County, 2012-2015."
- <sup>12</sup> Author's analysis of U.S. Bureau of Economic Analysis, "Prototype Gross Domestic Product by County, 2012-2015."
- <sup>13</sup> Author's analysis of U.S. Bureau of Economic Analysis, "Prototype Gross Domestic Product by County, 2012-2015."
- <sup>14</sup> Author's analysis of U.S. Bureau of Economic Analysis, "Prototype Gross Domestic Product by County, 2012-2015"; and Author's analysis of N.C. Office of State Budget and Management, "North Carolina Municipalities Ranked by the July 1, 2017 Estimated Population," last revised September 17, 2018, [https://files.nc.gov/ncosbm/demog/rankedbysize-largest\\_2017.html](https://files.nc.gov/ncosbm/demog/rankedbysize-largest_2017.html).
- <sup>15</sup> Author's analysis of U.S. Bureau of Economic Analysis, "Prototype Gross Domestic Product by County, 2012-2015."
- <sup>16</sup> Author's analysis of U.S. Bureau of Economic Analysis, "Prototype Gross Domestic Product by County, 2012-2015"; and N.C. Office of State Budget and Management, "2015 Certified County Population Estimates," last revised December 3, 2018, [https://files.nc.gov/ncosbm/demog/countygrowth\\_2015.html](https://files.nc.gov/ncosbm/demog/countygrowth_2015.html).
- <sup>17</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016. Note this data set only captures private-sector business establishments. Government employment is excluded.
- <sup>18</sup> Author's analysis of U.S. Census Bureau, Nonemployer Statistics, 2016.
- <sup>19</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>20</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>21</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>22</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>23</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>24</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>25</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>26</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>27</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>28</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>29</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>30</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>31</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>32</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>33</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>34</sup> Author's analysis of U.S. Census Bureau, County Business Patterns, 2016.
- <sup>35</sup> Author's analysis of U.S. Census Bureau, Nonemployer Statistics, 2016. <sup>36</sup> Author's analysis of U.S. Census Bureau, Nonemployer Statistics, 2016.
- <sup>37</sup> Author's analysis of U.S. Census Bureau, Nonemployer Statistics, 2016.
- <sup>38</sup> Author's analysis of U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2016. Note that these estimates do not include active-duty military personnel.
- <sup>39</sup> Author's analysis of U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2016.
- <sup>40</sup> Author's analysis of U.S. Census Bureau, Survey of Business Owners, 2012; and U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>41</sup> Author's analysis of U.S. Census Bureau, Survey of Business Owners, 2012.
- <sup>42</sup> Author's analysis of U.S. Census Bureau, Survey of Business Owners, 2012.
- <sup>43</sup> Author's analysis of U.S. Census Bureau, Survey of Business Owners, 2012.
- <sup>44</sup> Author's analysis of U.S. Census Bureau, Survey of Business Owners, 2012.
- <sup>45</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>46</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17. <sup>47</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17. <sup>48</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>49</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17. <sup>50</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17. <sup>51</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.

- <sup>52</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>53</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>54</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>55</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>56</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>57</sup> Author's analysis of U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2016.
- <sup>58</sup> Author's analysis of U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2016.
- <sup>59</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>60</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>61</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>62</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>63</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>64</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>65</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>66</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>67</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>68</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.
- <sup>69</sup> Author's analysis of U.S. Census Bureau, American Community Survey, Five-Year Estimates, 2013-17.

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**Appendix G:  
Literature Review**



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**RURAL FREIGHT TRANSPORT  
NEEDS STUDY RP 2017-19**

Institute of Transportation and Research Education

Literature Review  
June 2019

# Literature Review

## Rural Freight Transport Needs Study

### RP 2019-17

Institute for Transportation Research and Education

June 2019

## Introduction

This literature review provides a description of prior studies and other documents that address the issue of tying infrastructure investment to economic development. This is consistent with the purpose of the rural freight transport needs project, which is to identify infrastructure investments that can encourage economic growth in the rural portions of the state. To combine “demand pull” with “supply push” is the objective. The “demand pull” is local industries, existing or new, whose growth is of interest to the companies and people that are already located in or might be encouraged to choose these areas. The “supply push” is the investment in transportation and possibly other forms of infrastructure (such as IT) to help reduce transport costs, improve accessibility, and enhance those economic activities.

The literature review is organized in the style of an annotated bibliography. Individual reports, journal papers, or other documents are identified via a heading and then a brief description of the contents of that document follows. Table 1 categorizes some of the primary sources by year, report type, whether the report supported the idea of building infrastructure in response to economic development (rather than vice versa), and whether the reference mentioned the importance of making investments in freight corridors.

Table 2. Survey of primary documents referenced in the literature review.

Report	Year	Economic development -driven?	Freight corridor investments	Report Type
NC Statewide Logistics Plan	2007	Yes	Yes	Technical
Rural Counts NC	2015	Yes	n/a	Other
America 2050 "Megaregions"	2016	Yes	n/a	Other
SC Freight Plan	2017	Yes	Yes	Technical
NC Statewide Freight Plan	2017	Yes	Yes	Technical
Seven Portals Study	2011	Yes	Yes	Technical
A Way Forward....	2014	Yes	No	Academic
GA Freight Plan	2017	Yes	Yes	Technical
TN Freight Plan	2016	Yes	Yes	Technical
2050 Vision	n.d.	Yes	Yes	Other
NC Maritime study	2012	Yes	n/a	Technical
VA Freight Plan	2013	Yes	Yes	Technical
NC Economic Development Guide	2018	Yes	Yes	Technical

To help readers navigate through the reviewed literature, a categorization scheme has been employed. Section 2 sets the stage by positing ideas about the freight dependency of various industries. Section 3 reviews documents that are antecedents of the current effort. Section 4 describes documents that focus on local (as opposed to state, regional, or national needs) but where the impetus is clearly to make infrastructure investments that address local needs. Section 5 reviews documents that are broader in scope, such as state freight plans. These documents are needs-based, but they do not necessarily drill down to the local level in identifying specific needs except for large-scale industries (e.g., a port, a major manufacturer, etc.). Section 6 extends this scope further by examining national and global trends in economic activity, with an eye toward identifying the geo-political challenges that arise when urbanized areas and economic enterprises cross state or national boundaries. Section 7 provides a brief description of IMPLAN, a tool commonly used to assess the economic dependencies among areas and the potential impacts of new economic activities. Section 8 summarizes the literature and shows how this material, in a holistic sense, relates to the current project. As an overview of the types of documents of focus in the literature review,

## Freight Dependency

In thinking about infrastructure's ability to cause change, it is useful to identify industries that are dependent upon freight. Although there is a lack of a consistently used definition for freight-intensive or freight-dependent industries (Shin et al., 2015), specific industries are agreed upon as freight-intensive. For context, the definition of freight refers to “*goods transported in bulk by truck, train, ship, or aircraft, a freight train*” (Oxford dictionaries, 2018), whereas goods are shipped in large quantities, typically at a reduced unit price. Examples of freight-dependent industries include agriculture, manufacturing, retail, forestry, construction, activities related to energy extraction and mining, as well as transportation (WisDOT, n.d.).

Other industries may not necessarily be freight-intensive or freight-dependent, but their productivity, if not feasibility, may be transport-related or transport-dependent. For example, the production of vaccines may not be either freight-intensive or freight-dependent the way those terms are commonly used, but it is critically dependent on the availability of transport services with global reach so that the right medicine can be delivered to critical locations in a timely manner.

In a report completed for the Maryland Department of Transportation on the economic impact of the freight industry, they instead adopt the term *goods dependent industry*, which is defined in the Maryland Statewide Freight Plan as “*business(es) relying on transportation to receive raw supplies and manufactured goods and to send their refined/finished product(s) to market*” (Cambridge Systematics, 2009). This definition of freight-dependent industries includes the following industries, which may be similar to the industries of focus for North Carolina: (1) agriculture, (2) forestry, (3) fishing and hunting, (4) mining, (5) utilities, (6) construction, (7) manufacturing, (8) wholesale trade, (9) retail trade, and (10) transportation and warehousing. Yet another definition of the freight industry set forth in a 2011 study by Cambridge Systematics and Marlin Engineering is as follows: “*the transportation (and related services) of goods from point of production or import through delivery at retail locations or ports for exports.*” To avoid double-counting industries, Shin et al. (2015) restricted their definition of industries as freight-dependent based on the North American Industry Classification System (NAICS) codes # 48 and 49 (transportation and warehousing).

Whether freight is transported via semi-trucks, aircraft, rail, or boat is dependent on several factors, including the trip length, type of commodity being transported, time sensitivity and the need for “door-to-door service” (NJTPA, n.d.). Regarding trip length, rail and air are typically more competitive for longer-distance trips. For commodity type, rail and boat are typically more desirable for heavy materials. For

deliveries that are time sensitive, semi-trucks and aircraft are more favorable. Finally, trucks are also preferred if door-to-door delivery is required (NJTPA, n.d.).

The North American Industry Classification System (NAICS) codes distinguish industries based on the type of production involved. See Table 2.

Table 2. NAICS codes corresponding to industries grouped by production type.

Classification	NAICS Code	Industry
Freight-dependent	11	Agriculture, Forestry, Fishing and Hunting
Freight-dependent	21	Mining, Quarrying, and Oil and Gas Extraction
Freight-dependent	22	Utilities
Freight-dependent	23	Construction
Freight-dependent	31-33	Manufacturing
Freight-dependent	42	Wholesale Trade
Freight-dependent	44-45	Retail Trade
Freight-intensive	48-49	Transportation and Warehousing
Non-freight	51	Information
Non-freight	52	Finance and Insurance
Non-freight	53	Real Estate and Rental and Leasing
Non-freight	54	Professional, Scientific, and Technical Services
Non-freight	55	Management of Companies and Enterprises
Non-freight	56	Administrative and Support and Waste Management and Remediation Services
Non-freight	61	Educational Services
Non-freight	62	Health Care and Social Assistance
Non-freight	71	Arts, Entertainment, and Recreation
Non-freight	72	Accommodation and Food Services
Non-freight	81	Other Services (except Public Administration)
Non-freight	92	Public Administration

For purposes of this research, NAICS codes 11-49 are considered related to freight. Specifically, we consider freight-dependent industries to involve transporting raw materials to a different location where

processing takes place; this includes codes 11-45 (see Table 1). Codes 48 and 49 are considered *freight-intensive*. Alternatively, NAICS codes 51-92 are considered “non-freight,” meaning that they are industries largely unrelated to freight (e.g. service industries).

## Antecedent Studies

The documents reviewed in this section are prior studies. They may differ in purpose or scope from the focus of the current project, but they set the stage for the present effort.

### A Way Forward: Building a Globally Competitive South

This book chronicles the historical economic activity in the Southeastern United States, showing the intersection of politics, technological advancement, economic conditions and activity, demographic changes and the growing disparity between the new South’s rapidly growing urban regions, exemplified by North Carolina’s Research Triangle Park, and the Charlotte region, which has evolved into one of the largest banking centers in the United States and globally, but also continued reliance and existence of rural centers.

Regarding the Rural South’s future, the authors note that manufacturing facilities are now available with similar technologies in places like Thailand for Malaysia, where labor costs are still cheaper, though continuing to grow there as well. Given cheaper labor costs, the authors document that among other factors, it is still difficult to plot with uncertainty how rural regions in this part of the country will navigate the new economy of the 21<sup>st</sup> century. Coclanis and Gitterman note that places like Hilton Head, South Carolina, St. Simons, Georgia and parts of western North Carolina such as Watauga and Moore Counties have seen less wealthy residents forced out by the arrival of wealthier residents. The authors note that strong universities in the east and west will need continued public investment and demographic changes, such as an influx of immigrants, such as those from Mexico and the greater Latin America will continue to sustain industries in tourism, recreation and retirement, agribusiness and even manufacturing.

### NC Statewide Logistics Plan (2008)

In 2008, a report was commissioned by the North Carolina General Assembly and the Office of State Budget and Management via H.B. 1005, Session Law 2007-551, in order to get a picture of North Carolina’s “*long-term economic, mobility, and infrastructure needs*,” referred to as the *2008 Statewide Logistics Study*. To accomplish this goal, the research team first identified pressing commerce needs, then found gaps within existing transportation infrastructure investments that can be improved to meet North Carolina’s commerce needs, and a timetable for implementing the changes. In this report, the importance of a strategy coordinating infrastructure investments with economic development patterns is stressed, citing other states that operate under this approach (including CA, FL, NJ and VA). California goes even further, focusing on a holistic, quality-of-life approach including in its coordination “*financial services, transportation, affordable housing, real estate, managed health care plans and public safety*.”

The seven guiding principles recommended in the NC Statewide Logistics Plan follow from the importance of creating a task force to coordinate transportation and economic development planning, and include the following:

1. Embolden the knowledge-based economy
2. Support existing industries
3. Transform NCDOT into an operations-based agency
4. Facilitate pass-through traffic
5. Support import/export activity

6. Partner with military investments
7. Support innovations in transportation infrastructure

A follow-up report was completed in 2009, in which the NC Governor created a Logistics Task Force based on Executive Order 32. Following from a recommendation in the NC Statewide Logistics Plan, the purpose of the Governor’s Logistics Task Force was to find ways to coordinate and meet the logistics- and transportation-related industry needs that are considered promising in North Carolina, and into the future. The Task Force provided outreach within each of the seven established economic development regions, and recommended commissioning two further reports - *The Seven Portals Study* and the *North Carolina Maritime Strategy*.

## NC Seven Portals Study, Northeast Report

In 2011, the Seven Portals Study focused on ways to assist economic growth through economic development. Using a “demand-pull / supply push” paradigm, the study asserted that infrastructure investments would help if they were closely tied to desired economic development. The seven regions were those shown in Figure 1.

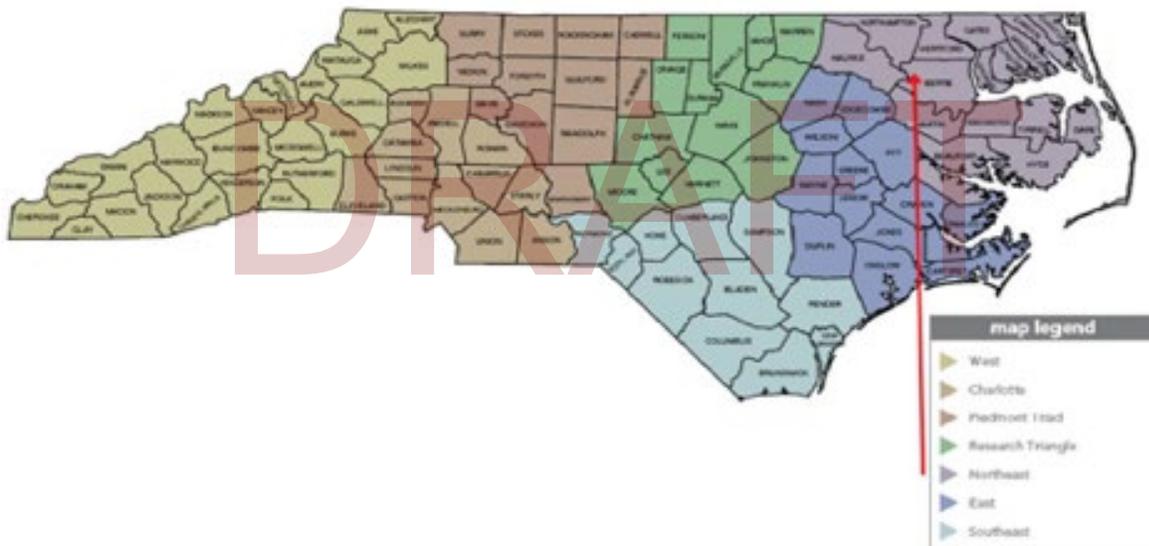


Figure 1: The seven economic regions employed in the Seven Portals Study (Source: Seven Portals Study)

The Northeastern Chapter of the Seven Portals Study focuses on the infrastructure needs of 16 counties shown in light purple in Figure 2. The authors of the report present blueprints for potential logistics villages to catalyze economic development in the region, using the region’s historic strengths and already-existing industry clusters as a base for further investment and development. The report lists the following industries as ones that have made sizable investments in the region:

- Automotive Industry
- Aviation
- Boatbuilding/Marine Trades
- Heritage Tourism
- Inner Coastal Development

- Life Sciences and Biotechnology

In addition, the report examines four sites that could be used for development of a “Logistics Village.” The four (4) locations investigated were: Ahoskie (including Tri-County Airport); Edenton (including Northeastern Regional Airport); Elizabeth City (including Elizabeth City/Coast Guard Air Station Airport) and Williamston (including Martin County Airport). The report also made the case that a fifth location, based on discussions with public officials and private investors in Virginia, could be used to create an “import-export village.”

The logistical villages as recommended by the authors would capitalize on strong presence in Homeland Security and national defense. While the bulk of the military bases in the state are based in the Eastern part of the state, if not the Northeast specifically, the region has a long-established relationship with the United States Coast Guard. Due to the location and human capital dependent on continued funding, the state could make continued and larger investments into industries and businesses that support and are supported by this cornerstone.

The report also made the case that the state should continue to grow and recruit firms in the renewable energy industry. Since 2011, this sector has only continued to grow as the price of renewable energy technologies have fallen drastically.

### NC Seven Portals Study, Southwest Report

In the 2011 Seven Portal Report, one chapter focuses on the infrastructure needs of 23 counties in the western region of the state. As shown in Figure 2, it divided the area into three distinct regions: the Southwestern Sub-Region, the Midwestern Sub-Region and the Northwestern-Sub region.



Figure 2: Three subregions in the western part of North Carolina (Source: Seven Portals Study)

The authors recommended the development of potential logistics villages in the 3 sub regions. With respect to Southwestern North Carolina, the authors noted that Cherokee County, and three nearby counties, Clay, Graham, and Swain are all Tier 1 counties with high unemployment rates that have not significantly improved since the completion of this report. Cherokee County had attracted manufacturers including Indian Head Industries, IOI Enterprises, Moog Components group and Sioux Tools. The report documented the county’s strong tourism industry, reliant on natural and cultural resources. The Village would be in proximity to a potential gaming facility pursued by the Eastern Band of Cherokee Indians, thus necessitating additional transportation infrastructure investments in the region.

## Network Appalachia: Access to Global Opportunity

In the 2010 report, *Network Appalachia: Access to Global Opportunity*, the Appalachian Regional Commission made some of the following recommendations for Western North Carolina. The state was urged to do the following, in no specific order:

- Build a new inland port, trans-load and consolidation center to enhance rail and truck access to both domestic and international markets for western North Carolina.
- Restore the abandoned rail link near Murphy, NC to reconnect western North Carolina, northern Georgia, and eastern Tennessee rail corridors, enhancing rail access for western North Carolina, northern Georgia, and eastern Tennessee.
- In cooperation with the Norfolk Southern Crescent Corridor project, develop new intermodal container transfer facility to enhance access to both domestic and international markets for east Tennessee, southwest Virginia, and western North Carolina.
- Complete construction of the Corridor K highway (US 19/74) corridor linking eastern Tennessee with western North Carolina.
- Restore rail freight service along the Asheville, NC and Spartanburg, SC route to enhance western North Carolina access to both the Crescent Corridor and to the Port of Charleston, SC

## NC Maritime Study

Predominant foreign countries for water-based trade in North Carolina are Europe, Latin America, China, and other parts of Asia. Economic analysis illustrates that foreign economy expansion will strongly surpass the domestic economy in the next few decades. To survive in the future world markets, in 2012, the North Carolina Statewide Maritime Strategy was developed to evaluate the geographical location, challenges, and opportunities of the state's ports for worldwide maritime commerce. To accomplish this, the research team first investigate how state ports support its economy, then identify strategies to leverage port investments and associated transportation infrastructure. These strategies introduce potential market opportunities and associated infrastructure investments which support state industries. The recommended markets were either built on the existing state's profile or introduced to serve potential port services not offered in nearby ports. The guiding principles recommended in the NC maritime strategies follow from the importance of building trust with the community, maintaining truck mobility, and improving rail access to support industries and healthy economy in NC. Maritime strategy focused deliberately on highway projects for freight transportation system investments as a result of the "state's producers report" and NC maritime analysis. Since, more than 50 percent of total overseas delivery costs is associated to landside costs. A recommendation to maintain truck mobility was articulated as follows:

- Prioritize or accelerate funded STIP projects (e.g. various capacity improvements, bypasses and connectors, as well as upgrades of US or state highways to interstate standards) that improve freight mobility along the key routes for waterborne truck freight within NC (e.g. I-40, I-85, I-95, I-26, I-73/74, I-77, US 17, US 70, US 74/76, and NC 24). For example, since US 70 provides primary access to the Port of Morehead City and eastern NC, completion of projects such as the US 70 Kinston Bypass, upgrades in the vicinity of James City, and the North Carteret bypass would enhance access for freight movement to Morehead City

To address inadequate freight rail service to both Wilmington and Morehead City, maritime strategy identifies the following recommendation, as stated:

- Improvements to port rail access

- New or improved port terminal connections that would enhance rail transport of various commodities to and from the state's port facilities
- Development of inland rail ramps at targeted industrial sites. This allows for more cost-efficient transfer of heavy or oversized manufactured goods destined for export
- Development of a new intermodal container facility east of Charlotte, to replace the undersized and poorly-located CSX terminal in west Charlotte
- Implementation of shared rail service to lower quotes for rail transport to the state's port facilities and attract ocean carriers willing to exclusive agreements with a single US rail carrier for point-to-point transportation service to shippers

Maritime strategies also include recommendation to support future transformational and incremental maritime opportunities in NC. The overview of the recommendations are as follows, as stated:

- Expansion and modernization of the existing Port of Wilmington container terminal. This requires further deepening of the 26-mile Cape Fear Channel
- Construction of a new greenfield container port at either Radio Island in Morehead City or at River Road or Southport in Brunswick County (e.g. investment in landside road and rail access in Radio Island)
- Deeper and wider channel than offered by the existing 42 ft-deep Cape Fear River (e.g. depths of up to 51 feet would be required to accommodate larger "Post Panamax" or "Neo Panamax" ships expected to call on the US east coast in the future)
- Highway and rail investments to improve the efficiency of container movement between the port and North Carolina's inland terminals and distribution centers (e.g. a new intermodal terminal east of Charlotte would meet future capacity demands and move container operations out of the congested urban center)
- Investment in refrigerated Cargo
- In-state roll-on/roll-off as well as lift-on/lift-off facilities to handle oversize cargo. This would support local manufacturing of heavy construction and mining equipment, for which there is strong demand overseas (e.g. a new Ro/Ro and Lo/Lo terminal is proposed at either Radio Island or the Port of Wilmington north property)
- Direct rail connection from manufacturing sites to port to facilitate export of oversize cargo
- Support for Military Cargo
- Support for Chemicals and Phosphates. Additional investments in privately developed and operated bulk storage facilities at Morehead City will support this commodity

## Local Needs-Based Assessments

This section reviews documents that have focused on eliciting information about local economic activities, existing or proposed; and, then extending that information into an identification of the transport infrastructure needed to support those activities. The Statewide Logistics Plan and the Seven Portals Study, reviewed above, are examples of these. They are not reviewed again. What appears here are additional documents that have the same purpose and focus.

