



# NORTH CAROLINA

## Department of Transportation



## North Carolina's Supply Chain: Competitive Advantage

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# Introduction

## Dana Magliola

- Statewide Multimodal Freight & Logistics Program Manager, NCDOT Rail Division; NCDOT Supply Chain SME
- Connecting transportation strategy, planning and investment to commerce and industry
- Maritime, freight forwarding, applied research background
- Staff liaison for NC TOWERS Infrastructure Subcommittee



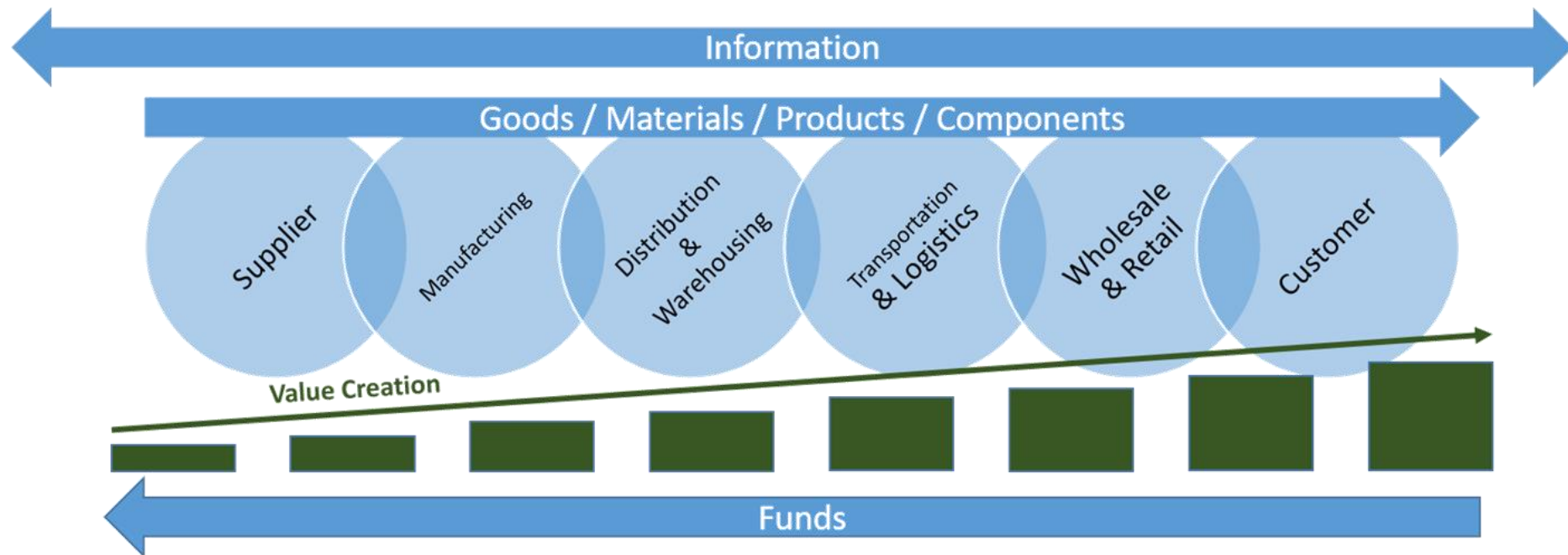
*If you have questions, please feel free to ask and we'll save time for questions at the end*

# Agenda

- OSW Supply Chain Opportunity
- North Carolina's Multimodal Priority Freight Network & Supply Chain Assets
- North Carolina's Industrial Ecosystem
- Workforce & Industrial Development Resources



# OSW Supply Chain Opportunity



The flow of **Information, Goods, & Funds.**

## OSW Supply Chain Opportunity

Supply chain investment truth: *Supply chain asset investment follows the marketplace*

- Example: global cold-chain storage construction market anticipated growth to \$18.6B by 2027 vs. \$7B in 2019
- Estimated \$500M investment in cold-chain storage, warehousing & logistics in North Carolina
- Offshore Wind Power sector projected to invest \$140B by 2035

*On-terminal temperature-controlled storage at the Port of Wilmington, NC – Photo (c) Port City Daily*

# OSW Supply Chain Opportunity

**2035?**

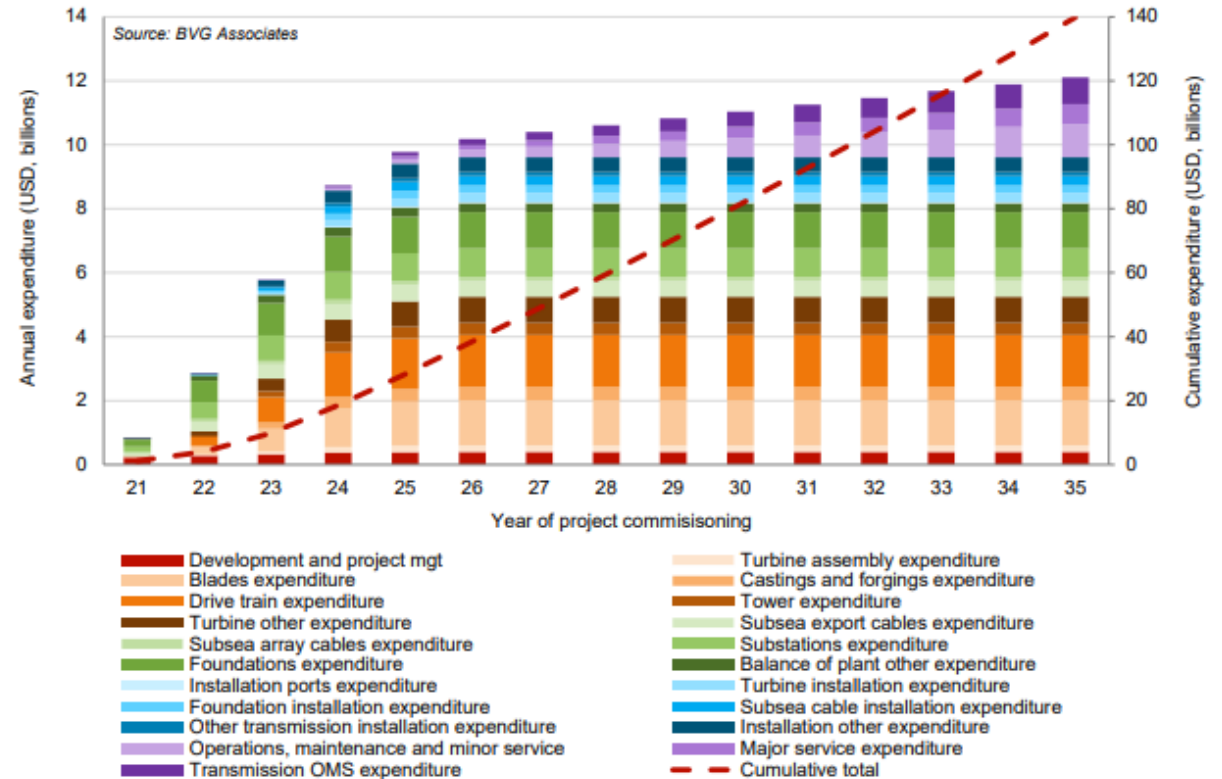
So, what is the timeframe for investment?  
So, when is our window of opportunity?