### NC Rural Center Counts

The NC Rural Center is an organization that provides ongoing community outreach and dialogue with rural stakeholders, as well as advocacy on their behalf. Based on these outreach efforts, the NC Rural Center produced a collaborative report entitled *10 Strategies for Rural North Carolina's Future*, which lays out a multi-faceted approach to addressing economic grievances of North Carolinians living in rural

areas. In addition, the report includes background information of North Carolina as it relates to each of the ten strategies. The ten strategies to reinvigorate economically depressed, rural communities include specific ways that each strategy can be accomplished, verbatim from the report as follows:

1. Vigorously advocate for innovation in education and workforce development
  - Support expansion of rural educational and training innovation
  - Reclaim rural work resiliency
  - Support rural schools and teachers
  - Enhance choice through career pathways
  - Advocate for increased effectiveness of rural education and workforce institutions
  - Encourage exploration of new models to make community college accessible and affordable
  - Encourage institutional collaboration
2. Stabilize and transform rural health
  - Facilitate the rural transition to accountable care communities
  - Strengthen local, state and federal efforts to reduce opioid and methamphetamine drug addiction
  - Stabilize rural health system revenue
  - Support the establishment of the NC Rural Health Leadership Alliance as the new state chapter of the National Rural Health Association
3. Expand accessible and affordable high-speed fiber broadband
  - Raise the speed standard for federal investments in rural broadband
  - Leverage federal investments to expand rural fiber
  - Continue to prioritize the connection of anchor institutions to higher-speed broadband, particularly our public libraries
4. Accelerate modernization of essential rural and wastewater infrastructure
  - Clearly define the state's role in funding rural water infrastructure
  - Make the water infrastructure allocation from the Connect NC Bond count
  - Create regional economies of scale that will benefit everyone
  - Plan for the future
  - Promote and expand best practices
  - Leverage federal and state resources to create greater impacts
5. Expand and upgrade transportation and natural gas infrastructure
  - Build a world-class highway system
  - Strengthen freight-rail infrastructure and multimodal hubs
  - Expand natural gas infrastructure to maximize competitive advantage
6. Invest in stronger entrepreneurship and small business development systems
  - Better integrate entrepreneurship training as a core element of workforce training
  - Advocate for increased state and federal small business and entrepreneurship development assistance
  - Adopt a statewide small business development framework based on economic clusters, supply and value chains
  - Assess and inventory best practices to support and grow small businesses through local and regional economic and community development organizations
  - Examine strategic opportunities for focusing rural entrepreneurship efforts
  - Improve the regulatory/business environment
  - Fill gaps in the capital access markets to meet the needs of rural business owners and entrepreneurs
7. Strengthen homegrown manufacturing
  - Highlight the importance of homegrown manufacturing
  - Advance innovation in rural manufacturing

- Build a stronger rural manufacturing workforce
- 8. Develop opportunities for agriculture and natural resources, including biotechnology and value-added food processing
  - Help farmers get more income for what they grow and raise
  - Support food-manufacturing business opportunities
  - Increase biotechnology opportunities for rural businesses
  - Increase the entry of youth and young adults into farming and other natural-resource businesses
- 9. Enhance regional collaboration and partnerships
  - Advocate for federal and state program support of collaborative regional development efforts
  - Support research on rural/urban economic connections
  - Convene regional rural/urban roundtables
  - Provide region-focused leadership development
- 10. Stabilize and leverage rural development funding, capacity building and technical assistance
  - Target solutions for rural North Carolina's most economically distressed regions
  - Accelerate rural community philanthropy to supplement rural development priorities
  - Assure adequate, reliable and transparent funding of rural development programs
  - Increase region-based technical assistance to build capacity
  - Shared responsibility and partnerships
  - Building capacity for the most distressed rural areas
  - Increase homegrown philanthropy recruitment efforts
  - Stabilize state funding for rural development

## The Challenges of Rural Transportation

Kidder (2006) prepared an assessment of the challenges associated with supporting rural transportation. The document addresses the challenges of making rural transport investments, the influence of those decisions on rural economies, ways to make transport more accessible, mechanisms for making the investment decisions, and options for funding. It identifies unique features of the rural environment that affect these issues like economic structure and population. It examines highways, freight rail, and airports. It concludes that answers to these questions vary widely because of the diverse nature of the rural settings across the country. Perhaps, most pertinent to the current study, it asserts that *“Finding more effective, efficient solutions to rural American’s transportation needs is an ongoing process that will require the hard work of researchers, elected and appointed policy makers, business leaders, non-profit advocacy groups...”*

## Rural Transportation Issues

The US Secretaries of Agriculture and Transportation were remanded by Section 6206 of the Food, Conservation and Energy Act of 2008 (PL 110-246) to conduct an assessment of rural transportation issues. A multi-chapter document presents the findings. Chapter 3 focuses on “How Freight Transportation Supports Rural America.” It concludes, not surprisingly, that transportation is needed to support a vibrant rural economy; but, it also admonishes that it cannot stand alone in doing that. It is one of several enabling elements. It indicates that four economic sectors - services (37%), government (16%), retail and wholesale trade (14%), and manufacturing (11%) - constitute 80% of rural employment. The fact that manufacturing is the fourth largest employment category is noteworthy, because it is strikingly different from the nominal perception that agriculture is dominant. However, even though agriculture is not particularly labor intensive (6%), it has a substantial multiplier effect on local prosperity; so, its contribution to rural economic vitality cannot be overlooked. The report also identifies the fact that rural America is not homogeneous, the transport needs vary, and are locally specific (as is the assertion in this

project effort). The report continues by identifying the fact that freight transport requirements vary from one manufacturer to another; so, the investments needed in one rural area may be substantially different from those in another. It continues by indicating that “a rural community will do better by integrating its consideration of freight transportation into the larger picture, thinking about how freight transportation, in conjunction with other aspects of the community, can best support the community’s overall strategic plan.” The scenic transport interests of tourists may not be the same as the economic efficiency focus of the trucking industry. The report concludes with two comments that are important here. The first is that “transportation does not stand alone but is one of several key elements that contribute to a strong rural economy; [and] many other elements work with transportation to support a high quality of life in rural communities.” The second is that “rural communities are unique and different from one another, and their needs for freight transportation vary. An efficient transportation system is defined by the needs of each community.”

## Transportation in Rural America: Challenges and Opportunities

Lockwood (2004) prepared an assessment for the Oberstar Forum of the transportation challenges and opportunities that face rural America. Seeing the deregulation of the 1980s from a negative perspective, he asserts that rural America faces the challenges of “unstable trucking, abandoned rail lines, and essential air service. Intercity motor coach service is provided by hundreds of small companies, with many of the larger ones operating under the franchise of the two large national consolidators. Rural public transportation consists of a patchwork of thousands of small carriers, heavily subsidized by federal and state transportation and social service agencies.” This not-so-glowing-picture, including an assertion of “rural sprawl” leads to admonishments that the rural communities are facing major challenges in meeting their transport needs. He asserts that “transportation is not the most essential ingredient in the success of such transitions, but it can play an important contributory role.” Further, “while older economic bases require new efficiency, new industries—such as recreation and information technology—may require special transportation support and new capacity or connections supporting growth, access, and integration. In some cases, improved ground transportation can improve the “scale economies” of certain industries by providing closer connections in time or distance to regional hubs and metropolitan areas. In addition, retaining the work forces—such as the educated worker required by the IT industry—require access to urban-type amenities that may imply significant transportation improvements.” The latter comment is profound because it asserts that the mix of enabling technologies needed by the rural communities may be very similar to those that are important to more urban settings. The overarching conclusions are that distinctive challenges exist in the rural freight market and that governmental policy and actions need to be sensitized to those challenges.

## Idaho Rural Economic Development and Integrated Freight Transportation Grant Program (REDIFit)

This solicitation was particularly interesting in the context of the current project. The State of Idaho (2014) elected to seek proposals to “assist businesses and industries to develop and expand options for shipping freight and products to market.” Among the objectives was “increasing economic development opportunities, increasing domestic and international trade, [and] creating and preserving jobs.” Award of funding was contingent upon private sector partnerships and cooperation from state and local government agencies. The solicitation indicates that “The goal of the Idaho State Department of Agriculture (ISDA) in administering this grant is to fund *one high priority project* [emphasis added] annually in a manner that fits the legislative purpose of the grant. While the amount to be awarded was paltry at \$100,000, nonetheless, this represents an interesting idea upon which North Carolina could build. It would ensure that the projects funded would be consistent with local needs and desires; or put alternately, that they would have a high probability of leading to economic growth and job creation.

# State and Regional Needs Assessments

This section presents reports that present a needs-based assessment of infrastructure investments at the scale of a state or a multi-state region (e.g., the Appalachian corridor or the I-95 corridor). These studies are needs-based in that input has been solicited from freight industry stakeholders who would like to see transport infrastructure investments made. However, those inputs are more general in nature (e.g., more capacity on I-95). They do not necessarily focus on the needs of specific areas (e.g., rural counties) or industries, and they may not extrapolate beyond current, existing industries to consider what investments might be needed or appropriate if new “game-changing” industries were to be added to the existing economic activity.

## NC Statewide Multimodal Freight Plan

In 2017, the North Carolina Statewide Multimodal Freight Plan developed the following overarching goals (with specific objectives corresponding to each one):

1. **Economic competitiveness** - Enhance economic development opportunities and competitiveness
2. **Mobility & reliability** - Improve freight system efficiency, reliability and resiliency
3. **Safety & security** - Enhance freight transportation safety and security
4. **Innovative technology** - Support adoption and deployment of new freight technologies
5. **Asset management** - Improve freight infrastructure conditions and preservation
6. **Environmental sustainability & livability** - Protect and enhance the natural environment
7. **Collaboration & partnership** - Foster public-private partnerships and collaboration with freight stakeholders
8. **Sustainable funding** - Ensure good fiscal management and sustainable funding for the state’s freight network

In 2015, approximately \$765 billion of cargoes weighing nearly 430 million tons was transported using North Carolina highways (Cambridge Systematics, 2017). To give an idea of the significance of freight-dependent industries in North Carolina, an estimated 236,586 jobs, \$11.3 billion in labor income, and \$33.1 billion in the Gross State Product were gained as a direct result of freight industries; these numbers are even greater when considering indirect and induced impacts (Cambridge Systematics, 2017). As such, it is vital to the state’s economy to ensure adequate transportation infrastructure is in place to facilitate the movement of cargo across the state.

As a part of the 2017 North Carolina Statewide Multimodal Freight Plan, the following three commodities, by tonnage, were the most commonly transported via highway systems: (a) gravel, (b) nonmetallic minerals, (c) wood products; the top three commodities by value transported via highways include (a) mixed freight, (b) pharmaceuticals, (c) machinery.

By train, the following commodities were the most commonly transported by carload, by tonnage: (a) coal, (b) hazardous materials, (c) chemicals; the top intermodal commodities transported by rail, by tonnage, include (a) freight-all-kinds, (b) apparel, (c) food products (Cambridge Systematics, 2017).

By boat, the top commodities transported in Morehead City, by tonnage, includes (a) fertilizers, (b) ores and minerals, (c) rubber; the top commodities transported by marine vehicle in Wilmington, by tonnage, include (a) forest products, (b) chemicals, (c) fertilizers (Cambridge Systematics, 2017).

By aircraft, the top commodities by tonnage, include (a) electronics, (b) machinery, (c) textiles and leather; by value, the top commodities transported by aircraft include (a) electronics, (b) pharmaceuticals,

(c) machinery (Cambridge Systematics, 2017). Although information on commodities transferred by pipeline was included in the study, it is omitted from this report because this is something over which NCDOT does not have jurisdiction.

## 2050 Vision Plan: NC Moves

NCDOT is conducting a two-year, multi-phased study involving a thorough examination of North Carolina’s transportation system, including data collection and information dissemination about its current and historical performance as it prepares to engage the public by measuring potential and definite challenges the state will undoubtedly face as its urban areas continue to grow. According to the State Dept. of Transportation, a million more residents will relocate to the state each decade through 2050, two-thirds of whom we can expect to create emerging metropolitan areas along I-85 between Charlotte and Durham. Growth trends will thus increase congestion along this corridor and expectedly increase travel time for highway commuters, necessitating that North Carolina increase options for multimodal travel options. Demographic trends suggest that rural North Carolina regions, including those in the Southwest and Northeastern regions of the state will continue to shrink in population.

## NC Port Study

Researchers at ITRE used IMPLAN, a common input-output matrix software for economic contribution studies to study the economic impacts of the state’s ports. They found that the ports, which are publicly-owned by the state, contribute approximately \$15.4 billion annually to the state’s economy. The 2018 North Carolina Ports Report examines the economic contribution of the state’s two ports in Morehead City and Wilmington between July 1, 2017 and June 31, 2018.

Of that \$15.4 billion, \$12.9 billion can be attributed to the Port of Wilmington and \$2.5 billion through the port of Morehead City. Researchers also attribute the number of jobs related or dependent on the two ports to number 87,700.

Figure 3 presents a map showing how port revenue is dispersed throughout the state by region.

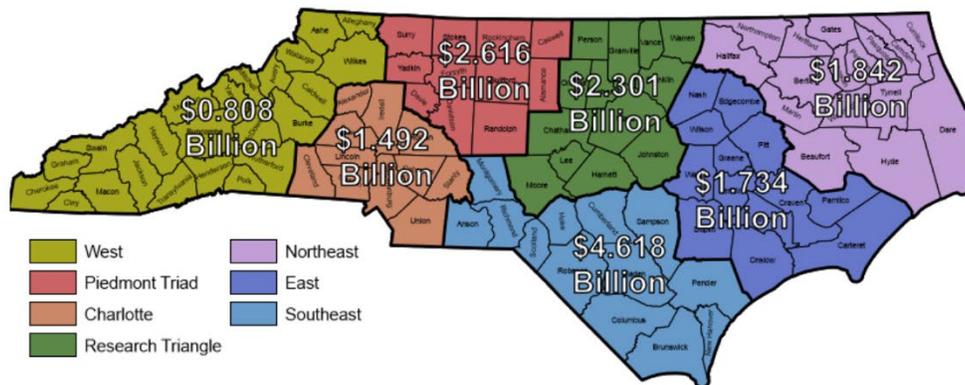


Figure 3: Distribution of revenues associated with the North Carolina ports

And, also shown is a map showing how the number of jobs supported by the ports are dispersed throughout the state. See Figure 4. Both maps were published directly in the Ports study.

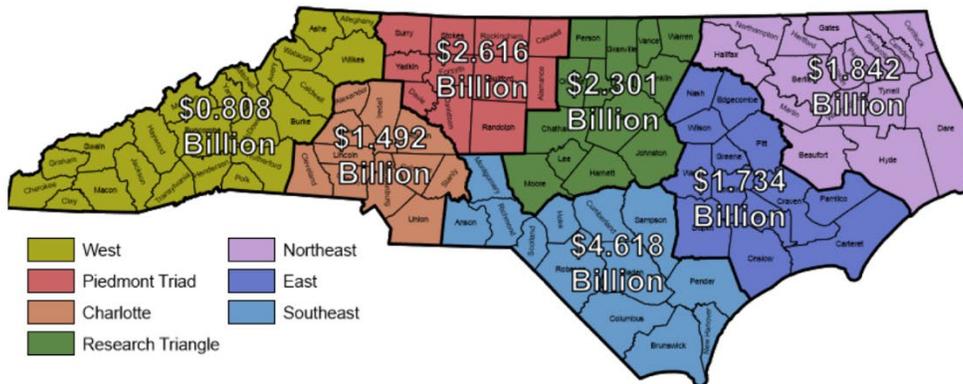


Figure 4: Distribution of jobs supported by the North Carolina ports

The study concludes that the North Carolina ports are much smaller than neighboring ports in Georgia and South Carolina as shown in Table 3.

Port	2018 Total Trade (metric tons)	2018 Container Traffic (TEUs)
North Carolina (Port of Wilmington and Port of Morehead City)	6,600,000	322,391
Georgia	36,430,000	4,770,000
South Carolina	22,718,000	2,140,000

Source: Census 2018a, Census 2018b & Respective State's Port Authority's Websites

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Table 3: Trade activity at NC ports compared to Georgia and South Carolina (Source: NC Ports Study)

The noted difference between North Carolina compared with its neighboring states can be understood as a deficit in infrastructure investments. Compared to Georgia and South Carolina, NC ports range from one-fifth to one-half in employment contributions of neighboring states' ports. Ports, like other connectivity

dependent hubs, benefit from improvements in highway and rail investments. The authors recommend larger investments in rail and highway investments for North Carolina to better compete with neighboring states.

Improvements in inland connectivity to the Wilmington and Morehead City hubs would better increase North Carolina's chances to attract cargo shipments and likely would see increases in employment, output income and tax collections that would outweigh the costs of those investments.

## NC Ferry Study

Researchers at ITRE conducted an economic contribution analysis of the North Carolina Ferry System, published in 2019. The NC Ferry Division operates 21 vessels on seven routes on the eastern coast of the state as shown in Figure 5. The ferries transport more than 800,000 vehicles and about two million passengers annually, making the State-operated ferry system the second largest of its kind in the United States.

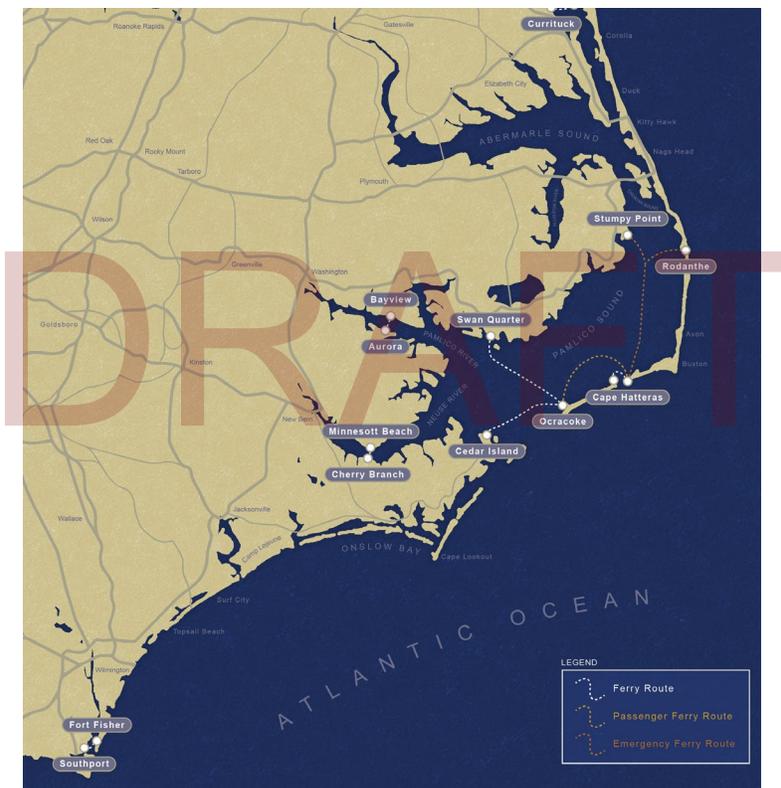


Figure 5: Ferry routes in North Carolina (source N.C. Ferry Study)

Methodologically, the researchers collected 3,770 surveys during four economic quarters to measure the economic contribution of the NC DOT Ferry system. The report finds value-added benefits in travel time, safety, and travel costs to be significant economic drivers for the region.

Table 4 summarizes information about the routes.

NCDOT Route	Year Created	Fare Type	Distance (Miles)	Crossing Time (Minutes)
Hatteras - Ocracoke	1953	Free	8.5	60
Cedar Island - Ocracoke	1961	Toll	23	135
Knott's Island - Curritick	1962	Free	5	45
Southpoint - Fort Fisher	1965	Toll	3.5	35
Aurora - Bayview	1966	Free	3.5	30
Cherry Branch - Minnesott Beach	1973	Free	2.5	20
Swan Quarter - Ocracoke	1977	Toll	27	160

Source: NCDOT Ferry Division

Table 4: Information about the ferry routes in North Carolina

According to report, the ferry system supports 5,860 jobs, more than \$217 million in wages, \$32.5 million in tax revenue and \$735.2 million in business output.

Historically, the ferry routes helped connect the inner banks with the outer banks and was used as a means for navigating the state’s many rivers and streams. Due to the demand of settlers and farmers, the state’s earliest ferry systems were built to support and transport livestock, agricultural goods and people. The system helped link North Carolina’s agricultural-based and coastal economies together. Today the ferry system helps support work commutes, school commutes, dining, shopping as well as the region’s vital tourism economy.

## SC Freight Plan

For comparison purposes, the SC Freight Plan was reviewed as well. The mission statement of the freight plan is to ensure *“safe, reliable surface transportation and infrastructure that effectively supports a healthy economy for South Carolina.”* with sub-goals pertaining to (1) improving mobility and system reliability, (2) system safety, (3) infrastructure condition, (4) economic and community vitality, (5) environmental sustainability, and (6) equity. Similar to other reports, stakeholder outreach throughout the state was completed, and their input gathered as it relates to the needs of the freight industry, including interviews, meetings, webinars, listening sessions, and online surveys. As stated, the recommendations in the report correspond to each of the sub-goals:

1. Mobility and System Reliability Strategies
  - Reduce the number of system miles at unacceptable congestion levels
  - Utilize the existing transportation system to facilitate modal options for a growing population and economy
  - Improve the average speed on congested corridors
  - Improve travel time reliability (on priority corridors or congested corridors)
  - Reduce congestion on the freight transportation system
2. Safety
  - Improving the safety, security, and resilience of the freight transportation system
  - Improve substandard roadways and bridges
3. Infrastructure Condition
  - Maintain or improve the current state of good repair for the [National Highway System intermodal connectors]
  - Reduce the percentage of remaining state highway miles (non-interstate/strategic) moving from a “fair” to a “very poor” rating while maintaining or increasing the percent of miles of pavement condition considered to be “good”
  - Improve the condition of the state highway system bridges
4. Economic and Community Vitality

- Improve access and interconnectivity of the state highway system to major intermodal facilities (road, rail, marine, and air)
  - Utilize the existing transportation system to facilitate enhanced freight movement to support a growing economy
  - Maintain, or improve upon, current truck travel speed and/or travel time reliability performance
5. Environmental
- Develop a post-process tool to quantify freight system investment's effect on the environment in the South Carolina Travel Demand Model, both in terms of statewide benefits, and localized impacts
  - Work with agency partners to expedite the environmental permitting process while maintaining a focus on minimizing environmental impacts
6. Equity
- Identify a Strategic Statewide Freight Network that supports all modes (road, rail, ship, air) and all users (owners, operators, users)
  - Incorporate valuation of economic impact into project prioritization

## Tennessee Freight Plan

The Tennessee DOT released a long-range-planning document in 2018 on multimodal freight transport to continue supporting and growing the state's economy. The goals of that plan are similar to other states in the region, and include improving connectivity between urban and rural corridors, supporting multi-state corridor planning and regional administration, reducing adverse environmental impacts and increasing reliability, efficiency, safety and security for all parties involved and affected.

Tennessee has a large automotive manufacturing sector. Its connection to the rest of the country is depicted in Figure 6.

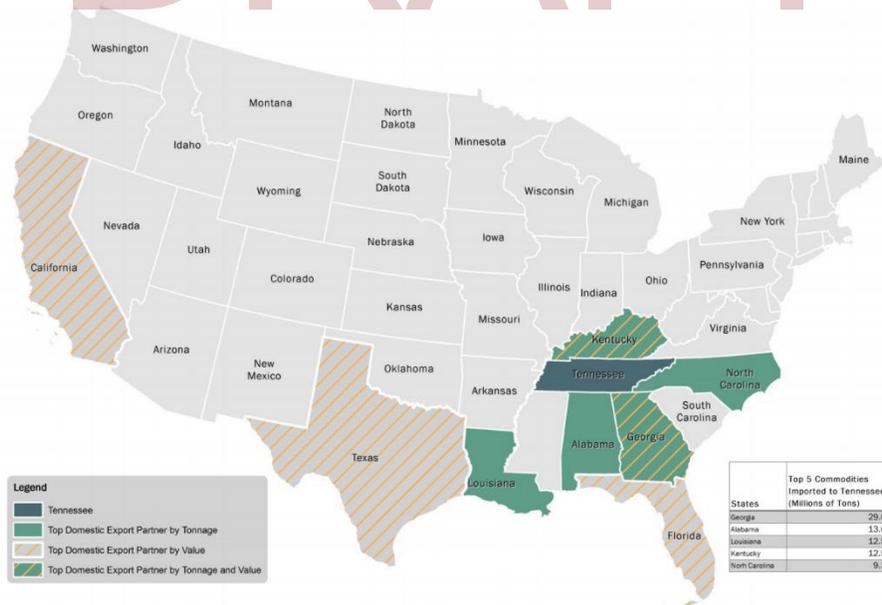
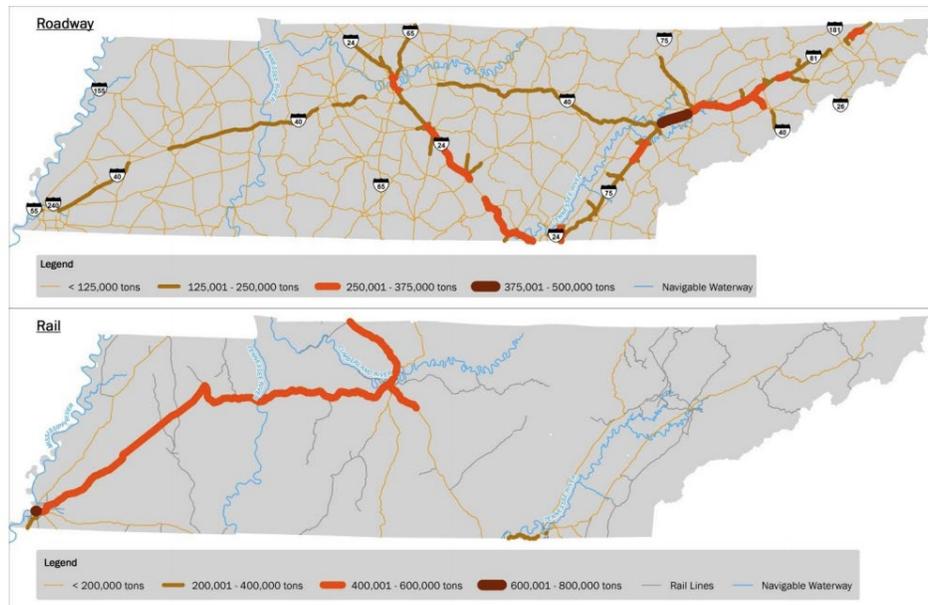


Figure 6: Trading partners with Tennessee (source: Tennessee Freight Plan)

Tennessee is home to three major automobile manufacturers: Nissan, Volkswagen and General Motors. The industry cluster of these firms has led to the development of supporting industries, such as parts

manufacturers, which are brought in predominantly by truck. There is a heavy dependence on I-40 in the western part of the state as well as I-24, I-65 and I-75. This supportive highway and rail networks are depicted in Figure 7.



Source: Tennessee Transearch Data, IHS Inc., 2012

Figure 7: Supportive highway and rail networks for auto manufacturing in Tennessee

## Georgia Freight Plan

Georgia's Department of Transportation has set a goal to plan for the needs of the state with respect to transportation investments to accommodate freight growth and logistics needs" statewide by 2050. The department, similar to its counterparts in the region has identified freight and logistics demand as a critical piece in driving Georgia's economic growth. And, similar to other states in the region that have developed formal guidelines and plans to improve freight, plans in the state center on improving reliability, efficiency, safety and

In the Governor's Task Force on Freight & Logistics Report, the logistics industry is cited as making up 18 percent of the state's gross product. There are more than 5,000 firms that provide logistics and freight services, employing more than 110,000 Georgia residents and generating more than \$50 billion in annual sales. There are more than 30,000 firms that have been identified as relying on the logistics industry to distribute goods and services through supply chains. These firms employ more than 700,000 people in the state and bring the state more than half a trillion dollars in revenue.

The Report finds that:

- In March 2015, the Port of Savannah handled **27.8 percent** more container cargo than in the same month in the previous year. The **333,058** Twenty-Foot-Equivalent Units moved is the most ever in a single month for the port. (source GPA)
- Automobile imports and exports by the Georgia Ports Authority, led by the Port of Brunswick, have set a new record for each of the past **three years**. The **700,702** units moved in FY 2014 represented a **10 percent** increase over the previous year. (source GPA)

- In 2014, CSX handled **1.8 million** carloads of freight on Georgia's rail network. In 2015, Norfolk Southern expanded its "Railroad University" in McDonough, Georgia, which will be capable of training up to **900 employees** working as conductors, engineers, and track and signal workers. (sources CSX and Norfolk Southern)
- In 2014, Georgia experienced its **fifth straight** year of record-setting increases in international imports and exports. Georgia is now the **eleventh largest** exporting state and **seventh largest** importing state in the country. (source Georgia Center of Innovation for Logistics)

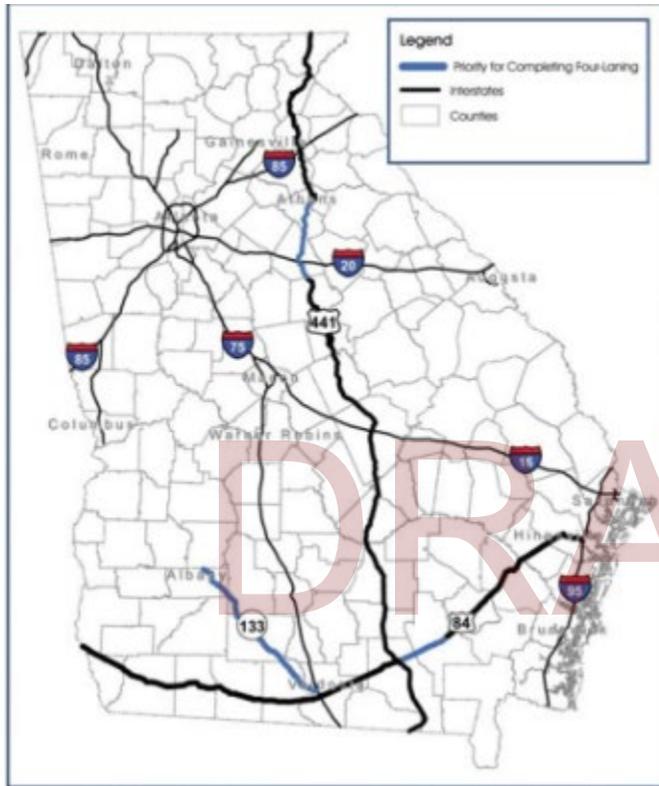
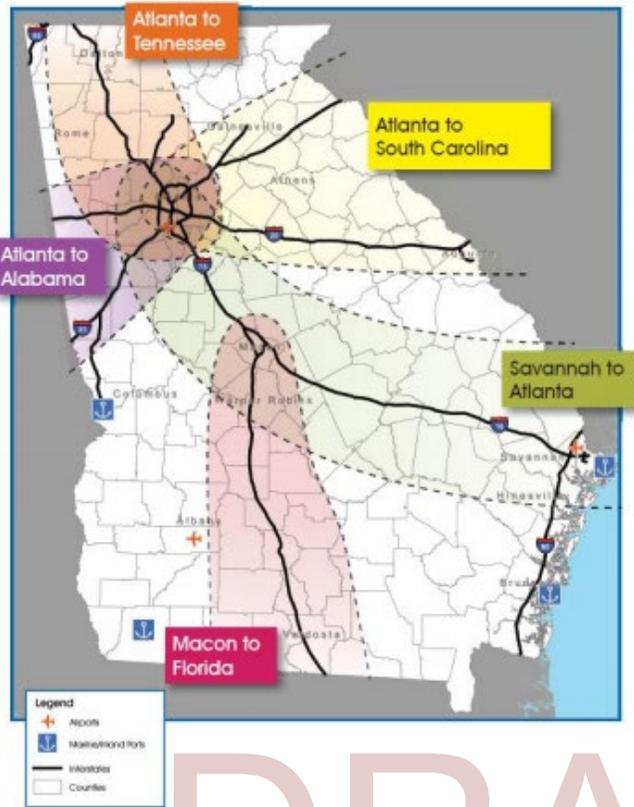


Figure 8: Smaller Urban and Rural Freight Corridors in Georgia



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Figure 9: Significant highway corridors in Georgia

To improve the state’s economic prospects, the state legislature started the Governor’s Road Improvement Program (“GRIP”) in 1989, including 3,273 miles of roadway, typically outside large urbanized areas. The review of the GRIP network and analysis of key corridors undertaken as part of this Plan indicated three GRIP corridor improvements are high-priority freight projects: US 84, State Route 133, and US 441.

## Virginia Freight Plan

The Virginia Freight Element (VFE) is part of “*Virginia’s multimodal long-range transportation plan*” (VTrans2040) and corresponds to the state’s freight plan. The main focus of the VFE is to ensure an “efficient, reliable, and accessible transportation systems that enhance goods movement on Virginia’s multimodal transportation network” with goals pertaining to (1) economic competitiveness and prosperity, (2) accessible and connected places, (3) safety for all users, (4) proactive system management, and (5) healthy communities and sustainable transportation communities. To accomplish these goals, the research team first identified freight needs and challenges, then propose freight improvement strategies that suits well to businesses and residents. Stakeholder outreach including interviews, “regional forum” meetings, and online surveys were completed throughout the state, and employed as input to develop strategies. The strategies in the report are arranged by “*policies, programs, technologies, and infrastructure*” and include the following as stated:

## 1. Policy strategies

- Include freight representation and participation in the state planning process
- Support multi-state coordination of freight infrastructure improvements
- Update freight modal systems plans on a regular basis
- Support opportunities for intermodal terminal development and multimodal diversity
- Develop first/last mile urban freight policies and recommended practices
- Support the strategies and initiatives of the Virginia Economic Development Partnership and collaborate with relevant stakeholders to identify and implement transportation investments that support economic development
- Support industry efforts to enhance workforce recruitment and retention in the transportation and logistics industries
- Seek more opportunities to improve rail freight as a practical modal alternative to help relieve freight congestion on Virginia's highways
- Collect origin/destination data on a regular basis to understand truck movements from and to large intermodal facilities
- Measure and report infrastructure condition, safety, and congestion performance for the Primary Highway Freight Network, the Multimodal Freight Network, and the Critical Urban/Rural Corridors separately from other statewide performance measures
- Protect high capacity freight corridors and facilities from inappropriate adjacent development
- Facilitate the sharing of information, best practices, and training among public and private transportation operators, including local emergency response agencies, to improve Traffic Incident Management

## 2. Program strategies

- Maintain and improve the designated Virginia Freight Network to ensure the freight system continues to move toward achieving the transportation goals identified in VTrans2040
- Seek out and implement rapidly - evolving freight data tools to improve freight-related performance metrics
- Hire a freight expert to coordinate public agency freight planning
- Promote, advance, and implement the Atlantic Gateway as a unified, coordinated, and comprehensive program for all transportation modes
- Develop an Industrial Development Area (IDA) Grant Program to improve the economic potential and intermodal opportunities for freight within areas of industrial development
- Prioritize economic and transportation studies across the Commonwealth in the Urban Crescent
- Prioritize project selection criteria that support funding first/last mile connectors in locations with regional, statewide, and national significance
- Leverage Public-Private-Partnerships for funding freight transportation improvements
- Increase the amount of funding available to the DRPT Rail Enhancement Fund to increase rail investment
- Address safety and security issues with at-grade rail crossings through accelerated investments and increased collaboration between the public- and private-sector

## 3. Technology strategies

- Develop and expand partnerships with public- and private-sector stakeholders to implement proven freight-focused technology solutions and invest in emerging transportation technologies
- Continue to invest in the development of sophisticated real-time information systems and increase the dissemination of dynamic travel information to improve freight movement mobility and reliability

- Partner with local, state, and federal agencies to expand programs that support fuel efficiency and alternative fuel options in the transportation industry
4. Infrastructure- related strategies
- Increase the supply of truck parking in the Interstate system
  - Prioritize improvement or replacement of functionally obsolete and structurally deficient bridges on the Commonwealth’s Strategic Freight Network. Repair deficient pavement on the most significant freight corridors to ensure safe and efficient goods movement
  - Invest in addressing the highest freight value tunnel and bridge bottlenecks in the Hampton Roads region to increase capacity/velocity for freight to/from the Port
  - Implement multimodal corridor improvements to improve freight movement along key freight corridors (e.g. I-81, I-95, I-64 and US-58)
  - Consider a new Interstate route between Hampton Roads and North Carolina (I-87)
  - Invest in improvements to facilities at the Port of Virginia to accommodate anticipated growth
  - Complete the widening of I-64 from Richmond to Hampton Roads
  - Improve I-81 along the Crescent Corridor (Primary freight network) and provide dedicated truck lanes, bypass interchanges, and truck climbing lanes along I-81
  - Permit I-81 hard shoulder running
  - Improve the section of I-81/I-77 overlap
  - Complete the I-95 Express Toll Lanes
  - Add an extra lane in each direction to SR-164 between VIG and I-664
  - Improve US 58 in Hampton Roads. Upgrade US 58 to "limited access" and evaluate a potential bypass on abandoned rail ROW. Prioritize through movements on US 58, from HR region to I-95. Double-track railway through Suffolk to eliminate bottlenecks

This report also provides some recommendations to air cargo, freight rail, and port. For air cargo, the recommendation, as stated, is to *“Invest in local and regional access improvements to support growth of air cargo at the Washington Dulles International Airport.”* For port and freight rail, respectively, *“Improve landside access by truck and rail to the Port of Virginia to accommodate anticipated growth”* and *“Increase investment in railroad system modernization to preserve rail network quality and access to shipper and complete construction of the fourth main-line track from the south bank of the Potomac River to Alexandria.”*

## South Carolina Investments in Rural Interstates

A news article, which appeared in several places, highlighted a decision by South Carolina DOT to make investments in rural portions of its interstate highway system. Like the I-95 issue that exists in North Carolina, some rural interstates are major freight corridors, and maintenance of those network links is critical to the overall economic health of the state. However, these initiatives are very different than those being explored in the current project. (That does not make them “bad”, just different.) They are focused on ensuring that the overall network is healthy and can support freight flows generally. In the current study, however, like determining that investment in “farm-to-market” roads is a good idea, the interest lies in determining what investments in freight-related infrastructure would help boost economic activity. In sum, it is important to recognize that states are seeing the importance in spending scarce resources to maintain and enhance the quality of the rural portions of the highway infrastructure. Clearly, this is important to ensuring the overall economic vitality of the state’s economy.



Source: AASHTO Journal. October 26, 2018. “SCDOT expands program to widen rural interstates for freight needs.”

Figure 10: Interstate map of South Carolina

## National and International Perspectives

This section reviews a few documents that help put in context the economic growth of local areas. The northeastern and southwestern portions of North Carolina are particularly significant examples of the challenges these documents present. In many cases, the geo-political boundaries (e.g., of states) do not align with the economic alignments that exist. Northeastern North Carolina has a natural affinity to Norfolk (in Virginia) and southwestern North Carolina similarly relates strongly to Chattanooga TN or Atlanta, GA. The needs assessments in this project need to recognize these affinities and seek ways to identify infrastructure investments that help these areas to thrive “in spite of the fact” that the urban areas to which those rural areas most directly relate are out of state.

### Connectography: A new Map of the United States

Parag Khanna, Senior Fellow at the Lee Kuan Yew School of Public Policy in Singapore makes an argument in an April 2016 Op-ed in The New York Times that while Western Europe and Asia have reoriented their respective governing states around urban clusters based on high-tech industries and advanced manufacturing, the United States has yet to do so. The politics of governance outside the federal system in the United States and local municipalities remains tied to 50 states. After the Great Recession, while urban areas have seen strong gains and rebounds, rural areas have continued to decline. Thus, smaller cities and regions have become more disconnected to the United States. Khanna argues that while Congress once thought holistically about large infrastructure projects on a continental scale, such as the Louisiana Purchase, the Pacific Railroad Act, the Tennessee Valley Authority and the U.S. Interstate Highway system, it has since backed off of national regional planning.

Khanna argues that states must organize not around drawn state borders, but the already existing and newly planned infrastructure rail and highway corridors, rail lines and telecommunications. Often times,

states compete with one another with redundant infrastructure projects such as ports, when fewer would suffice and serve the national interest better so that the U.S. would globally be more competitive. This is true in how states have conducted a “race-to-the-bottom” to attract high-tech firms and automotive manufacturers. Khanna opines, “For example, instead of waging a 1980s Asian-style race to the bottom to attract low-wage auto jobs at Nissan, Honda or Toyota plants, Tennessee and Kentucky should join forces to become an advanced manufacturing hub for the global auto industry, with better cross-border infrastructure. They may end up with fewer plants, but they would be more competitive ones, especially if they could coordinate research and development through the states’ public and private universities. Where possible, such planning should even jump over international borders. While Detroit’s population has fallen below a million, the Detroit-Windsor region is the largest United States-Canada cross-border area, with nearly six million people (and one of the largest border populations in the world). Both sides are deeply interdependent because of their automobile and steel industries and would benefit from scaling together rather than bickering over who pays for a new bridge between them. Detroit’s destiny seems almost obvious if we are brave enough to build it: a midpoint of the Chicago-Toronto corridor in an emerging North American Union.”

Khanna argues that this national planning would also strongly benefit poorer, rural areas and not exclude them as they have been from the quickly growing-urban trends. Below is a map based on his recommendations.