**Now.**



Building North Carolina's Offshore Wind Supply Chain, NCDOT, March 2021

## 2.2 Forecast of expenditure



## OSW Supply Chain Opportunity

“

**North Carolina’s “existing strength in quality manufacturing and its enduring manufacturing-friendly environment that exceeds that of any east coast state to supply the physical supply chain” for offshore wind power sector development.**

”



Building North Carolina's Offshore Wind Supply Chain, NCDOT, March 2021

# OSW Supply Chain Opportunity

## What's in North Carolina today?

- A robust supply industrial supply chain ecosystem including significant infrastructure assets statewide
- Manufacturing capabilities for turbine components and the OSW supply chain
- Domestic availability of raw materials
- Capacity to recycle wind components/materials
- Domestic infrastructure capable of facilitating OSW manufacture and installation
- Innovation, technology and workforce

*LS Cable & System USA manufactures a wide array of industrial cables in Tarboro, NC*

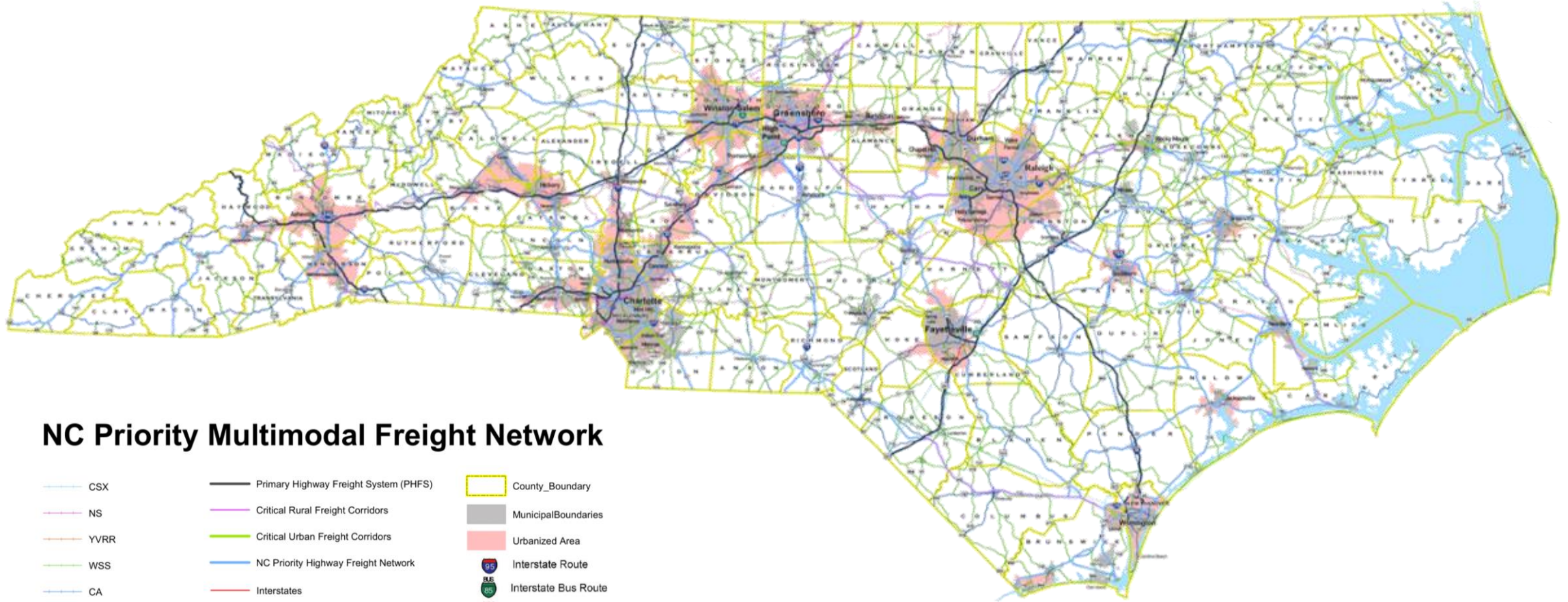






## NC's Multimodal Priority Freight Network & Supply Chain Assets

*NCDOT's Priority Multimodal Freight Network is a part of your supply chain.*



### NC Priority Multimodal Freight Network

- |      |                                       |                      |
|------|---------------------------------------|----------------------|
| CSX  | Primary Highway Freight System (PHFS) | County_Boundary      |
| NS   | Critical Rural Freight Corridors      | MunicipalBoundaries  |
| YVRR | Critical Urban Freight Corridors      | Urbanized Area       |
| WSS  | NC Priority Highway Freight Network   | Interstate Route     |
| CA   | Interstates                           | Interstate Bus Route |
| CLNA | Other US Routes                       | US Route             |
| ACWR | Other NC Routes                       | State Route          |

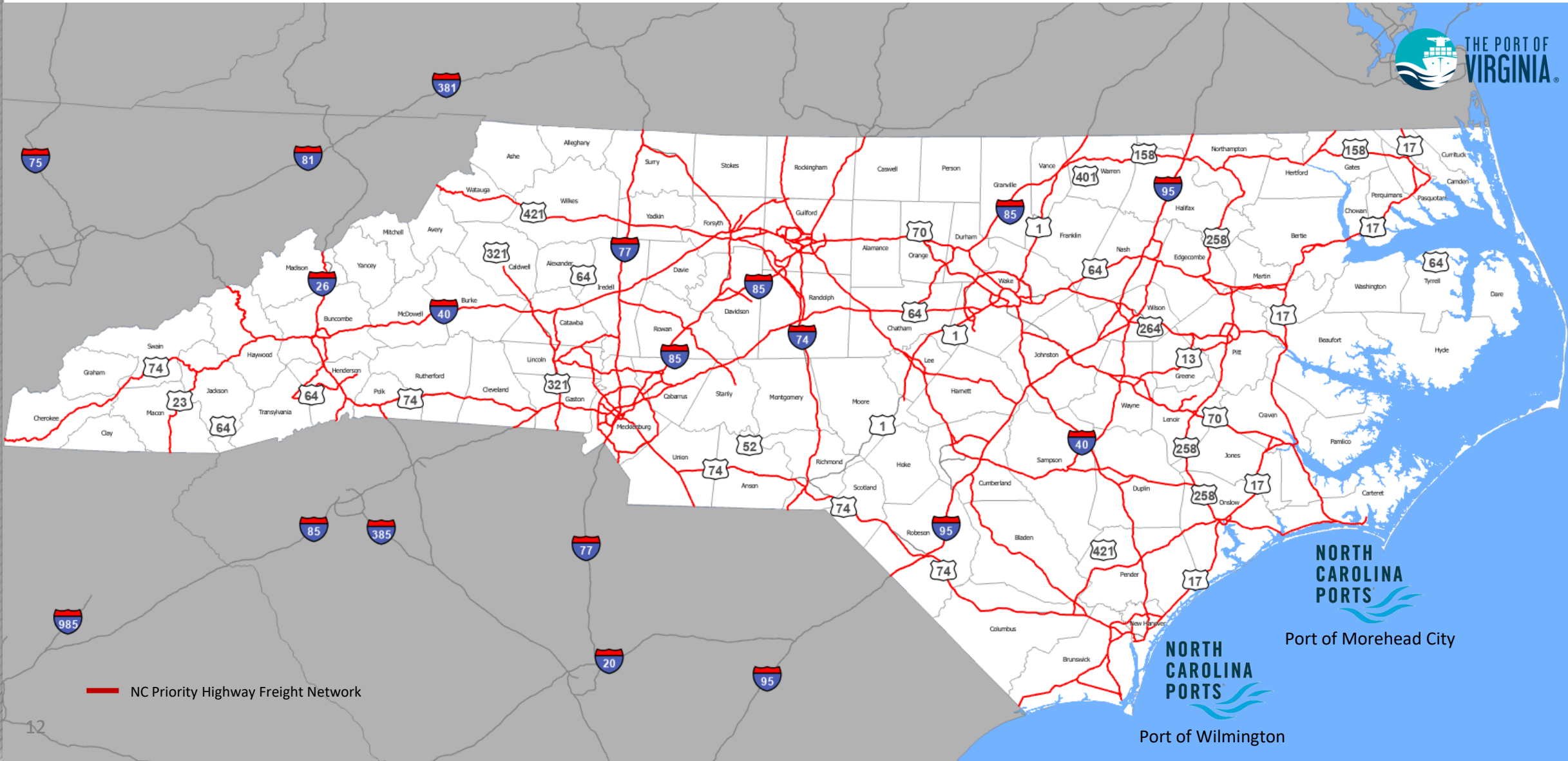
# North Carolina Priority Highway Freight Network