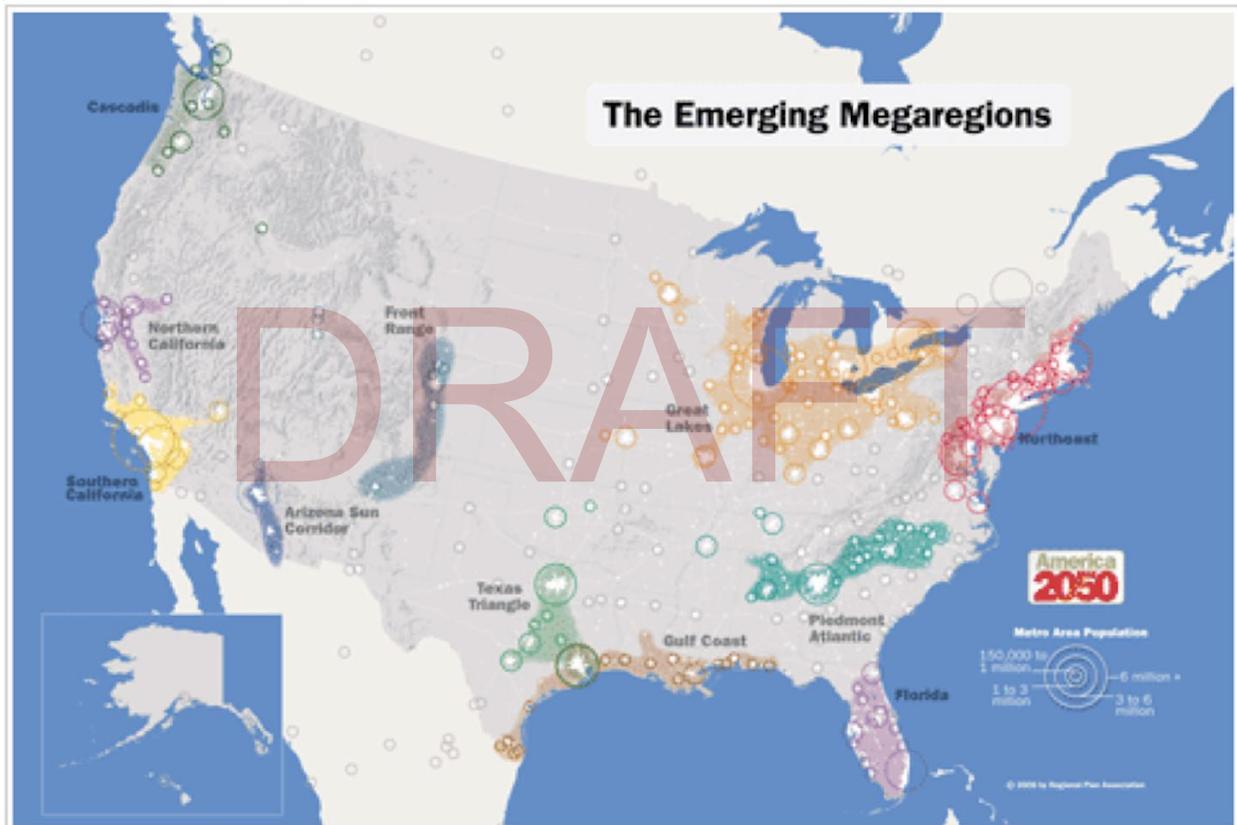
Sources: Joel Kotkin (boundaries and names of 7 mega-regions); Forbes Magazine; Regional Plan Association; Census Bureau; United States High Speed Rail Association; Clare Trainor/University of Wisconsin-Madison Cartography Laboratory.

Image Credit: New York Times

Figure 11: A new map of the United States showing megaregions

## America 2050 Megaregions

Indeed, the sentiment about integrative planning within megaregions has been echoed by America 2050, described as the Regional Plan Association's national policy and infrastructure planning program; contrary to the map above, however, America 2050 proposes 11 megaregions within the United States (see below map). The impetus for this collaborative approach to planning and investments is that many challenges are best solved by working across regions, as well as the fact that growing urban areas are increasingly linked by their economies, settling/commuting patterns and land use, ecological systems and topography, shared social networks/culture/history, and infrastructure. Not only could planning across regions help to link the economy and transportation systems, but environmental protections could be improved upon, based on the knowledge that migratory species require connected ecological landscapes (as opposed to the fragmentation that occurs when separate locales make decisions within their jurisdictions).



Source: America 2050

Figure 12: Map showing the Emerging Megaregions

### Economic Impact Analysis Tools

The most common and widely accepted methodology for measuring the economic impacts of cooperatives, enterprises, or transportation facilities is input-output (I-O) analysis, a subset of a family of methods called social accounting models (Shaffer, et al. 2004; Hewings 1985). Input-output models attempt to describe an array of economic transactions between various sectors in a defined economy for a given period, typically a year. These models provide researchers not only with estimates of the scalar multipliers but also support a detailed decomposition of the multipliers.

IMPLAN © (also known as IMpact Analysis for PLanning) is an input-output model, which has gained prominence in transportation economics over the past few decades. The hallmark of IMPLAN is the specificity of its economic datasets. The database includes information for five-hundred-and-twenty-eight different industries (generally at the four- or five-digit North American Industrial Classification level), and twenty-one different economic variables. Along with these data files, national input-output structural matrices detail the interrelationships between and among these sectors. The database also contains a full schedule of Social Accounting Matrix (SAM) data. All of this data is available at the national, state, and county level. For this study the research team used IMPLAN to conduct its input-output analysis.

IMPLAN offers a "snapshot" of the economy, detailing the sales and purchases of goods and services between all sectors of the economy for a given period of time within a conceptual framework derived from economic theory. The activities of all economic agents (industry, government, households) are divided into n production sectors. The transactions between the sectors are measured in terms of dollars and segmented into two broad categories: non-basic, which includes transactions between local industries, households and other institutions, and basic, which includes transactions between industries, households, and other institutions outside the economy being modeled (i.e., imports and exports).

One can think of IMPLAN model as a large "spreadsheet" of the economy where columns represents buying agents in the economy. These agents include industries within the economy buying inputs into their production processes, households and governments purchasing goods and services, as well as industries, households, and governments that are located outside the region of analysis. The latter group represents imports into the economy. Economic agents can import goods and services into the regional economy for two reasons. First, the good or service might not be available and must be imported. Second, local firms might produce or supply the imported good or service, but the local prices or specifications might not meet the needs of the purchasing economic agents. The columns represent economic demand. The rows of the "spreadsheet" represent selling agents in the economy or supply. These agents include industries selling goods and services to other industries, households, governments, and consumers outside the region of analysis. The latter group represents exports out of the economy. Households that sell labor to firms are also included as sellers in the economy.

## Supply Chain Analysis

The 2016 report *North Carolina's Supply Chain: Conduit for Commerce & Economic Development* provides an economic analysis impact regarding supply chain conditions in the state as present. The report structure is a long form analysis on 14 sectors considered to be part of the larger supply chain supporting the state. The report uses as input-output methodology to provide information on economic multipliers using academic research, demographic and economic data sources, combined with IMPLAN.

The 14 supply chain sectors by employment, labor income, output, value-added GDP and taxes. North Carolina's supply chain leading sectors are classified in the following sectors: transportation, distribution & logistics, pharmaceuticals, industrial machinery and equipment, and tobacco and other agricultural products.

## TOTAL ECONOMIC IMPACT OF THE SUPPLY CHAIN

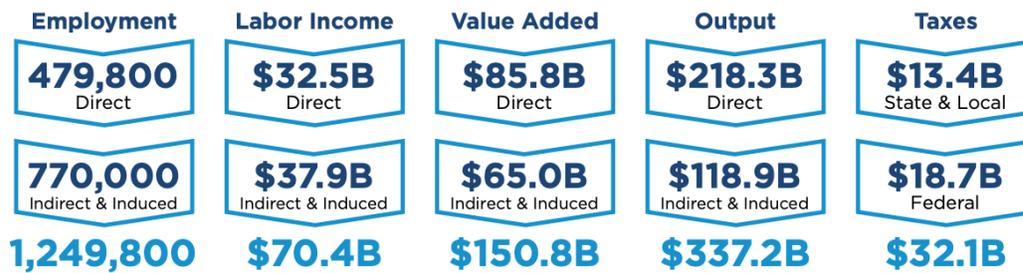


Figure 13: Total Economic Impact of the Supply Chain (source: North Carolina's Supply Chain)

North Carolina's supply chain, the report summarizes, faces some of the following challenges and trends: rapid need for future infrastructure, growing foreign markets, a strong U.S. dollar, consolidation in corporate arena with regard to economies of scale, and a more highly-skilled work force.

## Impact Assessments

Assessments of the relationship between economic development and infrastructure investment can be conducted "backwards" of the way in which the current study is progressing. Namely, assessments are made of the impact of infrastructure investments on economic activity. Most often this is done by conducting "before-after" studies where "local" real estate values or tax revenues are compared "before" and "after" the infrastructure investment takes place. The question is: did the infrastructure (e.g., highway) investment have an impact on local economic activity or not. As with clinical studies, a control group must be identified that was not "subjected" or "affected" by the "treatment", that is no investment took place, and the changes in real estate values or tax revenues for that control group is compared with the changes that took place in the area that "should have" been affected by the infrastructure investment. The journal papers and reports reviewed below fall into this category. This literature is "vast". What follows in this section is not intended to be a comprehensive review. The emphasis, instead, has been on assessments that focus on "rural" investments and/or projects have been sponsored by NCDOT and conducted by researchers at ITRE and NC State. While not always consistent, the general finding is that impacts do occur; that is, the investments do increase economic activity; and, because of this, there is a defensible case for the assertion that expenditures on transportation infrastructure do produce benefits beyond the simple expenditure of funds on construction projects.

## Summary and Conclusions

In light of demographic trends in North Carolina and nationwide, such as migration from rural areas to urban ones, as well as the corresponding negative economic effects upon rural communities, there has been an increased focus on finding ways to economically revitalize such communities. Following a review of the literature, several key points are apparent. First, largely in response to growing urban areas that are increasingly connected, some scholars have recommended for planning to span across regions. Mega-regions have been of increased focus in the literature, as a policy tool to integrate large areas that have similarities, such as residential/commuting patterns and connectivity, environmental and economic linkages, and common infrastructure. Additionally, Lockwood (2004) pointed out the challenges that are unique to rural freight industries, such as investing in potentially costly transportation infrastructure in rural areas. The local needs assessments included information about local economic conditions and

activities, from which transportation infrastructure is identified as a need to support these areas. Local needs assessments can provide a basis from which solutions can be uniquely tailored to specific localities, involving substantial stakeholder input; however, funding may be more limited for a local needs assessment. In contrast, statewide freight plans may be associated with greater funding, but more limited input from stakeholders, since a much larger geographic area is included in statewide and regional freight plans. While local needs assessments may recommend specific projects or project types, state freight plans are more likely to include guiding principles for future freight investments.

To expand on this, the freight plans reviewed generally included a picture of the state's freight industry and an accounting of the state's assets related to transportation infrastructure, followed by goals and corresponding objectives, and a description of the stakeholder outreach that informed the reports. Goals commonly mentioned in state freight plans include investment in infrastructure, mobility, sustainability and environmental concerns, safety, economic competitiveness, regional/intra-regional collaboration, and equity (although this one is less common). While many governmental and academic reports tended to focus on economic and infrastructure considerations, the NC Rural Counts Center (a policy advocacy organization that conducts extensive outreach with business leaders in rural, economically depressed areas) provided more holistic and multi-faceted recommendations, including factors that form the base of a healthy economy (e.g. improved health care, education, expand access to broadband, modernization of rural water/wastewater/natural gas infrastructure, workforce training programs, etc.). This may suggest a disconnect between local stakeholders and governmental decision makers. To address this discrepancy, the current research project seeks to bridge the gap between local stakeholder knowledge and state-level decision makers by working closely with local stakeholders, using NC Rural Counts as a valuable reference, in order to come up with more comprehensive and innovative approaches to reinvigorating economically depressed areas. The findings of this research should create a pathway for several approaches to investing in poverty-stricken rural areas within North Carolina.

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# References

1. J. Pender and M. Torero, "Economic Impacts, Costs and Benefits of Infrastructure Investment—Review of the Literature," Farm Foundation, 2018.
2. M. Burton, W. W. Wilson. 2018. "The Economically Efficient Composition of Rural Infrastructure Investment," Farm Foundation.
3. B. V. Gaustad, J. Murray, E. Bardaka, D. Findley, J. B. Martin, R. Smith. 2018. "Analysis and validation of historical transportation investments," NCDOT project, RP 2017-22.
4. J. J. Laird, A. J. Venables. 2017. "Transport investment and economic performance: A framework for project appraisal," *Transport Policy*, vol. 56, pp. 1-11.
5. Appalachian Regional Commission, 2017. *Economic Analysis of Completing the Appalachian Development Highway System: Executive Summary*. Prepared by Economic Development Research Group, Inc.
6. *Rural Connections: Challenges and Opportunities in America's Heartland*, Report by TRIP, a national transportation research group, 2017.
7. Z. Elburz, P. Nijkamp, E. Pels. 2017. "Public infrastructure and regional growth: Lessons from meta-analysis," *Journal of Transport Geography*, vol. 58, pp. 1-8.
8. T. Litman. 2017. "Evaluating Transportation Economic Development Impacts," Victoria Transport Policy Institute.
9. M. London, S. McNeil. 2017. "Impact evaluation of different types of transportation projects using meta-analysis," *Transportation Research Procedia*, vol. 25, pp. 3922-3932.
10. S. Gibbons, T. Lyytikainen, H. G. Overman, and R. Sanchis-Guarner. 2016. "New road infrastructure: the effects on firms," CEPR Discussion Paper, No. DP11239.
11. T. Pale. 2015. "Assessing the Impact of Infrastructure on Economic Growth and Global Competitiveness," *Procedia Economics and Finance*, vol. 23, pp. 168-175.
12. S. J. Redding, M. A. Turner. 2015. "Chapter 20 - Transportation Costs and the Spatial Organization of Economic Activity," *Handbook of Regional and Urban Economics*, vol. 5, pp. 1339-1398.
13. An economic analysis of transportation infrastructure investment, report was prepared by the National Economic Council and the President's Council of Economic Advisers, 2014.
14. T. Tong, T. E. Yu, S. Cho, K. Jensen, D. D. L. T. Ugarte. 2013. "Evaluating the spatial spillover effects of transportation infrastructure on agricultural output across the United States," *Journal of Transport Geography*, vol. 30, pp. 47-55.
15. J. P. Cohen. 2010. "The broader effects of transportation infrastructure: Spatial econometrics and productivity approaches," *Transportation Research Part E: Logistics and Transportation Review*, vol. 46, pp. 317–326.
16. G. Chi, P. R. Voss, and S. C. Deller. 2006. "Rethinking Highway Effects on Population Change," *Public Works Management & Policy*, vol. 11, pp. 18–32.
17. J. P. Cohen and C. J. M. Paul. 2004. "Public Infrastructure Investment, Interstate Spatial Spillovers, and Manufacturing Costs," *Review of Economics and Statistics*, vol. 86.
18. P. McCann, D. Shefer. 2004. "Location, agglomeration and infrastructure," *Papers in Regional Science Journal*, vol. 83, pp. 177-196.
19. J. Oosterhaven and T. Knaap. 2002. "Spatial Economic Impacts of Transport Infrastructure Investments," in A. Pearman, P. Mackie, J. Nellthorp, and L. Giorgi (eds.), *Transport Projects, Programmes and Policies: Evaluation Needs and Capabilities*, U.K. Ashgate.
20. Catherine Armington & Zoltan J. Acs. 2002. "The Determinants of Regional Variation in New Firm Formation," *Journal of Regional Studies*, vol. 36, pp. 33-45.
21. D. Banister and Y. Berechman 2001. "Transport investment and the promotion of economic growth" *Journal of Transport Geography*, vol. 9.

22. W. F. Fox and S. Porca. 2001. "Investing in Rural Infrastructure," *International Regional Science Review*, vol. 24, pp. 103-133.
23. A. Chandra and E. Thompson. 2000. "Does public infrastructure affect economic activity? Evidence from the rural interstate highway system," *Regional Science and Urban Economics*, vol. 30, pp. 457-490.
24. C. L. Rogers, R. Marshment. 2000. "Measuring highway bypass impacts on small town business districts," *Review of Urban & Regional Development Studies*, vol. 12, pp. 250-265.
25. Kusmin, Lorin D., John M. Redman, and David W. Sears. 1996. *Factors Associated with Rural Economic Growth: Lessons from the 1980's*. TB-1850, U.S. Dept. Agr., Econ. Res. Serv., September.
26. Forkenbrock, David J., and Norman S. J. Foster. 1996. Highways and Business Location Decisions, *Economic Development Quarterly*, Vol. 10, No 3, pp. 239-48.
27. Boarnet, Marlon G. 1995. New Highways and Economic Growth: Rethinking the Link, Access: Research at the University of California Transportation Center, No. 7, pp. 11-15.
28. Henry, M., and T. G. Johnson. 1993. *The Contribution of Transportation to Rural Economic Development*. Southern Rural Development Center, Mississippi State University, No. 171, pp. 35-46.
29. Broder, Josef M., Teresa D. Taylor, and Kevin T. McNamara. 1992. Quasi-Experimental Designs for Measuring Impacts of Developmental Highways in Rural Areas, *Southern Journal of Agricultural Economics*, Vol. 24, No. 1, pp. 199-207.
30. Cletus C. Coughlin, Joseph V. Terza and Vachira Arromdee. 1991. "State Characteristics and the Location of Foreign Direct Investment within the United States," *The Review of Economics and Statistics*, vol. 73, No. 4, pp. 675-683.
31. Eberts, Randall W. 1990. "Public Infrastructure and Regional Economic Development," *Economic Review*, Federal Reserve Bank of Cleveland, Vol. 26, No. 1, pp. 15-27.
32. Forkenbrock, David J., Thomas F. Pogue, David J. Finnegan, and Norman S. J. Foster. 1990. "Transportation Investment to Promote Economic Development," in *Infrastructure Investment and Economic Development: Rural Strategies for the 1990's*, AGES-9069, U.S. Dept. Agr., Econ. Res. Serv., November.
33. Deno, Kevin T. 1988. "The Effect of Public Capital on U.S. Manufacturing Activity: 1970-1978," *Southern Economic Journal*, Vol. 55, No. 2, pp. 400-11.
34. Carlino, Gerald A., and Edwin S. Mills. 1987. "The Determinants of County Growth," *Journal of Regional Science*, Vol. 27, No. 1, pp. 39-54.
35. University of Wisconsin Center for Cooperatives. "IMPLAN Methodology". Online: <http://reic.uwcc.wisc.edu/implan/>
36. Towson University. "What is IMPLAN?" 15 June 2006. Online: <http://cier.umd.edu/RGGI/documents/IMPLAN.pdf>
37. List, G, Foyle, R.S. 2008, et. Al. "Statewide Logistics Plan for North Carolina." Report for NC Office of State Management and Budget
38. "America 2050 MegaRegions" Regional Plan Association. <http://www.america2050.org/megaregions.html>
39. "South Carolina Statewide Freight Plan: Charting a Course to 2040," SC DOT. 2014. [https://www.scdot.org/multimodal/pdf/sc\\_mtp\\_freight\\_plan.pdf](https://www.scdot.org/multimodal/pdf/sc_mtp_freight_plan.pdf)
40. "North Carolina Statewide Multimodal Freight Plan." NC DOT. 2017 Nov.
41. Foyle, Demers, et. Al. "Seven Portals Study: An Investigation of Economic Development through Logistics Villages." 2011 Dec 31.
42. Coclanis, P, Gitterman, D. *A Way Forward: Building a Globally Competitive South*. 2011. Global Research Institute at the University of North Carolina at Chapel Hill.
43. Georgia Statewide Multimodal Freight Plan. Georgia Department of Transportation. 2011.
44. "Tennessee Multimodal Freight Plan." TDOT. 2016.
45. "NCDOT NC Moves 2050." 2019. <https://www.ncdot.gov/initiatives-policies/Transportation/nc-2050-plan/Pages/default.aspx>

46. “North Carolina Maritime Strategy.” AECOM. 2012 June. [https://www.ncdot.gov/initiatives-policies/Transportation/freight/Documents/NC\\_Maritime\\_final\\_report\\_2012-06-26.pdf](https://www.ncdot.gov/initiatives-policies/Transportation/freight/Documents/NC_Maritime_final_report_2012-06-26.pdf)
47. “Virginia Statewide Multimodal Freight Study.” VDOT. 2011 July.
48. Khanna, Parag. “A New Map for America.” *The New York Times*. 15 April 2016.
49. Head, W. Findley, D. Bert, S. ITRE. “North Carolina Ports: 2018 Economic Impact Study.” 2019 Jan. <https://ncports.com/wp-content/uploads/2019/01/2018-NC-Ports-Economic-Contribution-Study.pdf>
50. Bert, S. Norbage, N. Davis, J, et al. “Economic Contribution of North Carolina’s Ferry System. ITRE. 2019 May.
51. AASHTO Journal. October 26, 2018. “*SCDOT expands program to widen rural interstates for freight needs.*”
52. “Rural Counts NC: 10 Strategies.” 2016. <https://www.ncruralcenter.org/engagement/advocacy/rural-counts/>
53. Magliola, Dana A., Schilleman, Lindsey T., Elliott, John C. “North Carolina’s Supply Chain: Conduit for Commerce and Economic Development.” 2016. MHI.

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# Appendix

This appendix contains an annotated bibliography of reports and other documents that pertain to the relationship between economic development and infrastructure investments. They investigate how highway investment will affect the economic development of rural areas, the spatial allocation of economic activities, business location decision, and how different industries and sectors respond to highway investment.

1) **J. Pender and M. Torero, “Economic Impacts, Costs and Benefits of Infrastructure Investment—Review of the Literature,” Farm Foundation, 2018.**

The focus of this paper is the overview of existing studies to evaluate the economic impacts, costs, and benefits of infrastructure investments in the United States. An overview of research on the productivity impact of public capital indicate depending on the type of public capital, analyzing units and methods, the estimate of output elasticity of public capital would change remarkably.

Moreover, productivity overall indicates greater impact on national studies compare to state-level ones, and on water and sewer capital compare to highway capital. Consequently, the estimates of the marginal rate of return to public capital stocks vary in a wide range, from close to zero to 90 percent for highway and “water and sewer” capital, respectively. Similar results obtained on studies exploring the impacts of public capital on firm’s income. Studies also illustrate a larger benefit of public capital stocks on U.S. cities compare to productivity benefits. Depending on econometric framework assumptions, the benefit-to-cost ratio (BCR) of public capital stocks vary ranging from 0.3 to 2.

2) **M. Burton, W. W. Wilson. 2018. “The Economically Efficient Composition of Rural Infrastructure Investment,” Farm Foundation.**

This paper investigates whether public-sector infrastructure investment is an economically sensible public policy and presents a precise economic clarification to support the investments. Moreover, it indicates the necessity investments to rural communities due to spatial nature inherent in network infrastructures and commerce. Lastly, a tentative prediction about the nature and value of rural infrastructure outcomes has been presented.

3) **B. V. Gaustad, J. Murray, E. Bardaka, D. Findley, J. B. Martin, R. Smith. 2018. “Analysis and validation of historical transportation investments,” NCDOT project, RP 2017-22.**

Gaustad et al. (2018) completed a mixed-methods economic analysis of ten select transportation projects across the state of North Carolina. In one of the case studies, the US-64 widening project between Plymouth and Columbia, constructed between 2002 and 2012, was of focus. Motivations for this widening project included improvements in safety and mobility, as well as improved access to the Outer Banks as a major tourist destination. Based on the analysis, the bypass overall resulted in regional business growth and is considered as a vital countermeasure to other economic issues. Moreover, several new businesses such as hotels, restaurants, and retail centers commenced in the region. The results of interviews also provided context for the economic analysis. This research is useful because some of the methodologies used could be applicable for the current study.

4) **J. J. Laird, A. J. Venables. 2017. “Transport investment and economic performance: A framework for project appraisal,” Transport Policy, vol. 56, pp. 1-11.**

This paper evaluated how transport investments may affect the economy. Transportation promotes intense economic interaction within or between areas, which leads to an increase in productivity. Level and location of private investment as well as potential urban and other areas’ developments highly depend on the transport shape. Moreover, it improves the labor markets by providing better job access to more workers. As a result, transportation leads to economic growth of the area, specially where inflicted by market failure as a result of inefficient land use and labor markets shortcoming. However, the way private sectors respond to changes in accessibility is the key to evaluate the impact of transport on economic performance. For

instance, while the investment enhances productivity in the area, it may replace output and employment. Therefore, this study classifies the impacts within the framework in four types: “1) *user benefits*, 2) *proximity and productivity effects*, 3) *investment and land use impacts*, 4) *employment effects*”. Series of transport-economy mechanisms, some well-established and some not, applicable to different context, exist in each group type.

**5) Appalachian Regional Commission, 2017. Economic Analysis of Completing the Appalachian Development Highway System: Executive Summary. Prepared by Economic Development Research Group, Inc.**

The research team in this study investigate whether the Appalachian Development Highway System (ADHS) project, a 1,400- mile network of roads in Appalachia, was capable enough to meet its economic development objective. The results indicate ADHS leads to easier access in the area, better workforce access, and same-day truck delivery. As a result, in 2015, over 168,000 new jobs and \$11 billion in annual GRP growth was reported. The authors also believe ADHS completion will create a strong regional and nationwide ROI (return on investment). The overall present value of benefits, including travel time, safety, logistics, market access, and environmental benefits, approximately will exceed \$16.3 billion. Furthermore, the ADHS completion will bring increased economic competitiveness, resulting in more regional investments as well as more exports to the rest of the world. Moreover, the estimated impact within ten years after completion, is nearly 47,000 additional jobs and \$4.2 billion per year in additional GRP. From these, around 77 percent will occur within the Appalachian countries.

**6) Rural Connections: Challenges and Opportunities in America’s Heartland, Report by TRIP, a national transportation research group, 2017.**

In this report, the condition, use, and safety of rural transportation system in U.S., particularly roads, highways and bridge, are investigated and required development strategies are proposed. Rural areas in this study are defined as regions outside of urban areas with a population of 2,500 or more, like the U.S. Census Bureau definition. Similarly, the Federal Highway Administration (FHWA) definition for rural areas is employed to define road, bridge, and safety data. The results indicate the nation’s rural transportation system require principal investments to mitigate the levels of traffic, reduce the rate traffic crashes, and provide connectivity for communities. The strong backbone supporting the investments is the vital role of rural areas as home to a significant share of the nation’s population, natural resources and tourist destinations. It is also the primary source of the energy, food and fiber that drive the U.S. economy.

**7) Z. Elburz, P. Nijkamp, E. Pels. 2017. “Public infrastructure and regional growth: Lessons from meta-analysis,” Journal of Transport Geography, vol. 58, pp. 1-8.**

This study determines the source of variation in empirical results of different research on infrastructure and growth. To accomplish this, they employed meta-analysis to propose ordered probit model which examines changes in the probability of finding negative, positive and insignificant impacts. The overall 912 observations from 42 studies between 1995 and 2014 are used in this regard. The results indicate the magnitude and sign of the variables concerned, are highly depend on the study characteristics. For instance, the studies conducted based on data from U.S. are more prone to come up with a negative impact of public infrastructure on regional growth.

Results also indicate that type of infrastructure, research methodology, time span, type of infrastructure measure, and geographical scale affect the outcomes of the primary studies.

For instance, studies not considering interregional, interstate, and interprovincial relations are more likely to come up with positive impacts. Moreover, some characteristics like output measure and selection of a specific sector indicate no effect on the resulted outcomes.

**8) T. Litman. 2017. “Evaluating Transportation Economic Development Impacts,” Victoria Transport Policy Institute.**

Increased employment, income, productivity, property values, and tax revenues are all key community's economic objectives which result in economic development. The impact of transportation policy and planning decisions on economic developments, analytical methodology to examine these impacts are focus of this report. Moreover, the research team proposed strategies to augment the economic benefits in transportation planning.

**9) M. London, S. McNeil. 2017. "Impact evaluation of different types of transportation projects using meta-analysis," *Transportation Research Procedia*, vol. 25, pp. 3922-3932.**

The authors in this paper investigate the impact of different type of transportation projects in economy development. The paper developed a framework using meta-analysis to measure performance metrics for specific types or groups of transportation projects and examine their impacts on larger transportation systems.

**10) S. Gibbons, T. Lyytikainen, H. G. Overman, and R. Sanchis-Guarner. 2016. "New road infrastructure: the effects on firms," *CEPR Discussion Paper*, No. DP11239.**

The impact of road infrastructure construction on productivity and employment has been investigated in this study. Change in accessibility, which is the minimum travel times along the road network, is the criteria to evaluate the transport enhancement in this study. The authors investigate "*the potential endogeneity of scheme location by identifying the effects of changes in accessibility from variation across wards close to the scheme*". For small-scale geographical areas, it resulted in an increase on the employment and number of plants. However, for local companies, it negatively impacts the employment and increased output per worker and wages. In conclusion, this study indicates while new transport infrastructure captivates transport intensive firms to the area, local businesses may suffer due to the employment costs.

**11) T. Pale. 2015. "Assessing the Impact of Infrastructure on Economic Growth and Global Competitiveness," *Procedia Economics and Finance*, vol. 23, pp. 168-175.**

This research paper seeks to measure the effect of infrastructure on a competitive economy. Using research conducted by the World Bank, the paper identifies a number of factors related to strong economic growth consistent with previous literature, including macroeconomic management, health and primary education, technological development, market opportunities and different models, framework and scenarios used to identify causal relationships. The authors find the level of national competitiveness is linked to institutional steadiness and identifies seven factors as infrastructure-based: road quality, railroad quality, air transport and electricity supply.

**12) S. J. Redding, M. A. Turner. 2015. "Chapter 20 - Transportation Costs and the Spatial Organization of Economic Activity," *Handbook of Regional and Urban Economics*, vol. 5, pp. 1339-1398.**

This paper is a review of both theoretical and applied/empirical literature examining the relationship between economic activity and transportation costs using spatial distribution analysis. Using a model developed with foundations in economic geography, the authors use a general equilibrium to understand the interrelatedness of wages, population, trade and industry makeup. The paper examines this phenomenon at diverse spatial resolutions, within and between cities and makes recommendations for further research.

**13) An economic analysis of transportation infrastructure investment, report was prepared by the National Economic Council and the President's Council of Economic Advisers, 2014.**

The report finds that a high-functioning transportation network is critical to keeping jobs and supporting industry in the United States. For business firms to grow, keep prices low on household goods, manage supplies and transport intermediate and final goods at low prices, efficiently and reliably, it will be important for the United States to continue to invest in functional and reliable infrastructure.

- 14) T. Tong, T. E. Yu, S. Cho, K. Jensen, D. D. L. T. Ugarte. 2013. "Evaluating the spatial spillover effects of transportation infrastructure on agricultural output across the United States," *Journal of Transport Geography*, vol. 30, pp. 47-55.**

The authors measure direct and spatial spillover effects of transportation infrastructure on agricultural demand activity in 44 states in the United States between 1981 and 2004. The authors use a spatial Durbin panel data model to find spatial dependence in both dependent and explanatory variables. Results find road financing in a state has positive causality on its agricultural output. Researchers also find the spillover effect of increased road financing varies with respect to weights used in the model. Finally, the researchers find that road finance increasing measures have a more pronounced effect in the greater Midwest region relative to coastal states or border states.

- 15) J. P. Cohen. 2010. "The broader effects of transportation infrastructure: Spatial econometrics and productivity approaches," *Transportation Research Part E: Logistics and Transportation Review*, vol. 46, pp. 317 – 326.**

Authors of this paper attempt to measure "broader" economic effects cause by transportation infrastructure investment by examining how these investments measure impacts beyond geographic boundaries. Researchers use and evaluate production and cost function models. The authors find, using an empirical example of a cross-section of U.S. states' manufacturing data, the ignoring of the effects a specifically spatially-lagged dependent variable can cause errors and lead to mismeasurements of the holistic economic impacts due to investments in infrastructure. These errors arise from missing indirect effects and bias that can lead to an error in measuring elasticity.

- 16) G. Chi, P. R. Voss, and S. C. Deller. 2006. "Rethinking Highway Effects on Population Change," *Public Works Management & Policy*, vol. 11, pp. 18-32.**

In this paper, the authors conduct a literature review on regional economies and demographics to demonstrate how investments in highways and roads can lead to changes in population. Researchers then propose a spatio-temporal economic approach to measure highway effects on the change in population. The authors conclude at the county and municipal level, highway effects on population change differ amongst pre-construction and post-construction periods, as well as urban, suburban and rural areas.

- 17) J. P. Cohen and C. J. M. Paul. 2004. "Public Infrastructure Investment, Interstate Spatial Spillovers, and Manufacturing Costs," *Review of Economics and Statistics*, vol. 86.**

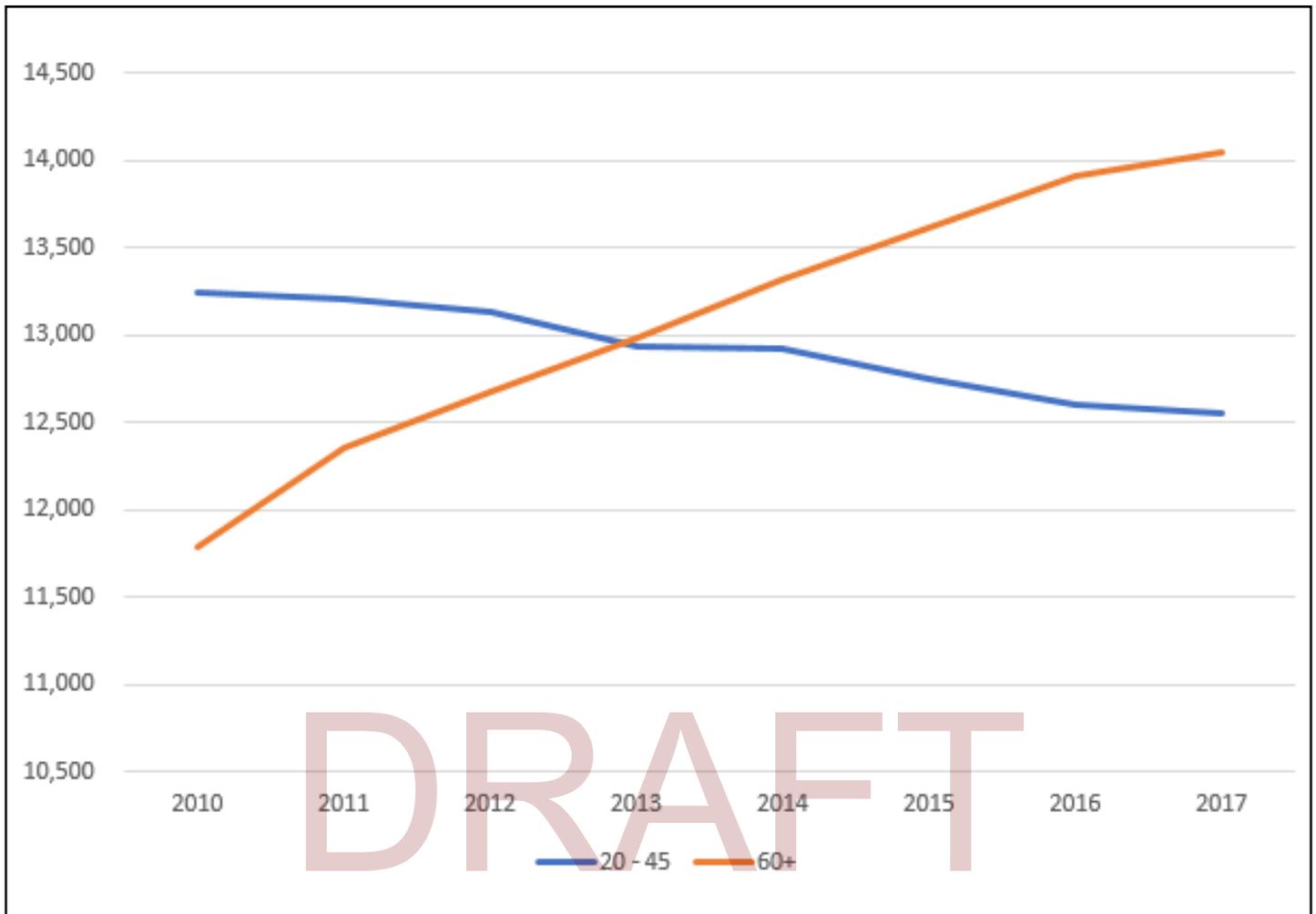
The authors examine how investment in public infrastructure affect the costs and productivity of private sector activity. To conduct this measure, the authors use a cost function model applied to state-level U.S. manufacturing data between 1982 and 1996. This paper uses two spatial adaptations. Results show that spillover from infrastructure investment is passed on to private enterprise.

- 18) C. L. Rogers, R. Marshment. 2000. "Measuring highway bypass impacts on small town business districts," *Review of Urban & Regional Development Studies*, vol. 12, pp. 250-265.**

The authors construct a cross-sectional and time series dataset for towns smaller than measured by the United States Census data examining local sales taxes. The authors consider bypass impacts using conventional difference-in-difference methodology and add in some experimental work. The authors find that the institution of a bypass highway has no considerable effect on a small town that had already been in decline.

**Appendix H:**  
**Population by Age for Counties**  
**in the Northeastern Region**

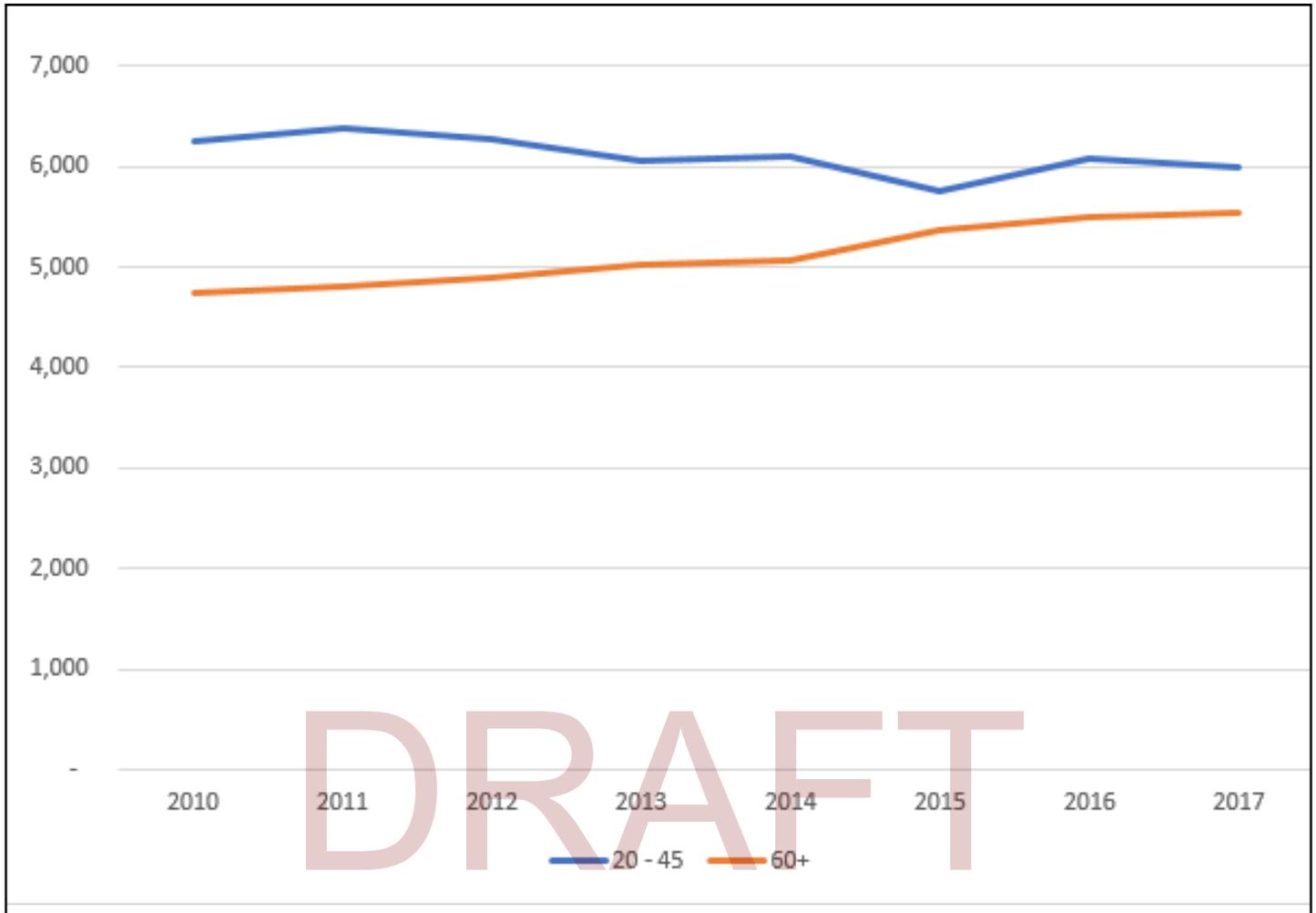
## Beaufort County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	13,237	11,784
2011	13,208	12,358
2012	13,129	12,675
2013	12,936	12,986
2014	12,925	13,312
2015	12,746	13,618
2016	12,604	13,905
2017	12,551	14,046

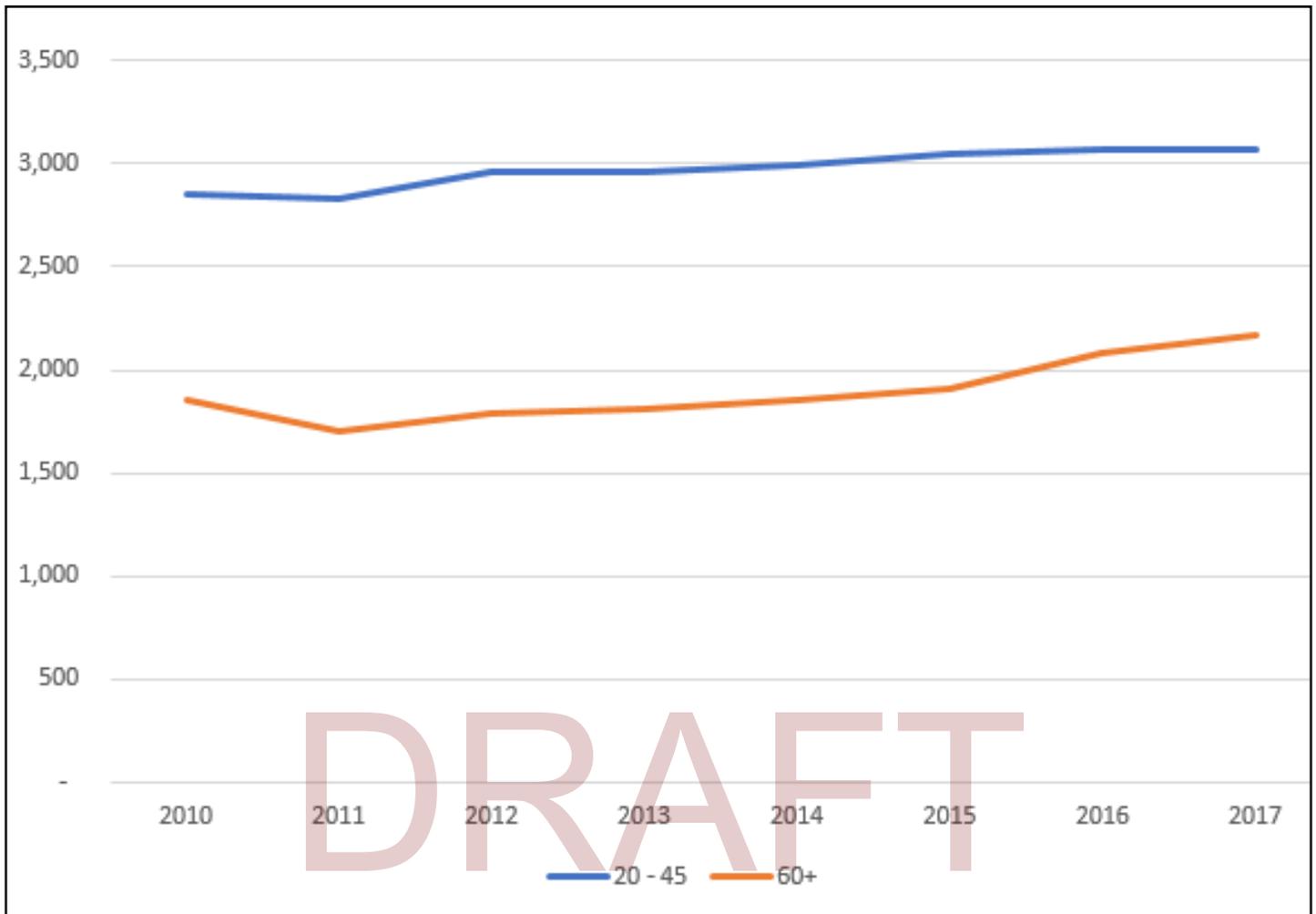
## Bertie County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	6,240	4,740
2011	6,381	4,807
2012	6,269	4,882
2013	6,060	5,013
2014	6,104	5,070
2015	5,763	5,376
2016	6,080	5,500
2017	5,992	5,537