## NC Priority Highway Freight Network

- Nearly 4,000 miles of Interstate, US and state routes important to freight transport
- Efficient, competitive routes to maritime ports at Morehead City, Wilmington, and Norfolk
- Easy and affordable overweight/oversized permitting process
- NCDOT congestion analysis resources can inform supply chain optimization
- Full catalog of routing limitations for air draft or highway geometry



# North Carolina Priority Highway Freight Network





# Maritime Supply Chain Assets

*North Carolina Ports are strategically positioned within 700 miles of more than 70% of the US industrial base*

## Port of Wilmington

- Container Services; Bulk; Breakbulk; Ro/Ro; Reefer; Cold Storage; OOG/Project Cargo
- 284 acres, 9 berths with 6,740 ft of wharf frontage including on-dock rail

## Port of Morehead City

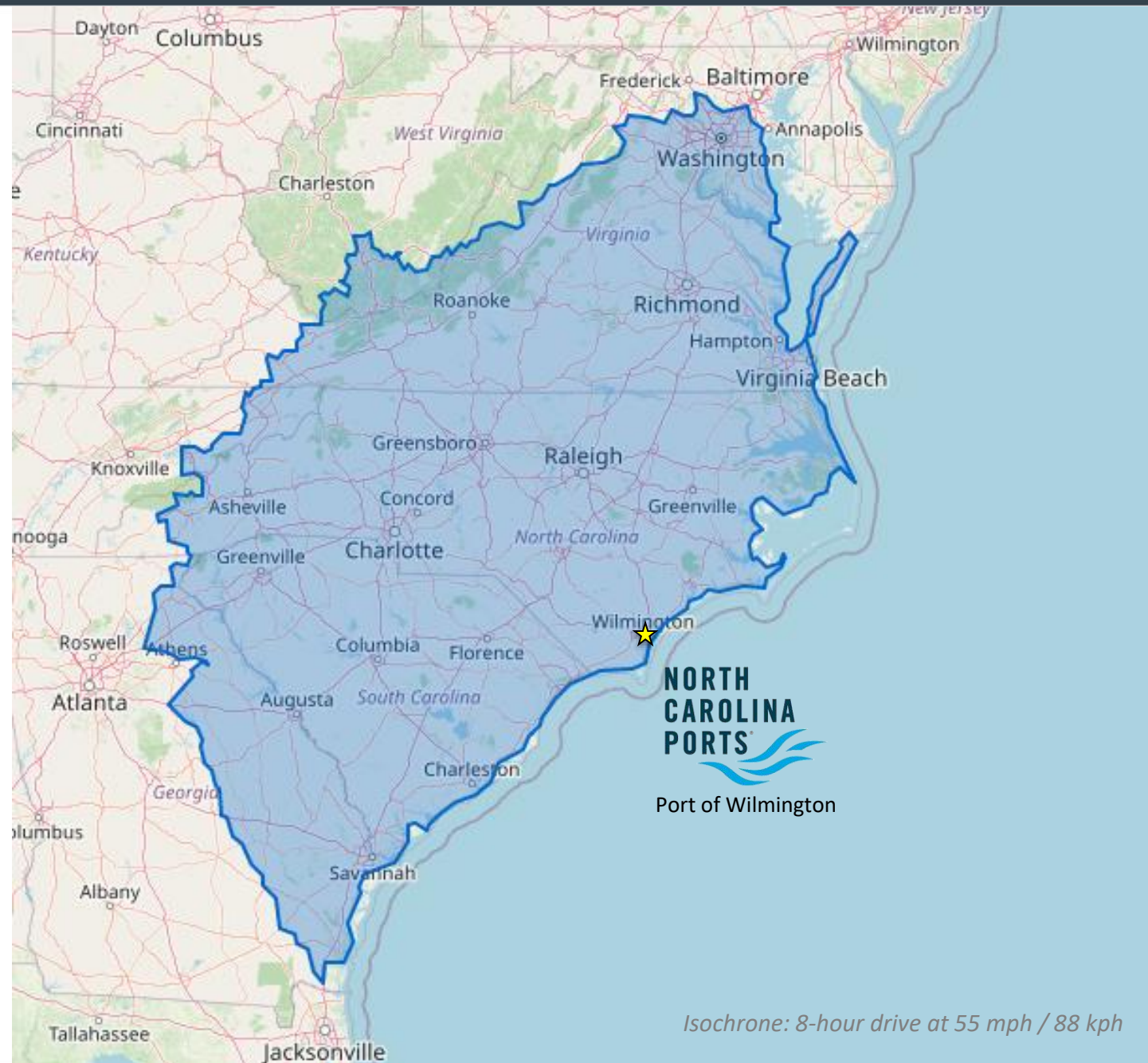
- Bulk; Breakbulk; Ro/Ro; Cold Storage; OOG/Project Cargo; Barge
- 128 acres, 9 berths with 5,366 ft of wharf frontage including on-dock rail; 150 acres available for development on Radio Island



# Maritime Supply Chain Assets

## *Port of Wilmington*

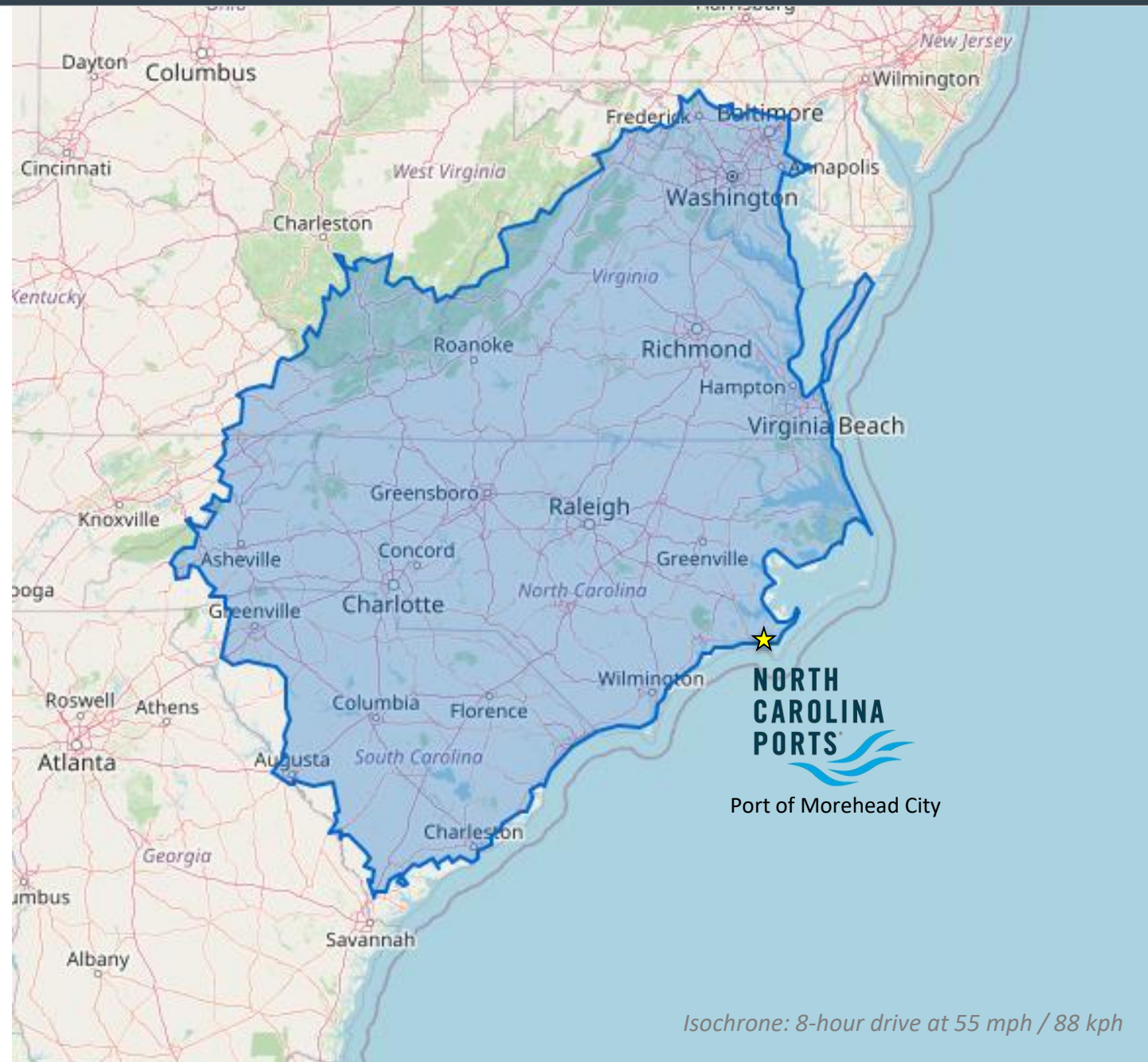
- 600,000 TEU capacity container terminal; 7 container cranes
- 284 acres, 9 berths with 6,740 ft of wharf frontage including on-dock rail
- More than 1M sq ft of covered and sprinklered storage
- 775+ Reefer plugs on terminal
- 26 miles from the open sea on the Cape Fear River with 42 ft MLLW channel
- Maximum air draft of 212 ft
- Direct connectivity to hinterland via I-40, NC Priority Highway Freight Network
- Foreign Trade Zone 214; C-TPAT Certified
- Intermodal rail provided by CSX Transportation



# Maritime Supply Chain Assets

## ***Port of Morehead City***

- Bulk and Breakbulk port terminal
- 128 acres, 9 berths with 5,366 ft of wharf frontage including on-dock rail
- 150 acres available for development on Radio Island
- More than 1M sq ft of covered storage and 43 acres of open storage area
- 4 miles from the open sea with 45 ft MLLW channel; No air draft restrictions
- Direct connectivity to hinterland via US-70; US-17 and NC Priority Highway Freight Network
- Foreign Trade Zone 214; C-TPAT Certified
- Intermodal rail provided by Norfolk Southern





# Railroads

## NC Priority **Rail** Freight Network

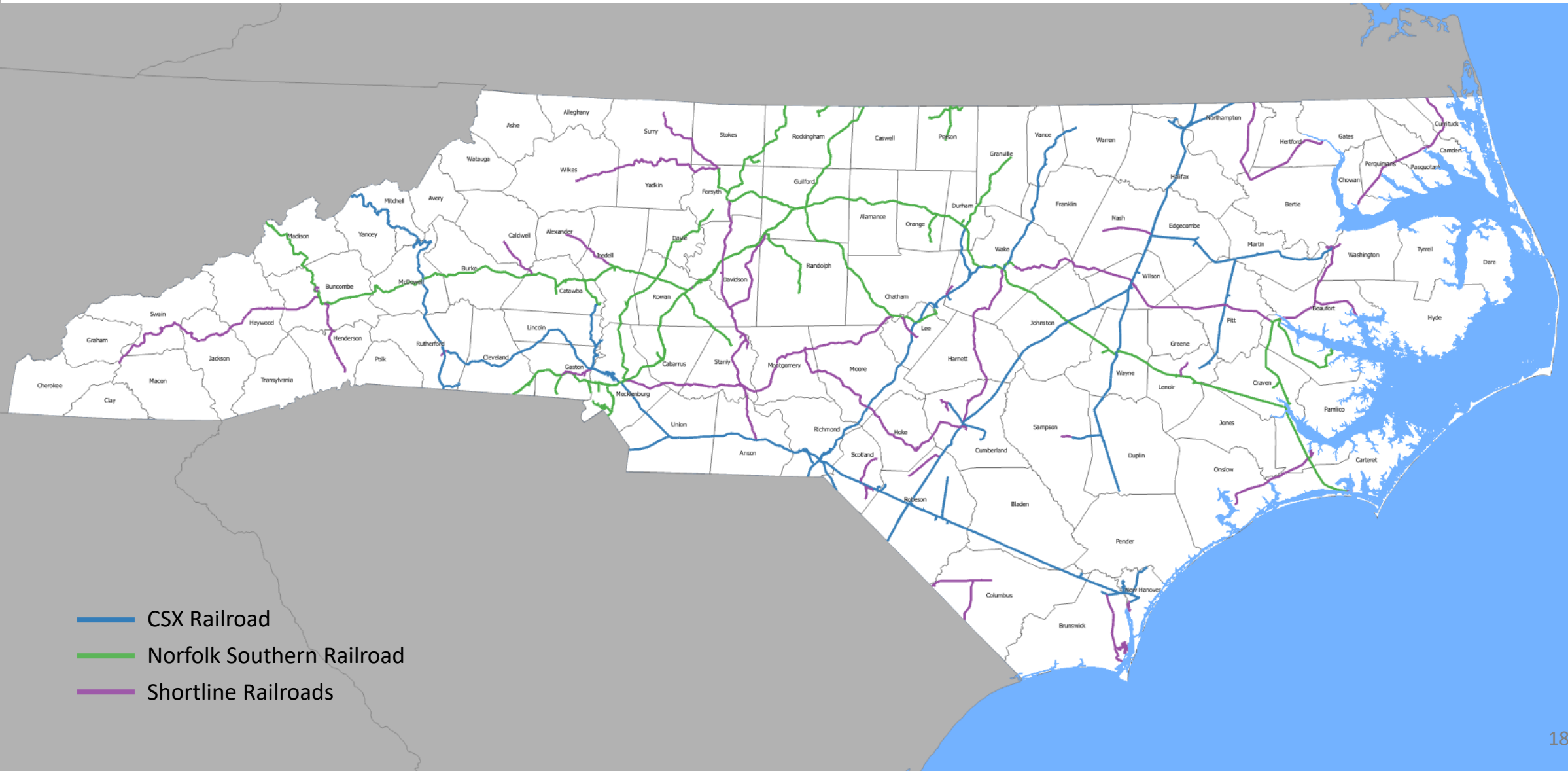
- Nearly 2,110 mi of railroad serving 86 of North Carolina's 100 counties
- Class 1s CSX and Norfolk Southern serve interstate routes with double-stack and dimensional load capacity
- Shortlines operate on-port, regionally, statewide to provide connectivity through transload and intermodal facilities
- Efficient, competitive routes to maritime ports at Morehead City, Wilmington, and Norfolk
- Full catalog of routing limitations for air draft or railroad geometry