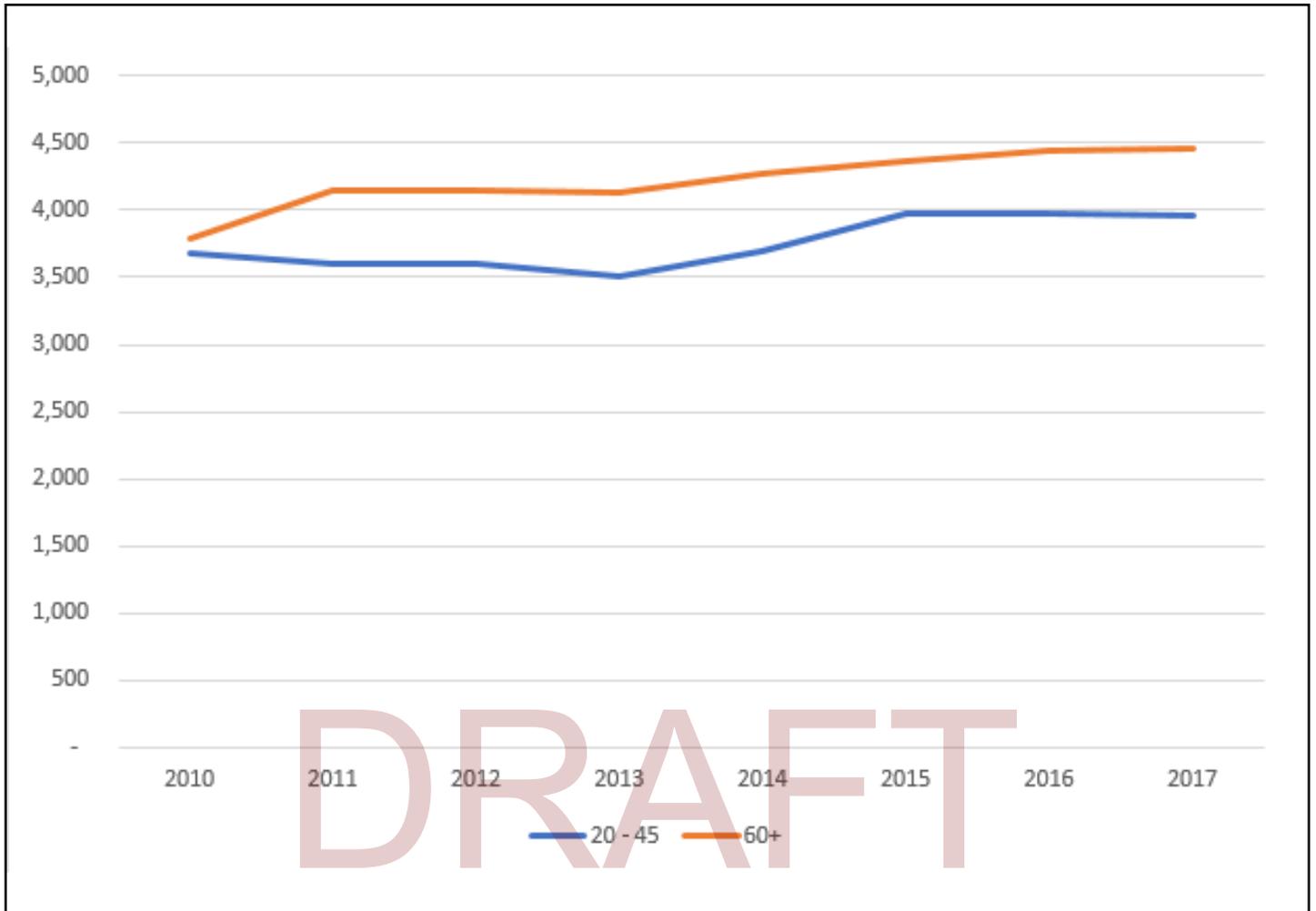
## Camden County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	2,849	1,850
2011	2,830	1,704
2012	2,956	1,793
2013	2,959	1,809
2014	2,990	1,855
2015	3,050	1,907
2016	3,067	2,086
2017	3,065	2,164

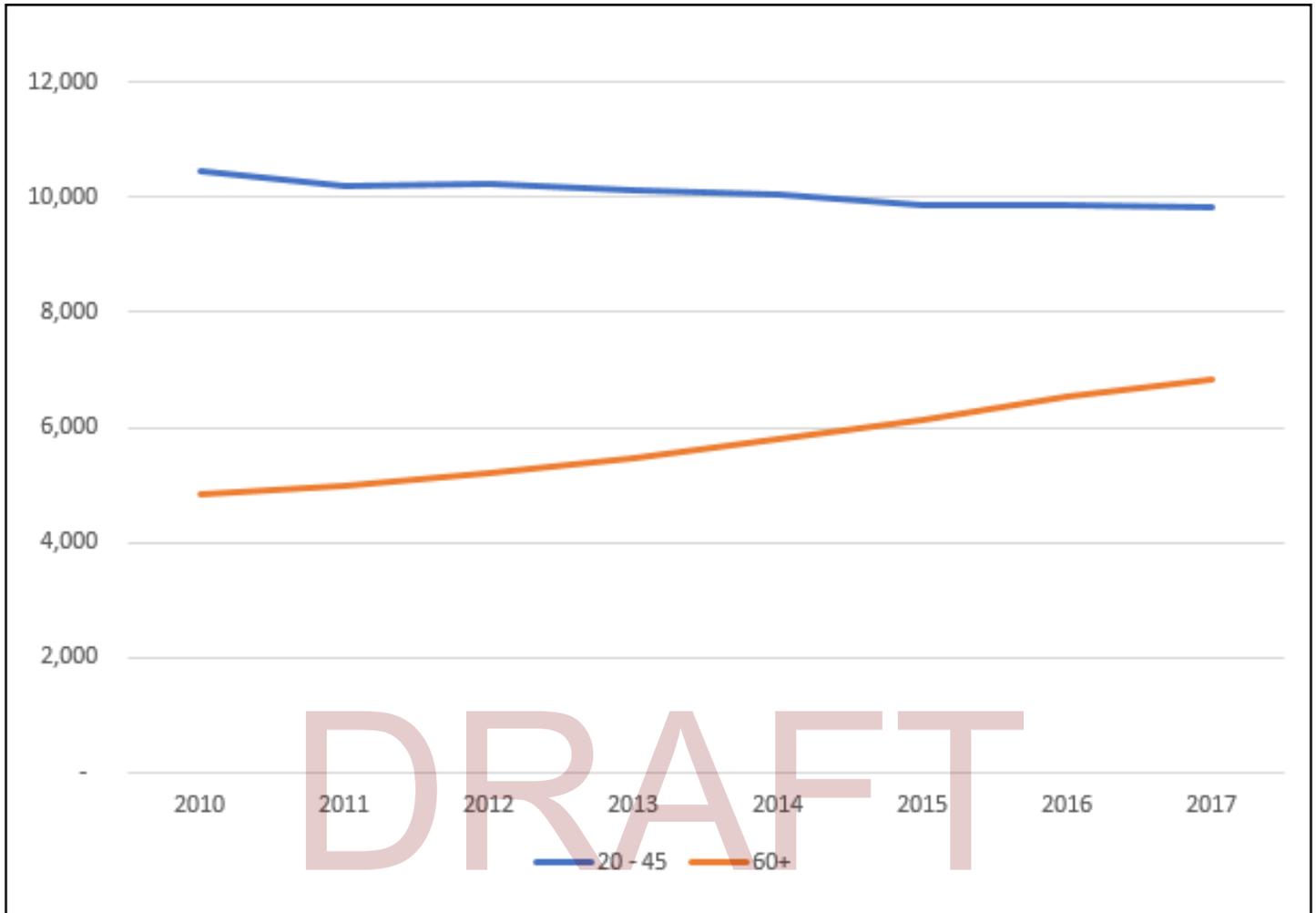
## Chowan County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	3,684	3,787
2011	3,604	4,142
2012	3,604	4,142
2013	3,511	4,125
2014	3,700	4,266
2015	3,968	4,367
2016	3,976	4,435
2017	3,952	4,452

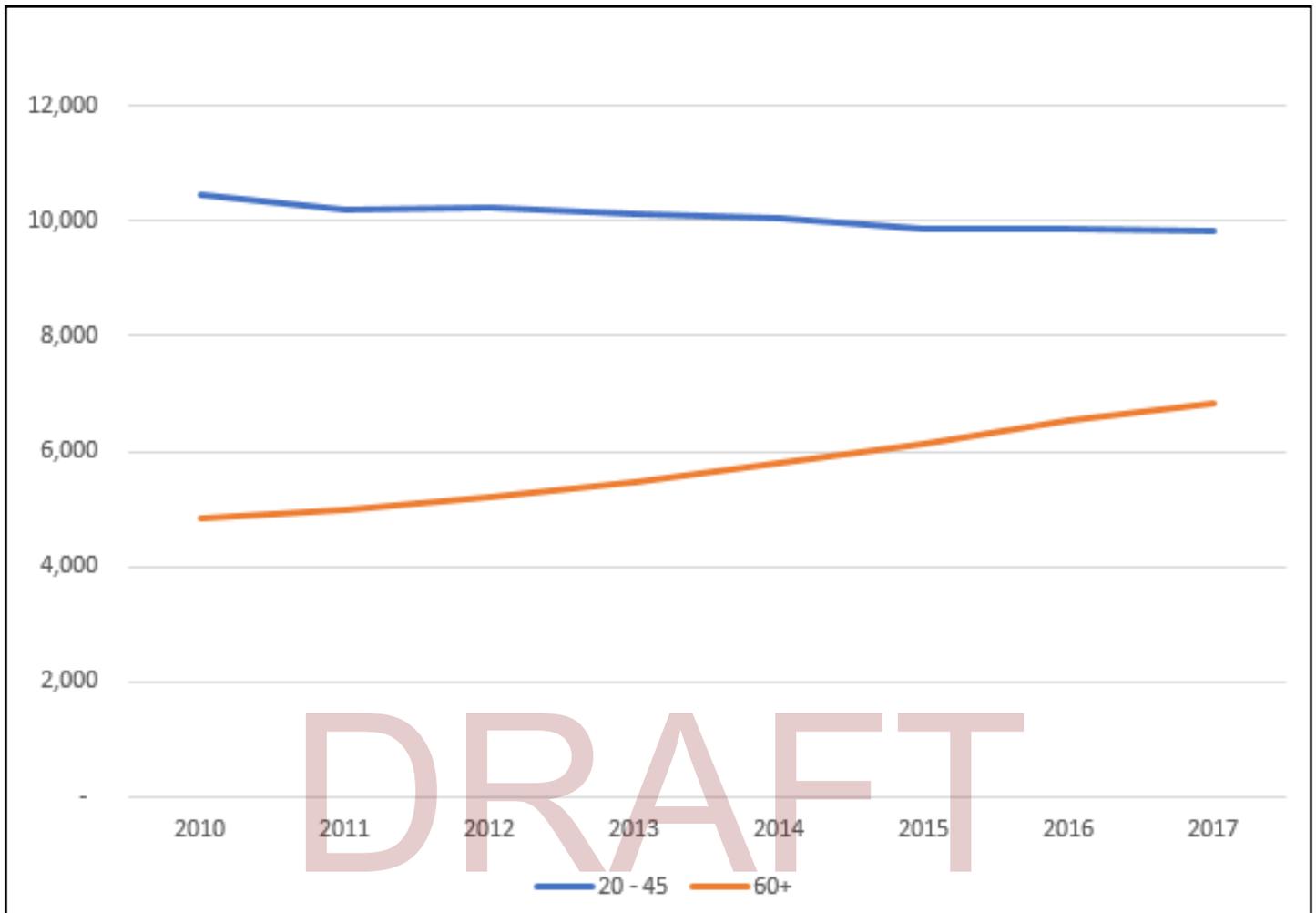
## Currituck County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	7,309	4,310
2011	7,241	4,511
2012	7,259	4,612
2013	7,129	4,950
2014	7,115	5,001
2015	7,068	5,161
2016	7,021	5,427
2017	7,150	5,686

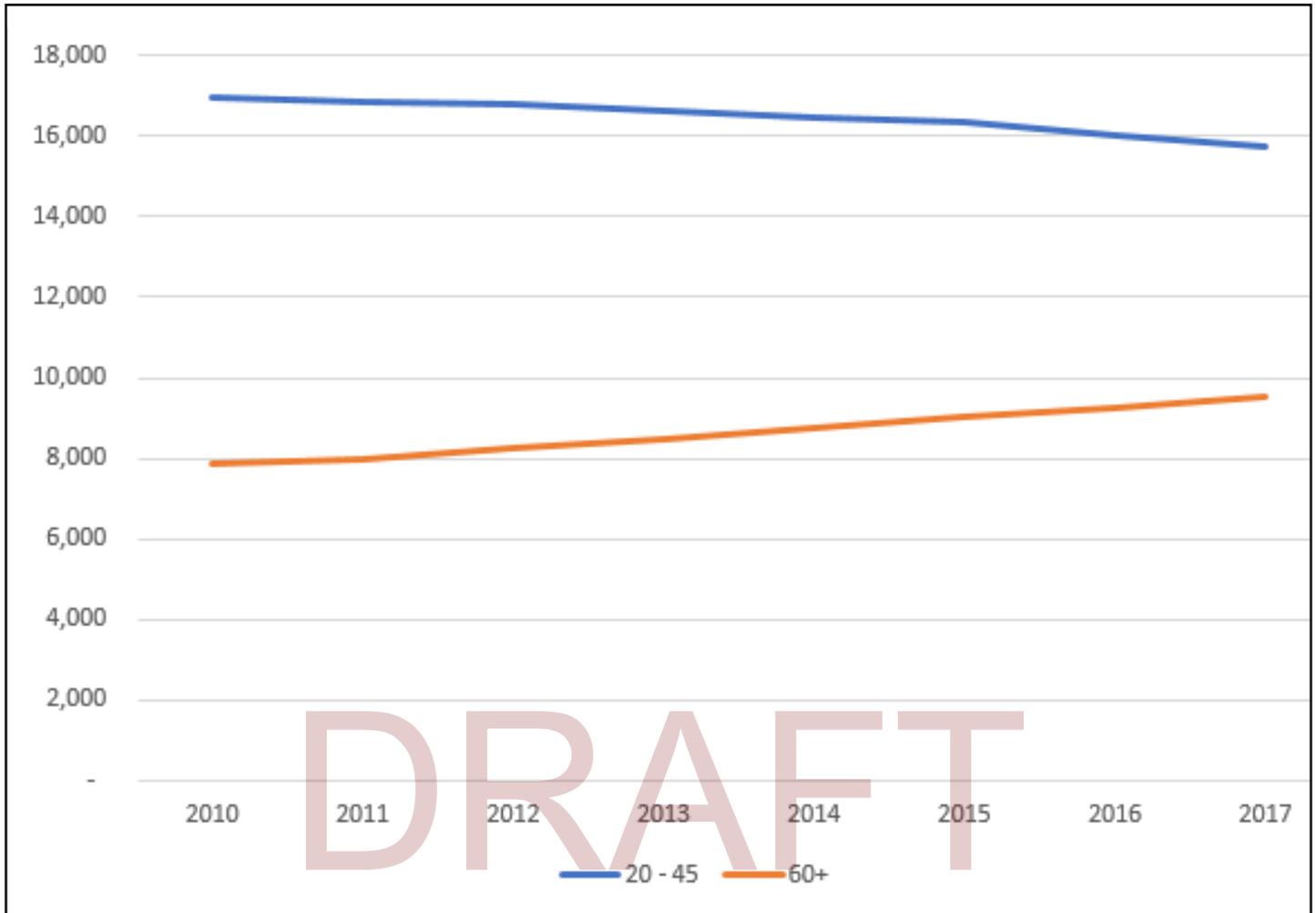
## Dare County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	10,437	4,858
2011	10,214	4,984
2012	10,244	5,203
2013	10,116	5,466
2014	10,065	5,815
2015	9,876	6,149
2016	9,875	6,532
2017	9,810	6,819

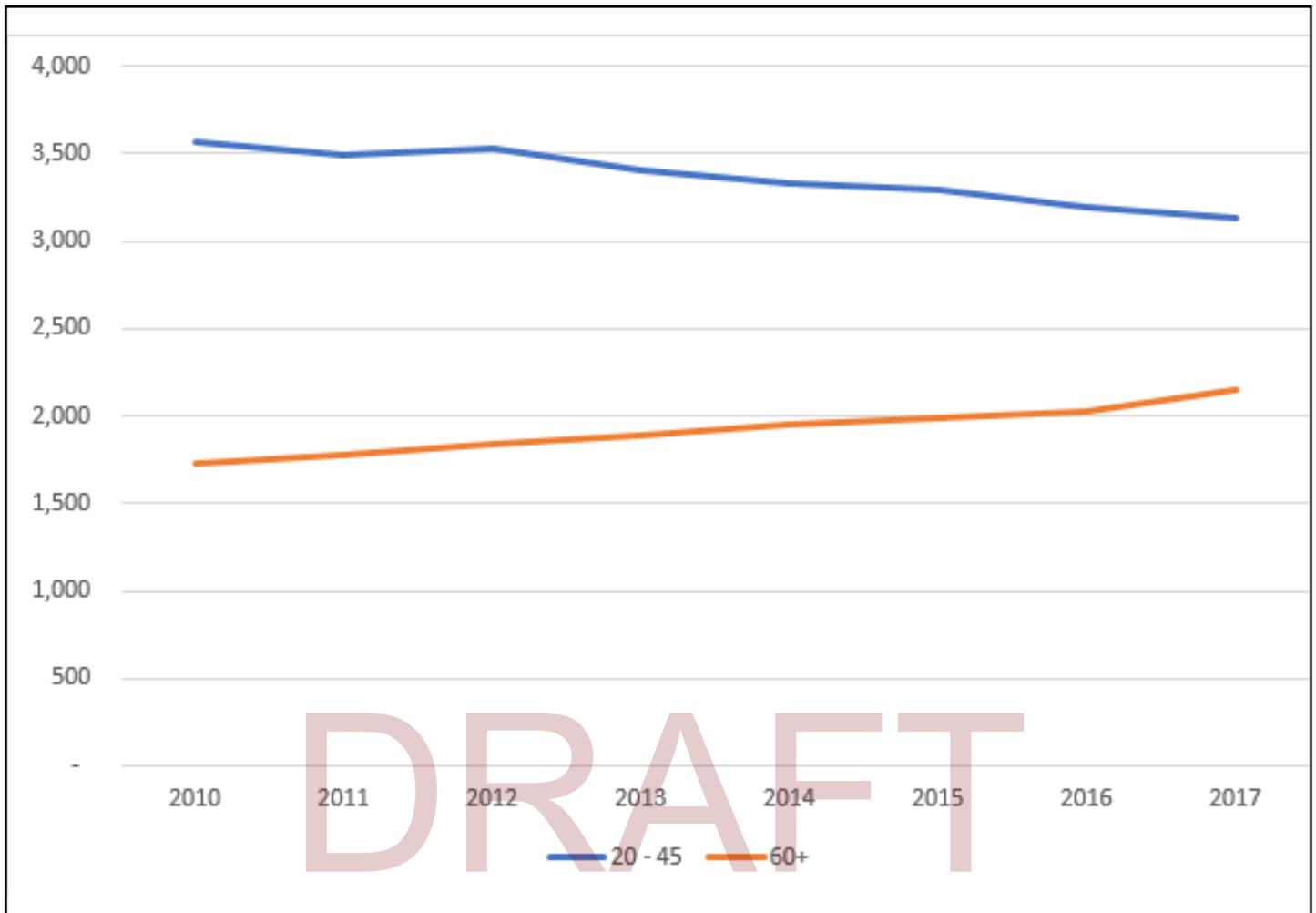
## Edgecombe County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	16,964	7,854
2011	16,840	8,000
2012	16,772	8,238
2013	16,611	8,500
2014	16,463	8,779
2015	16,327	9,038
2016	16,038	9,273
2017	15,727	9,542

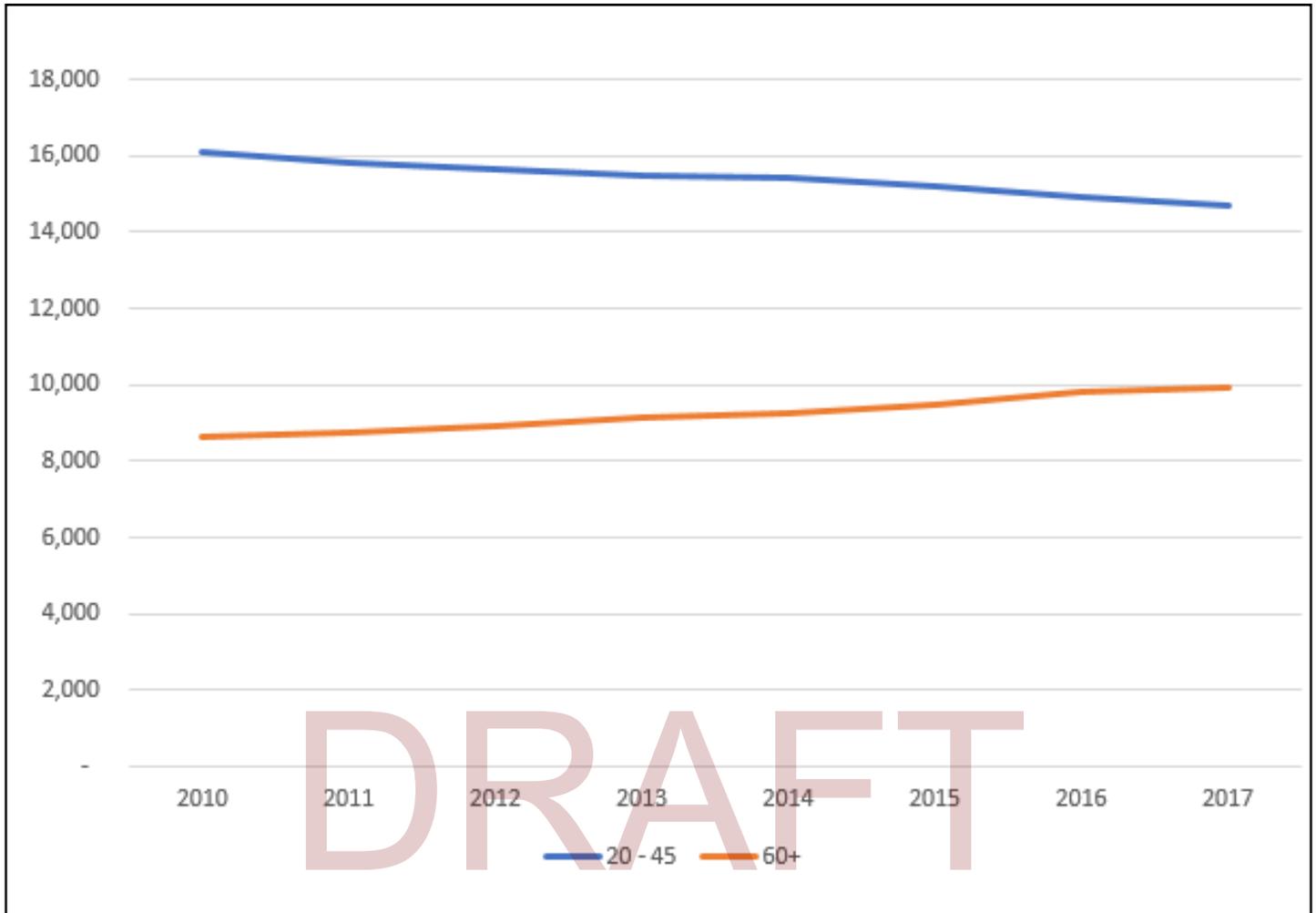
## Gates County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	3,566	1,728
2011	3,487	1,776
2012	3,525	1,838
2013	3,408	1,890
2014	3,327	1,946
2015	3,292	1,991
2016	3,197	2,026
2017	3,136	2,153

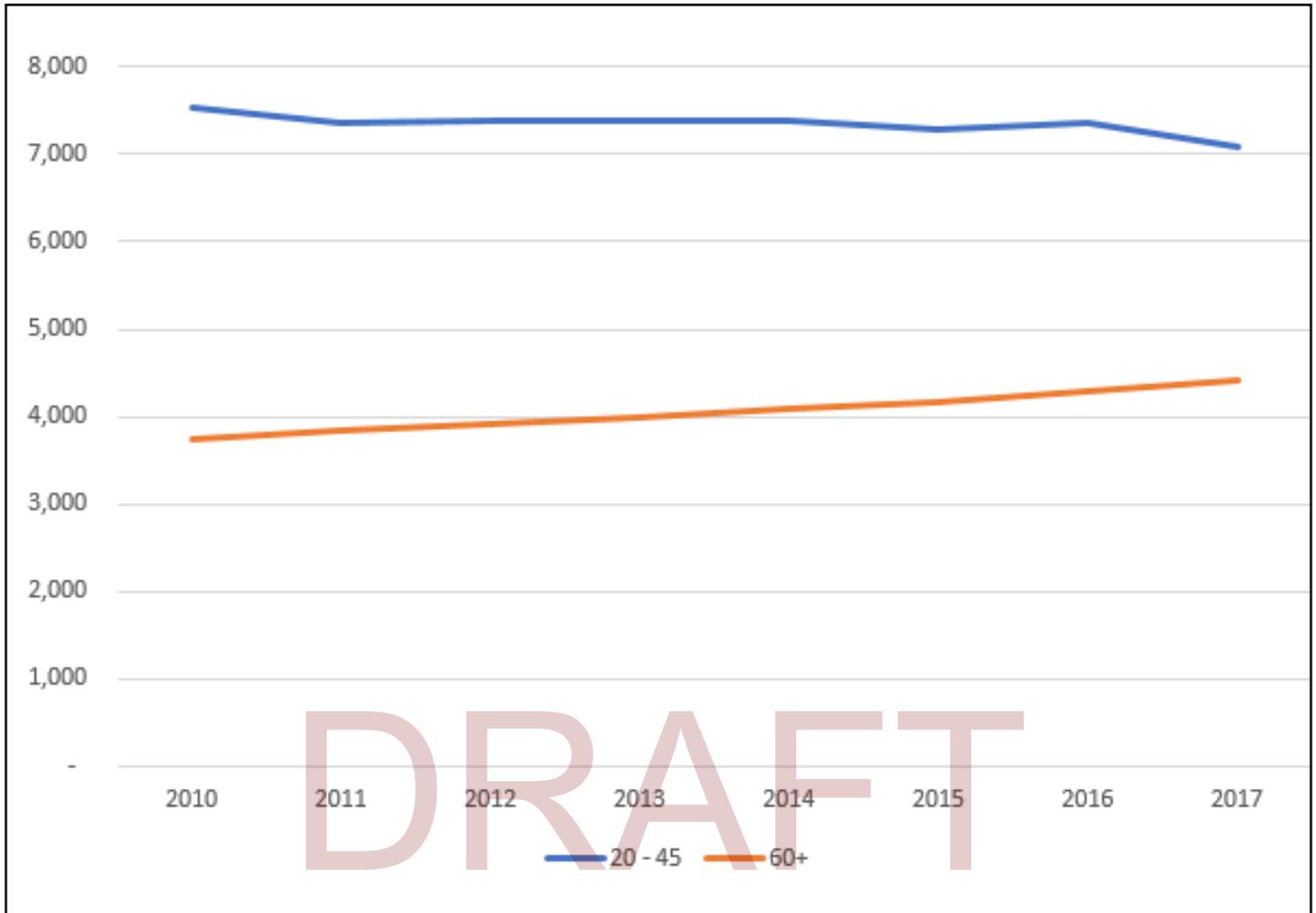
## Halifax County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	16,111	8,662
2011	15,831	8,751
2012	15,645	8,928
2013	15,500	9,119
2014	15,443	9,274
2015	15,232	9,509
2016	14,925	9,801
2017	14,706	9,925

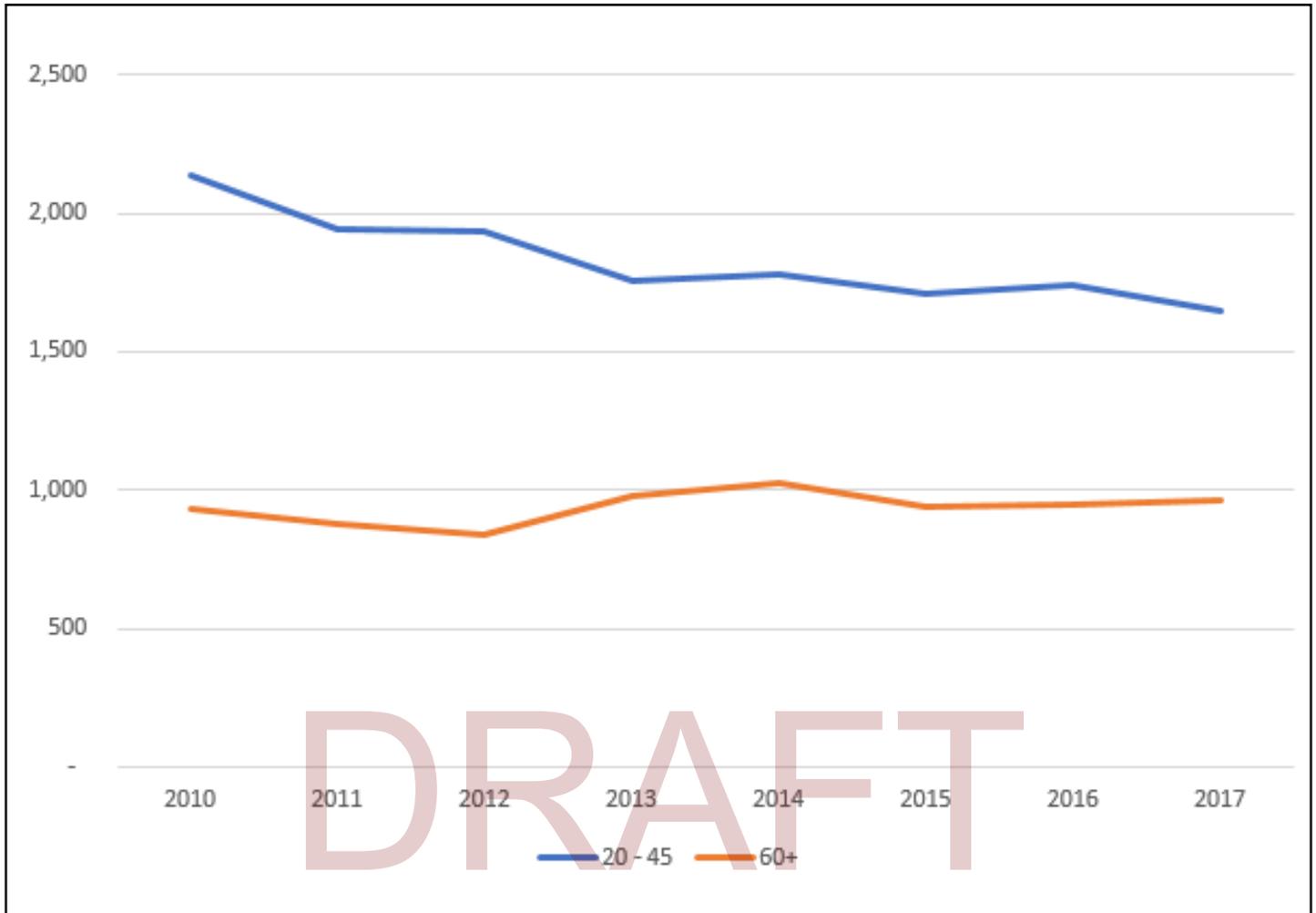
## Hertford County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	7,521	3,751
2011	7,356	3,839
2012	7,386	3,913
2013	7,381	3,992
2014	7,371	4,084
2015	7,286	4,157
2016	7,345	4,283
2017	7,078	4,419

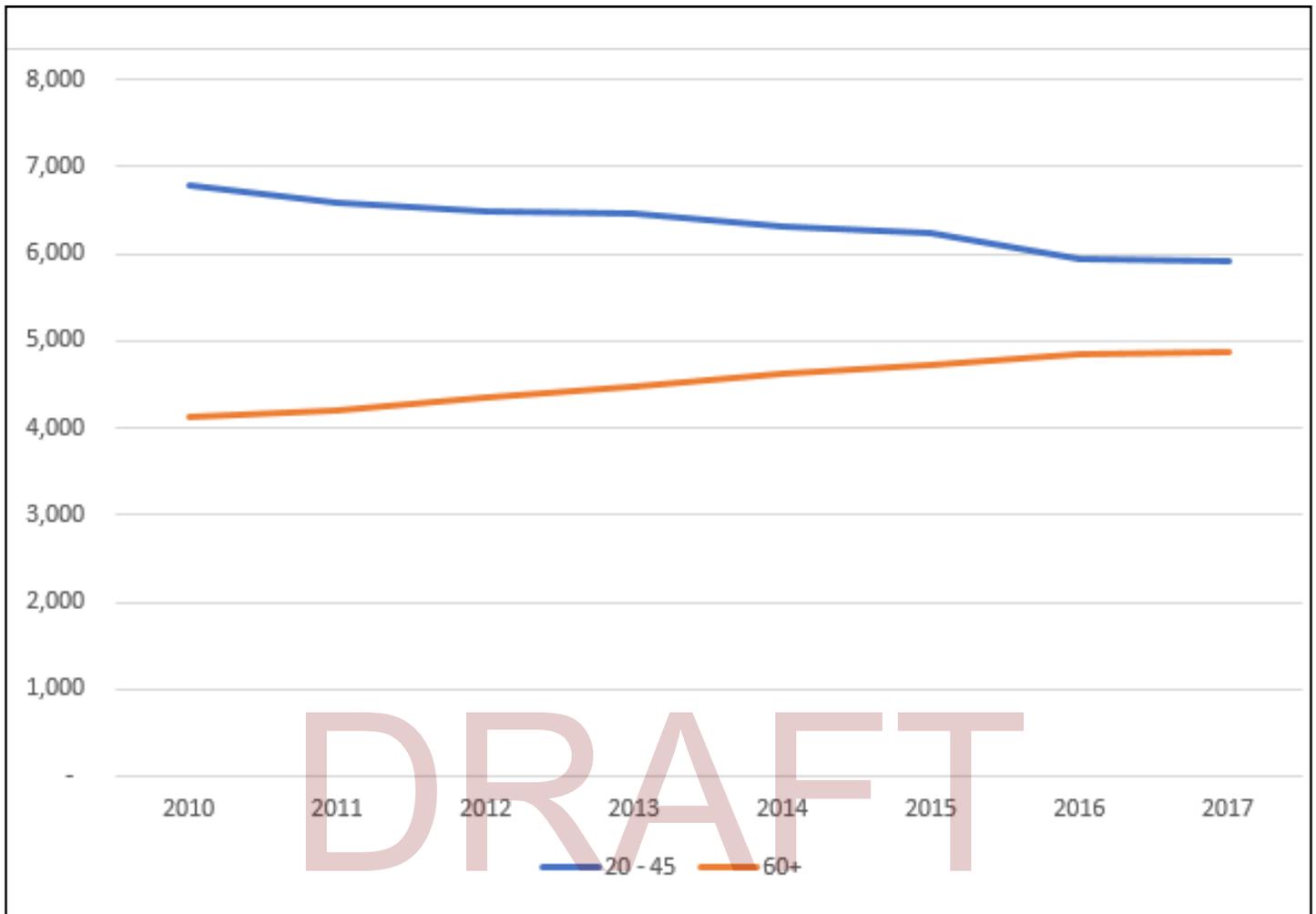
## Hyde County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	2,133	930
2011	1,940	878
2012	1,937	837
2013	1,757	980
2014	1,779	1,026
2015	1,707	943
2016	1,740	945
2017	1,645	967

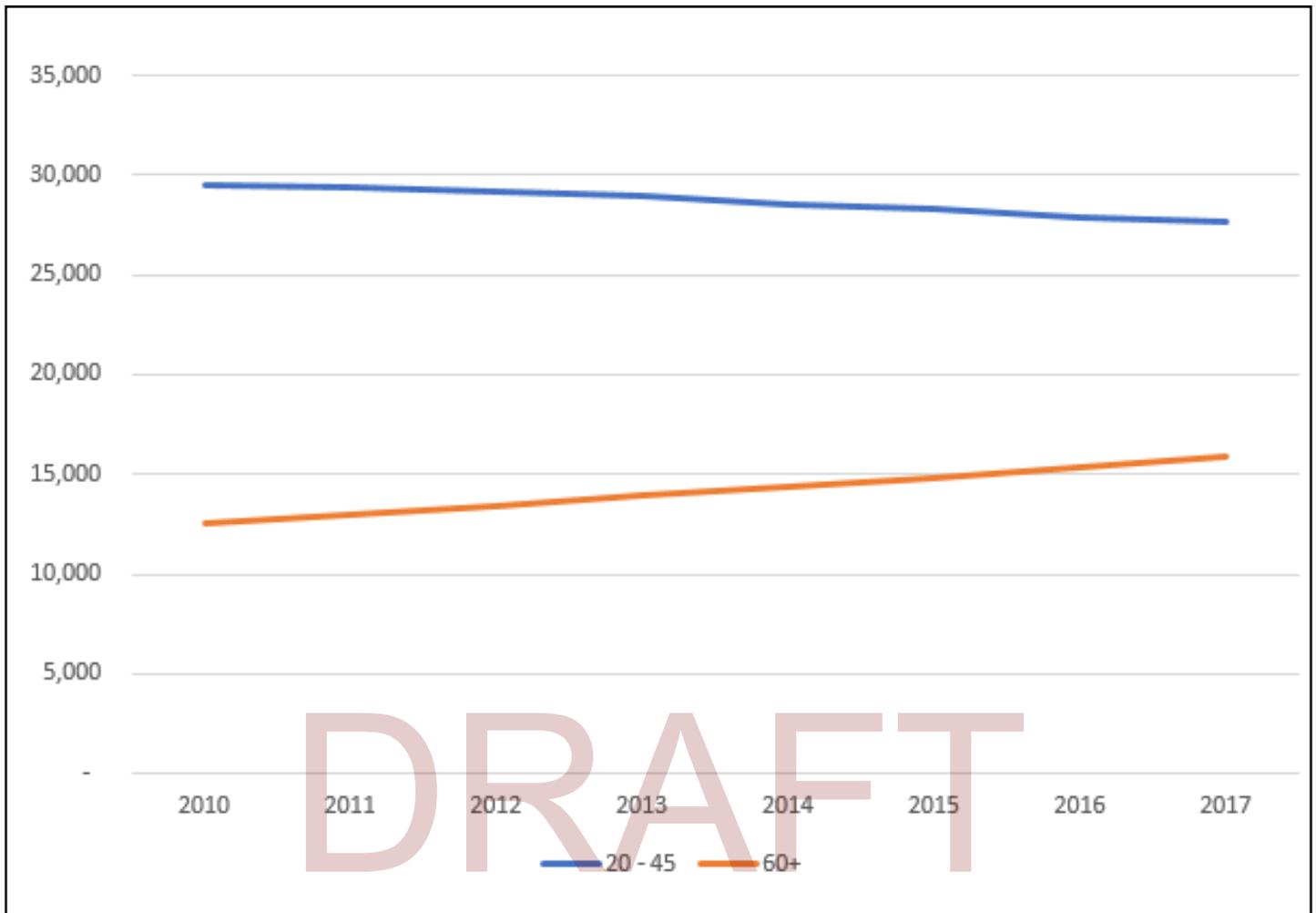
## Martin County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	6,777	4,116
2011	6,595	4,197
2012	6,488	4,342
2013	6,461	4,466
2014	6,316	4,615
2015	6,241	4,727
2016	5,953	4,841
2017	5,922	4,884

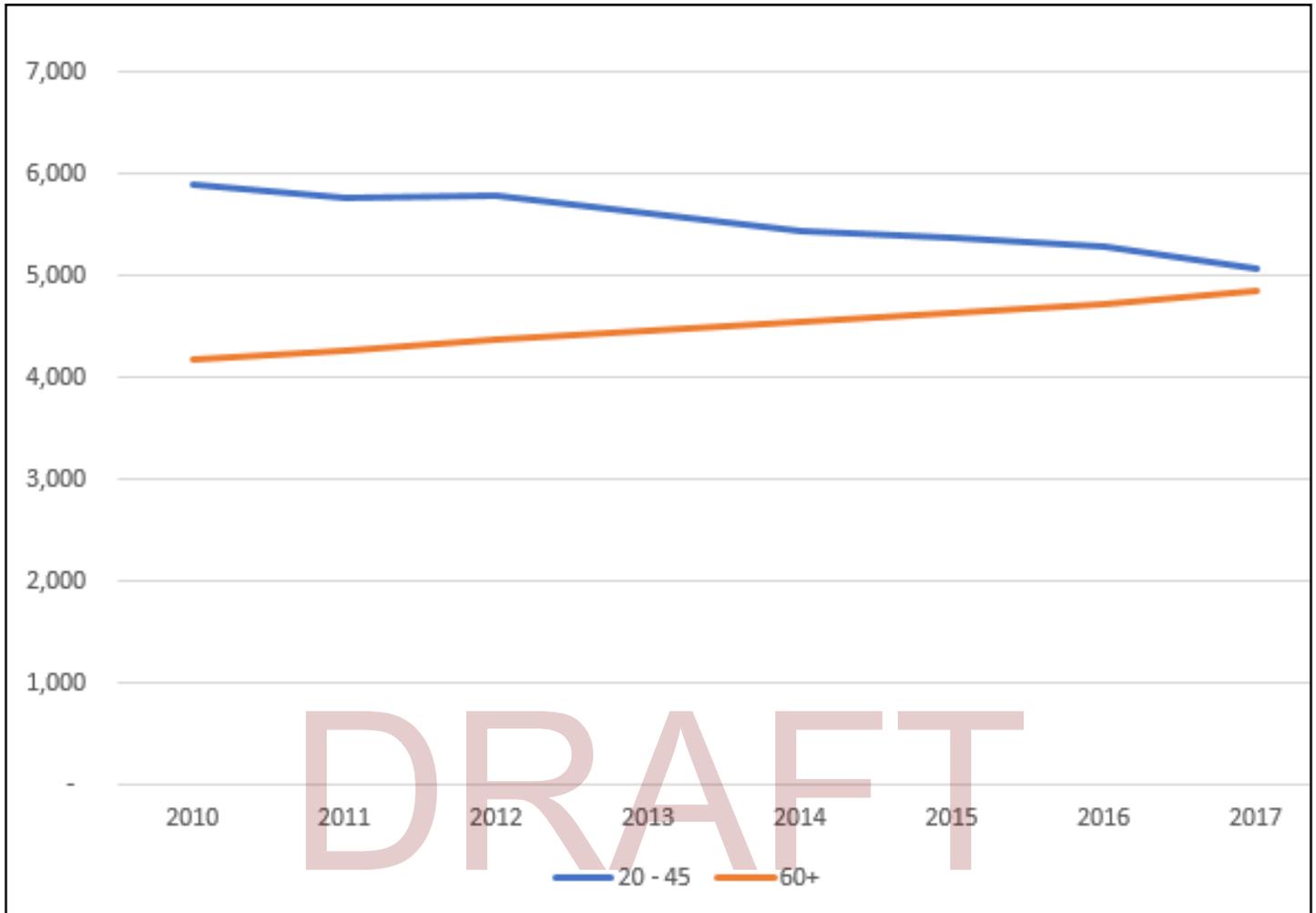
## Nash County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	29,461	12,515
2011	29,373	12,985
2012	29,179	13,419
2013	28,946	13,930
2014	28,558	14,367
2015	28,290	14,791
2016	27,845	15,400
2017	27,670	15,871