*Norfolk Southern intermodal train with double-stack container rail cars*

*Photo: © NCDOT Rail Division 17*



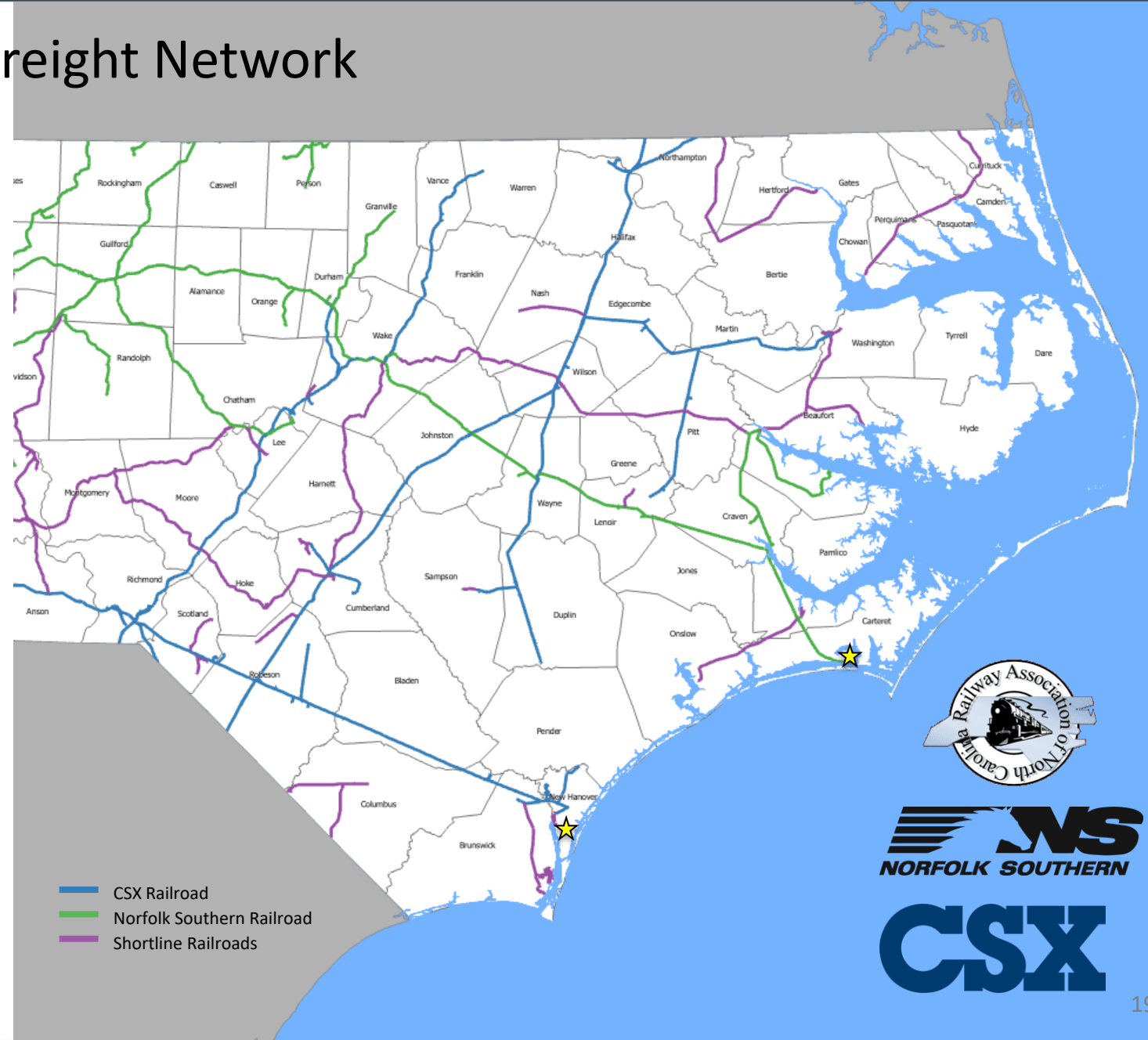
# North Carolina Priority Rail Freight Network



# North Carolina Priority Rail Freight Network

North Carolina Priority Rail Freight Network routes serve maritime ports, manufacturing, and population centers:

- Class 1 railroads provide efficient connectivity to national network
  - CSX serves Wilmington (NC); VA
  - Norfolk Southern serves Morehead City (NC); VA
- 20+ Shortline railroads provide local and regional service, last-mile
- Rail network includes STRACNET (US Department of Defense's Strategic Rail Corridor)
- Resources for planning includes geospatial network data, performance/reliability, and resiliency analysis



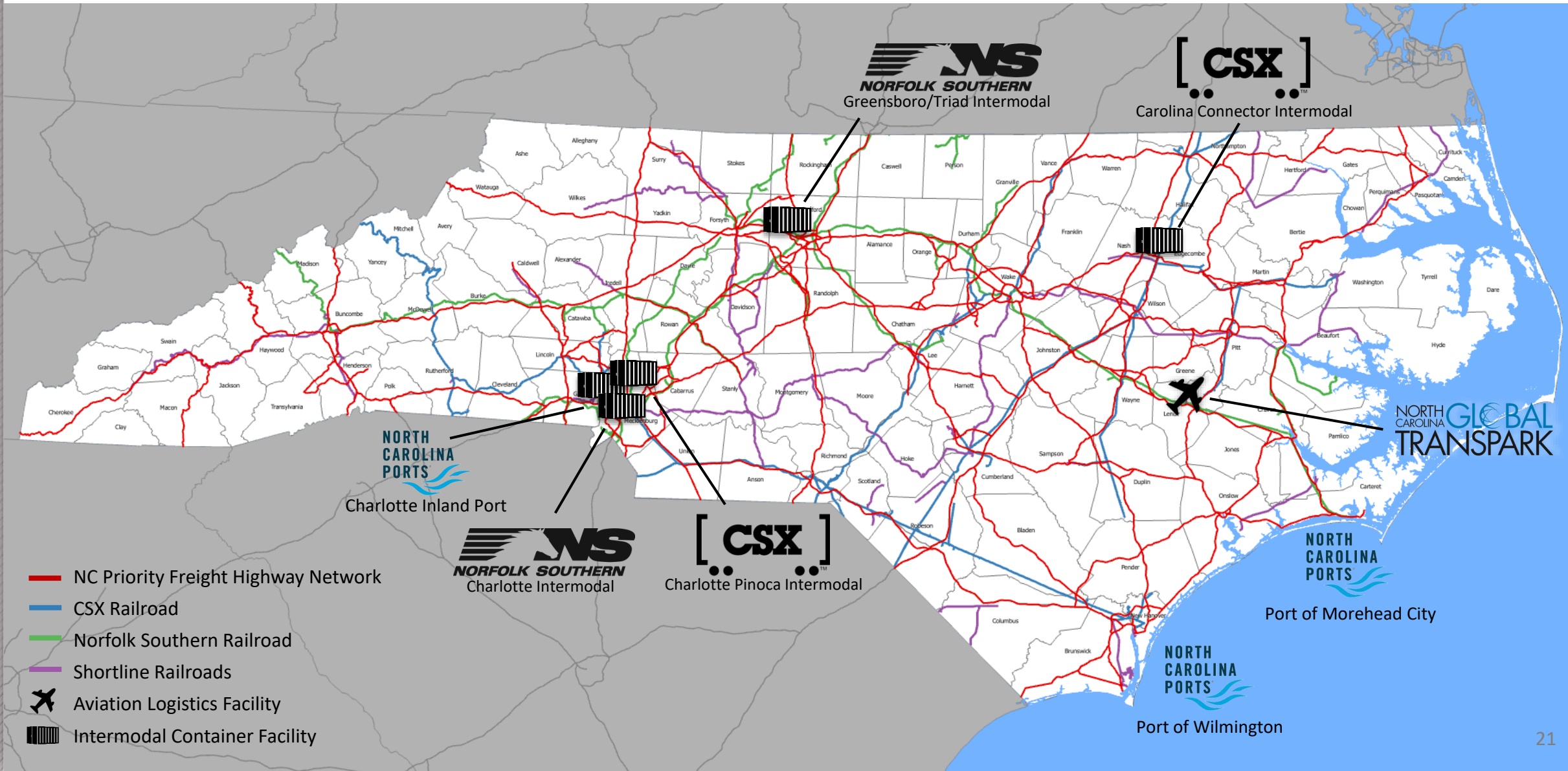
# Inland Supply Chain Assets

## ***Inland supply chain assets = capabilities.***

- CSX's Carolina Connector Intermodal Terminal in Rocky Mount (CCX)
- North Carolina Ports' Charlotte Inland Port (CIP)
- CSX Pinoca Intermodal in Charlotte
- Norfolk Southern's Charlotte Intermodal Facility
- Norfolk Southern's Greensboro Intermodal Container Facility
- NC Global TransPark aviation logistics, advanced manufacturing facility and airfield in Kinston (NCGTP)
- 13 active multimodal transload facilities connecting rail, highway, and more
- 20 of 35 active highway/intermodal connection sites on NHS in North Carolina serving freight