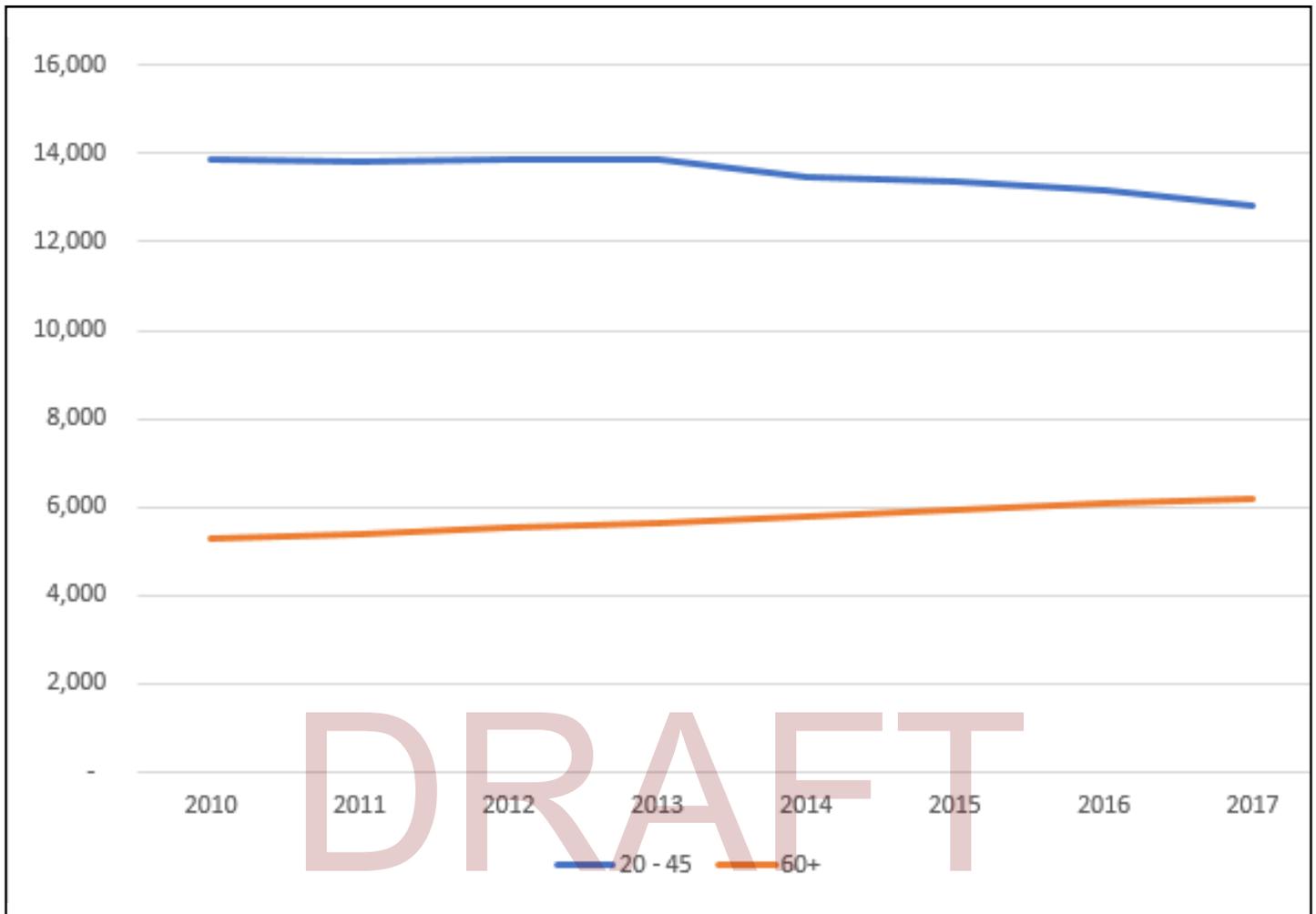
## Northampton County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	5,887	4,177
2011	5,767	4,254
2012	5,796	4,381
2013	5,610	4,463
2014	5,437	4,540
2015	5,375	4,643
2016	5,290	4,720
2017	5,072	4,844

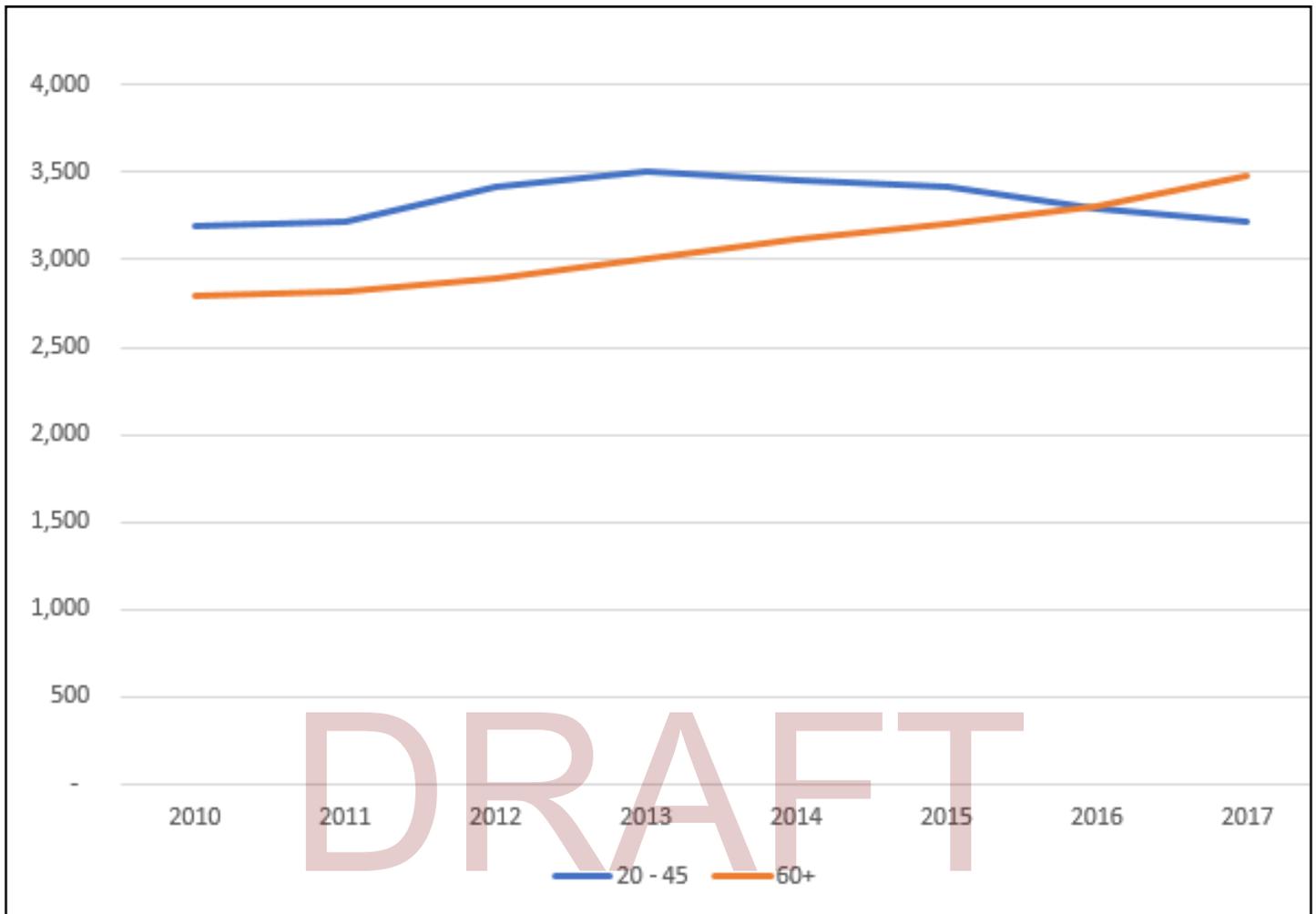
## Pasquotank County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	13,882	5,281
2011	13,827	5,371
2012	13,845	5,520
2013	13,843	5,645
2014	13,490	5,785
2015	13,357	5,912
2016	13,175	6,068
2017	12,826	6,172

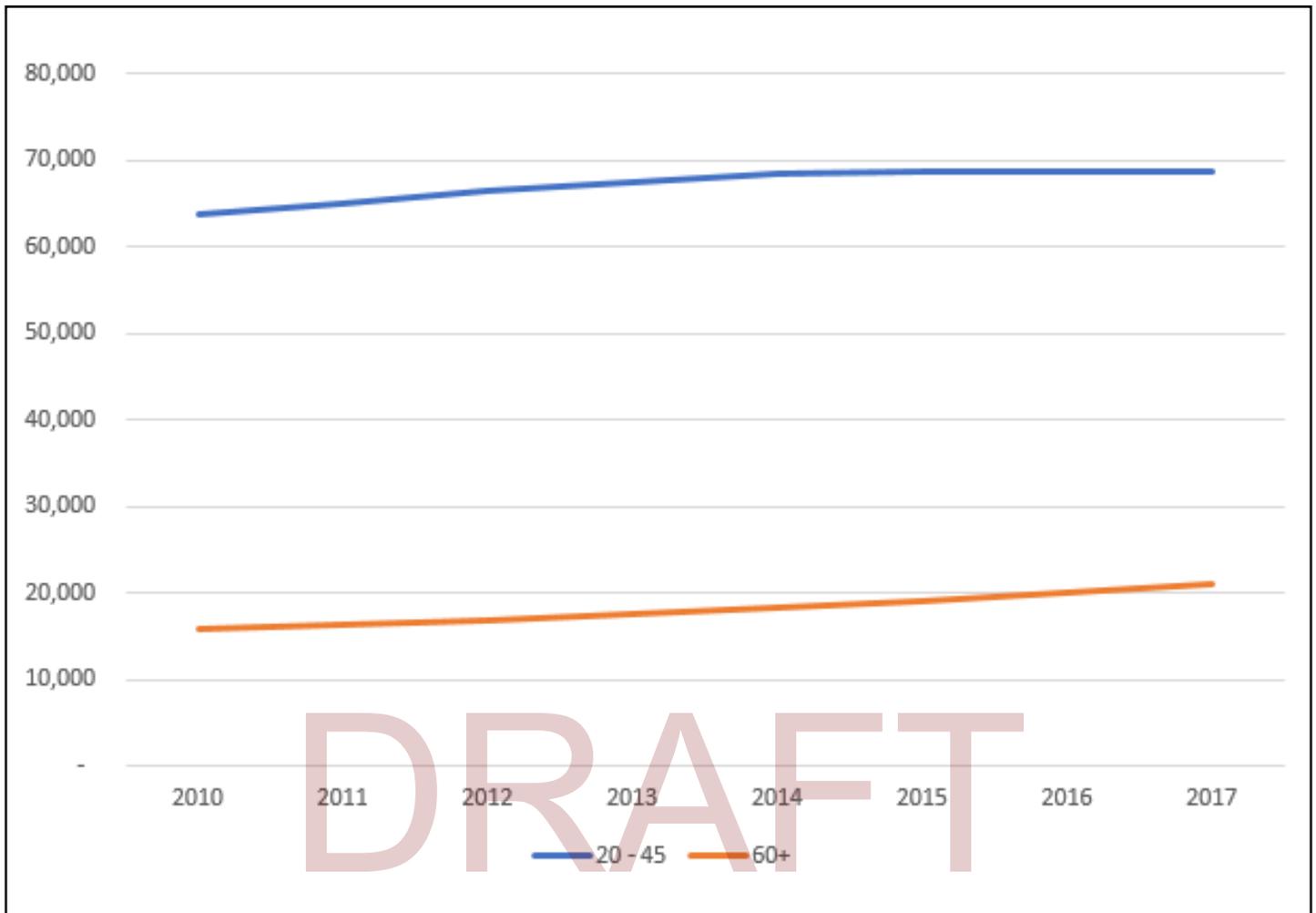
## Perquimans County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	3,191	2,791
2011	3,221	2,812
2012	3,415	2,888
2013	3,501	3,009
2014	3,457	3,115
2015	3,412	3,200
2016	3,294	3,305
2017	3,212	3,483

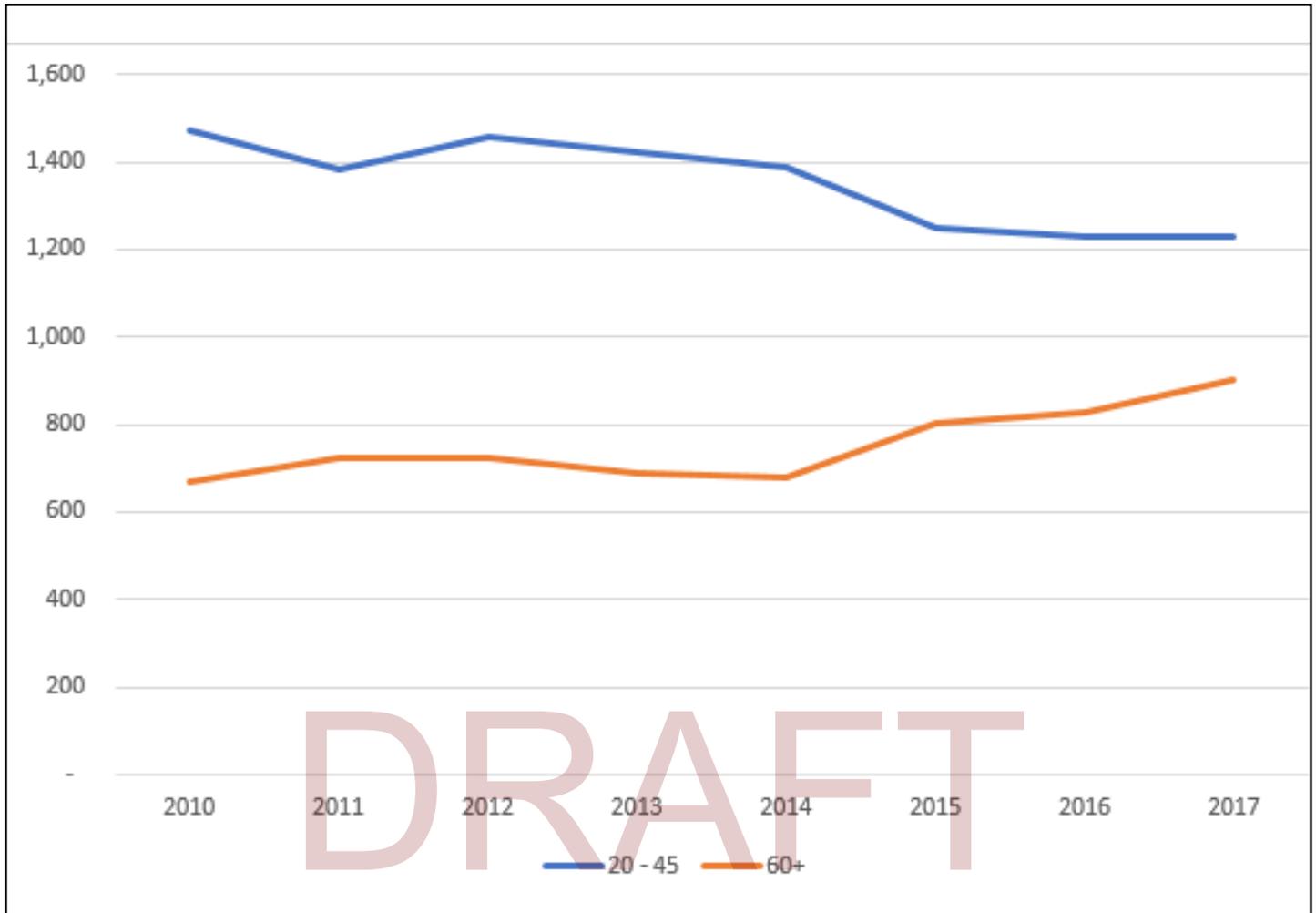
## Pitt County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	63,715	15,712
2011	64,949	16,245
2012	66,348	16,893
2013	67,564	17,607
2014	68,317	18,314
2015	68,799	19,105
2016	68,695	19,902
2017	68,755	21,106

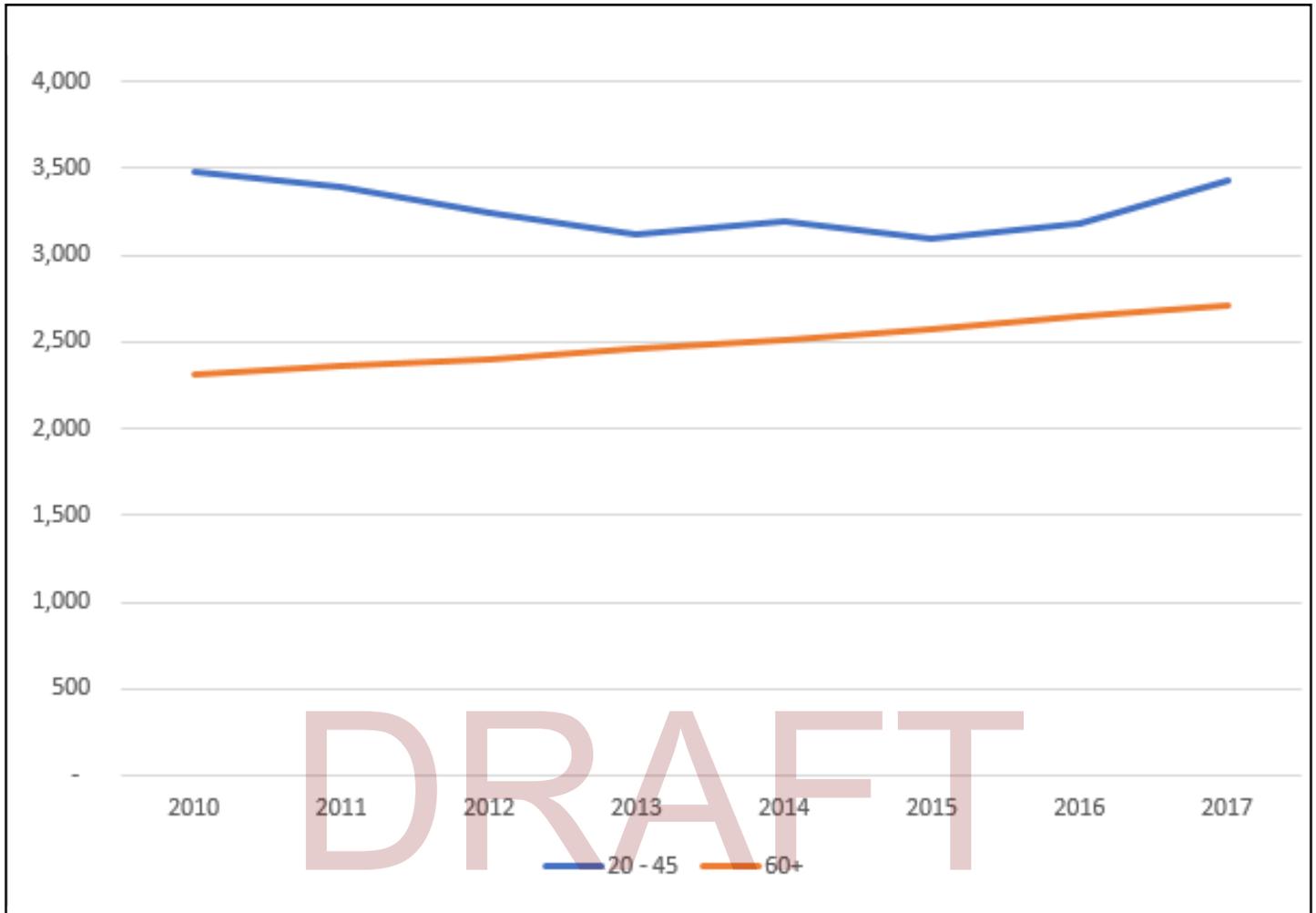
## Tyrell County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	1,473	667
2011	1,385	724
2012	1,457	723
2013	1,420	687
2014	1,386	681
2015	1,251	804
2016	1,228	829
2017	1,230	901

## Washington County: Change in 20-45 and 60+ Year-Old Population Groups



Source: US Census Bureau

Year	20-45 Year Olds	60+ Year Olds
2010	3,477	2,307
2011	3,389	2,356
2012	3,247	2,402
2013	3,117	2,460
2014	3,196	2,517
2015	3,095	2,577
2016	3,177	2,647
2017	3,435	2,710