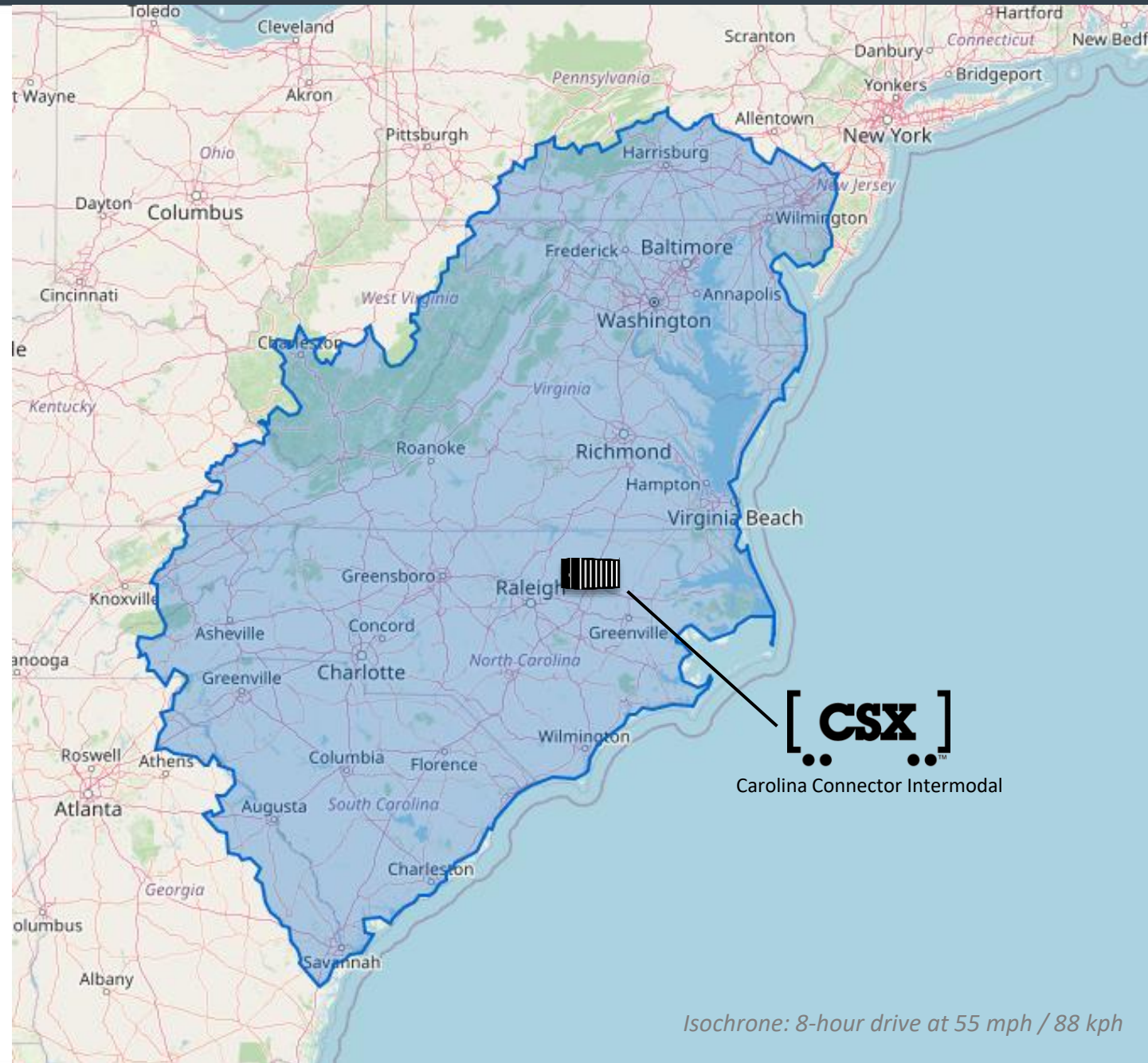
# Inland Supply Chain Assets



# Inland Supply Chain Assets

## ***Carolina Connector Intermodal Terminal (CCX) in Rocky Mount, NC***

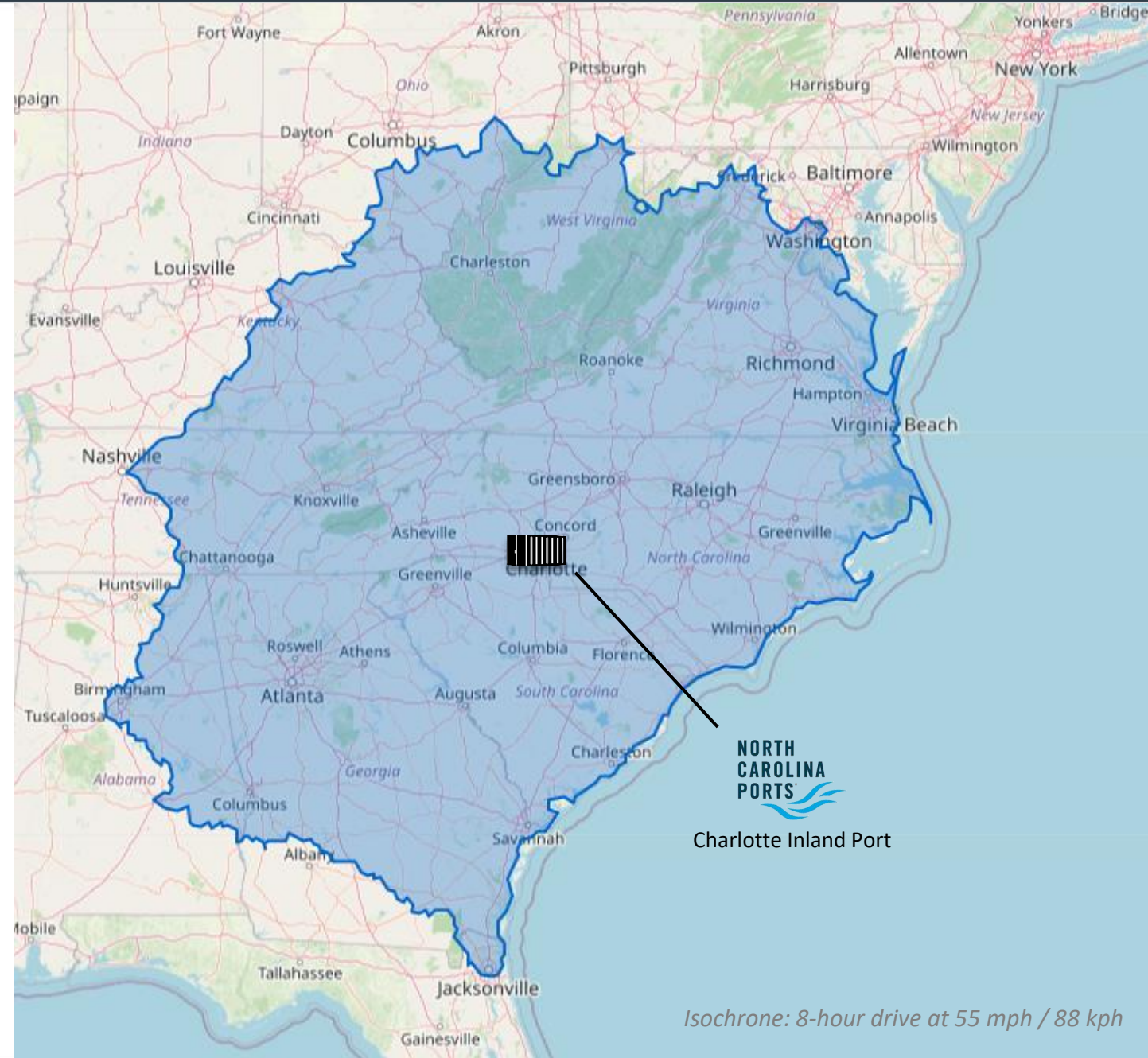
- 330-acre facility
- Serves the I-95 corridor
- 3 wide-span, zero-emission electric cranes with a lift capacity of 110,000 containers per year
- Wilmington Midwest Express provides reliable access to Chicago, NW Ohio, and St. Louis



# Inland Supply Chain Assets

## ***NC Ports' Charlotte Inland Port***

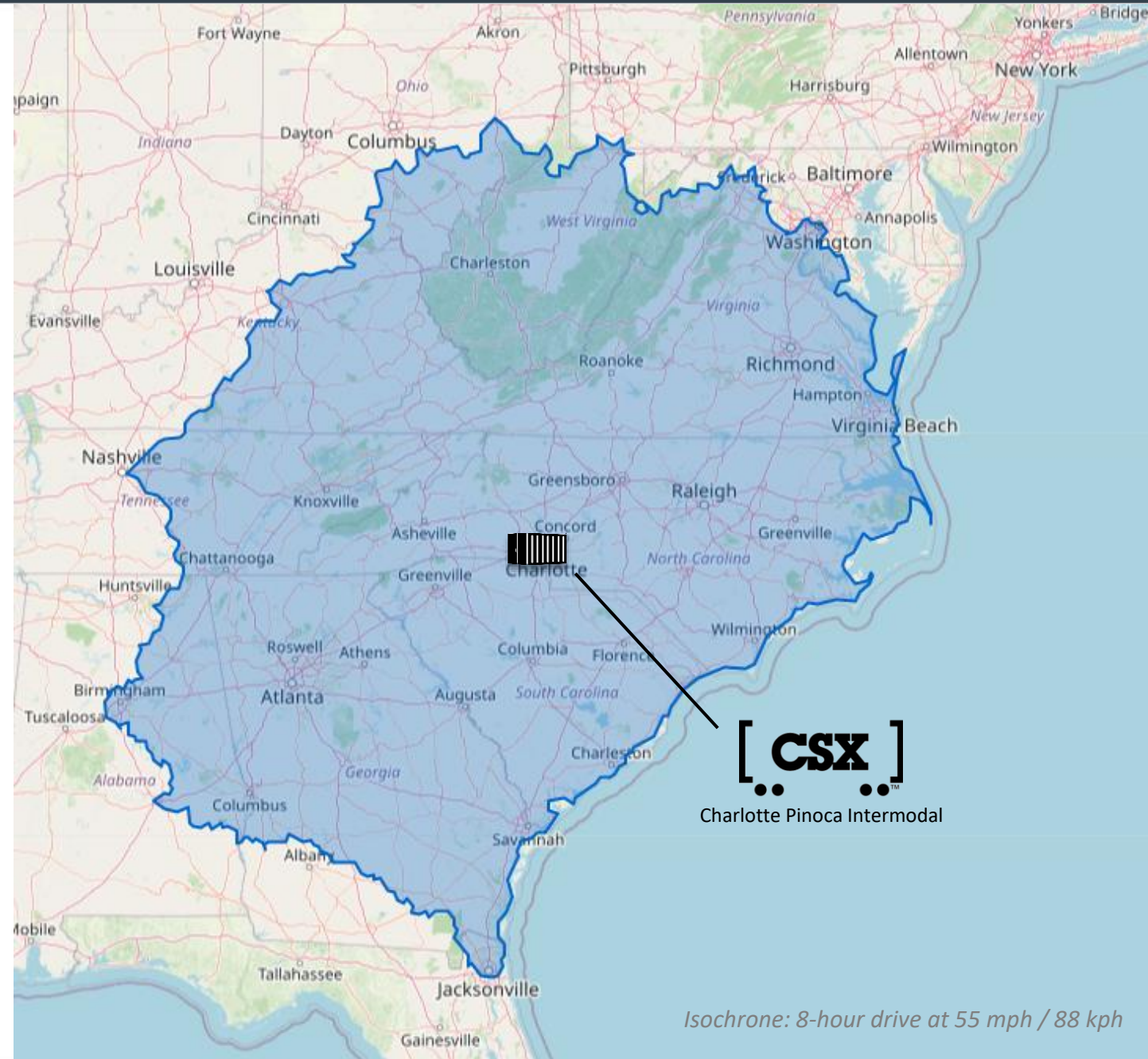
- 20-acre facility
- Inland intermodal container facility in Charlotte, NC
- Serves strategic I-85 and I-77 corridors
- *Queen City Express (CSX)* provides next-day service from Port of Wilmington



# Inland Supply Chain Assets

## CSX Pinoca Intermodal Facility

- 48-acre facility
- Inland intermodal container facility in Charlotte, NC
- Serves strategic I-85 and I-77 corridors

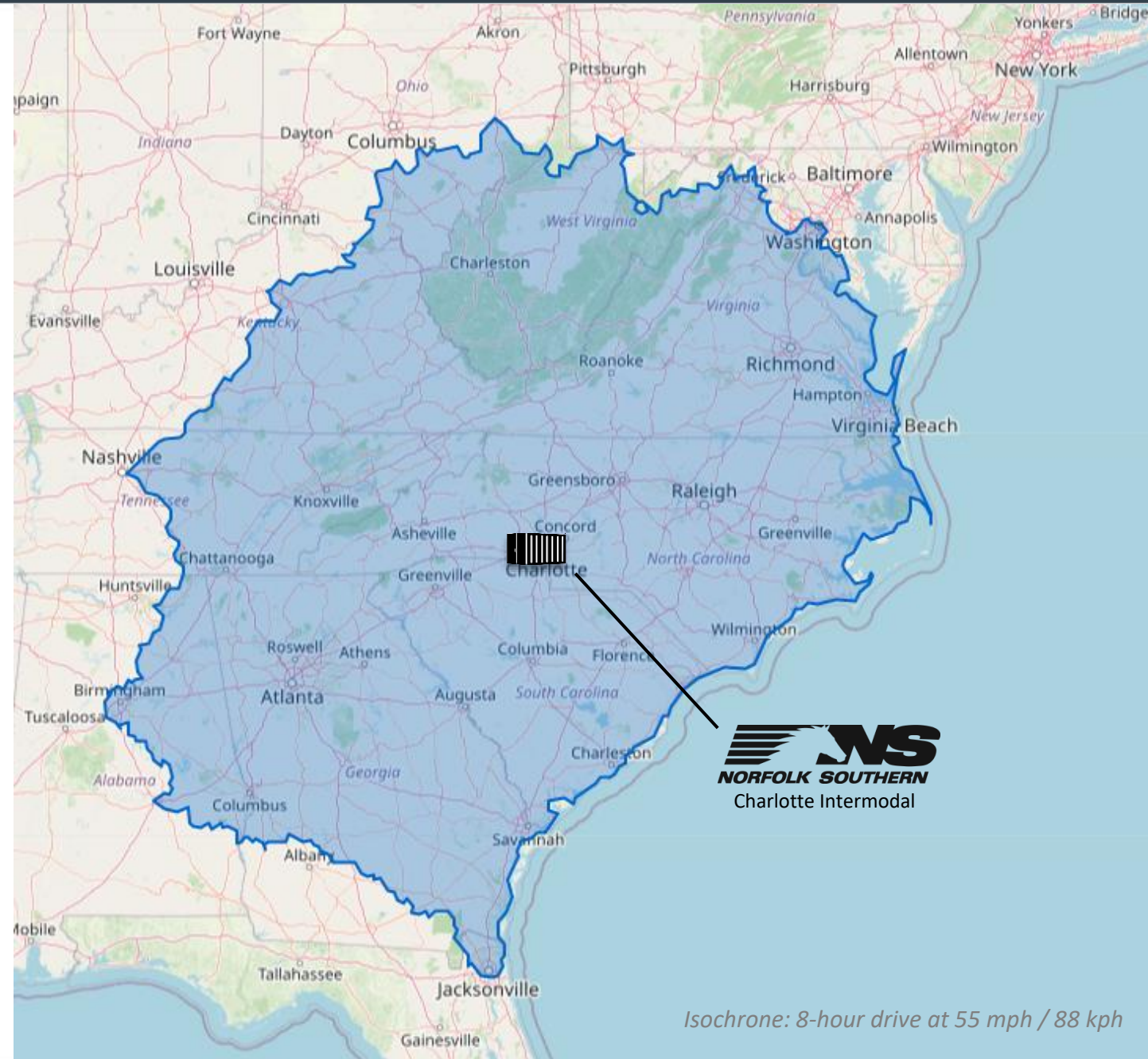




# Inland Supply Chain Assets

## ***Norfolk Southern Charlotte Intermodal***

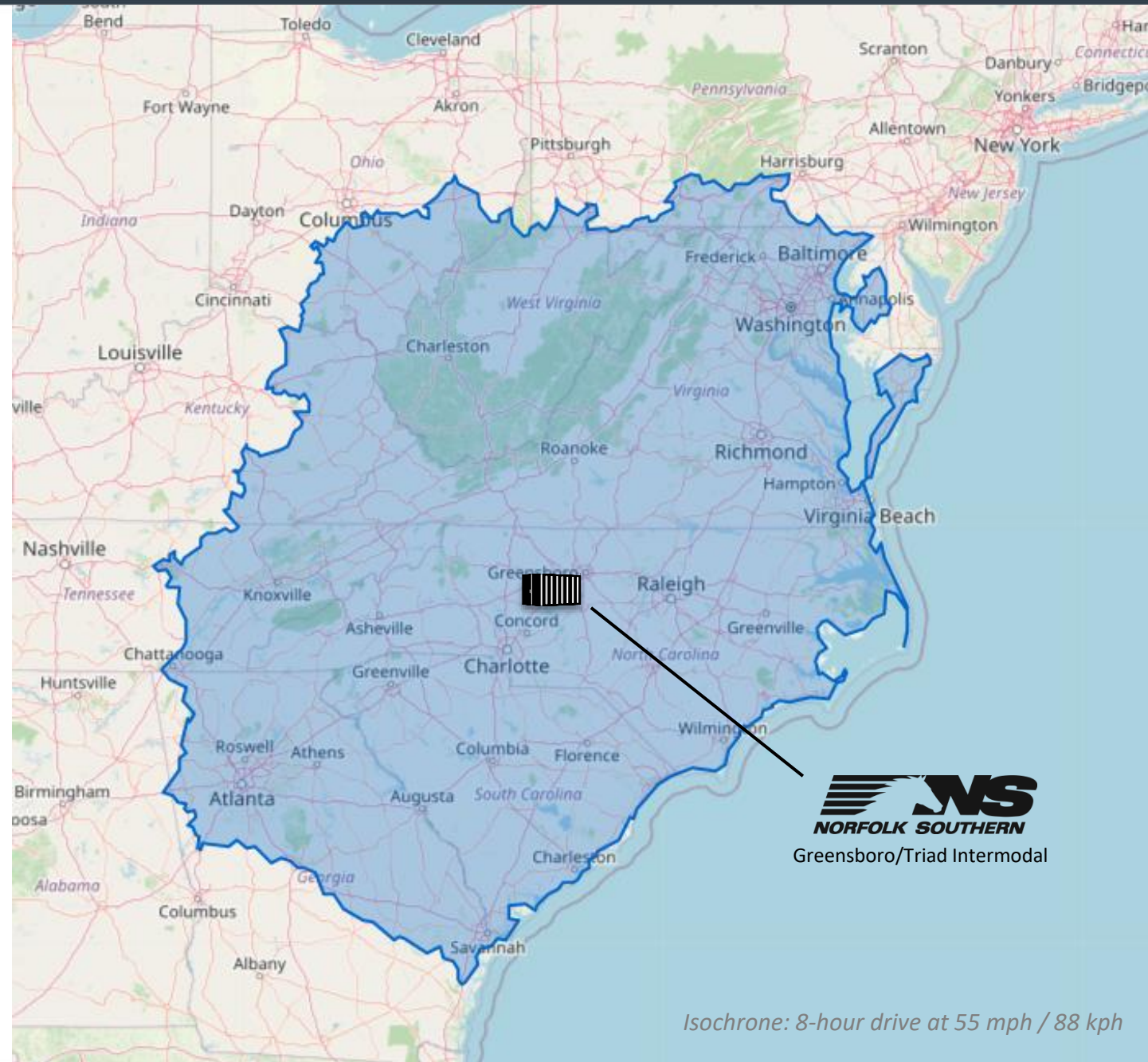
- 150-acre facility (296 acres fully developed)
- Inland intermodal container facility in Charlotte, NC
- Serves strategic I-85 and I-77 corridors
- Capacity of 250,000 annual cargo lifts
- Site includes loading area, storage yard, inbound and outbound drives, maintenance road, and drop zone



# Inland Supply Chain Assets

## ***Greensboro/Triad Intermodal Terminal***

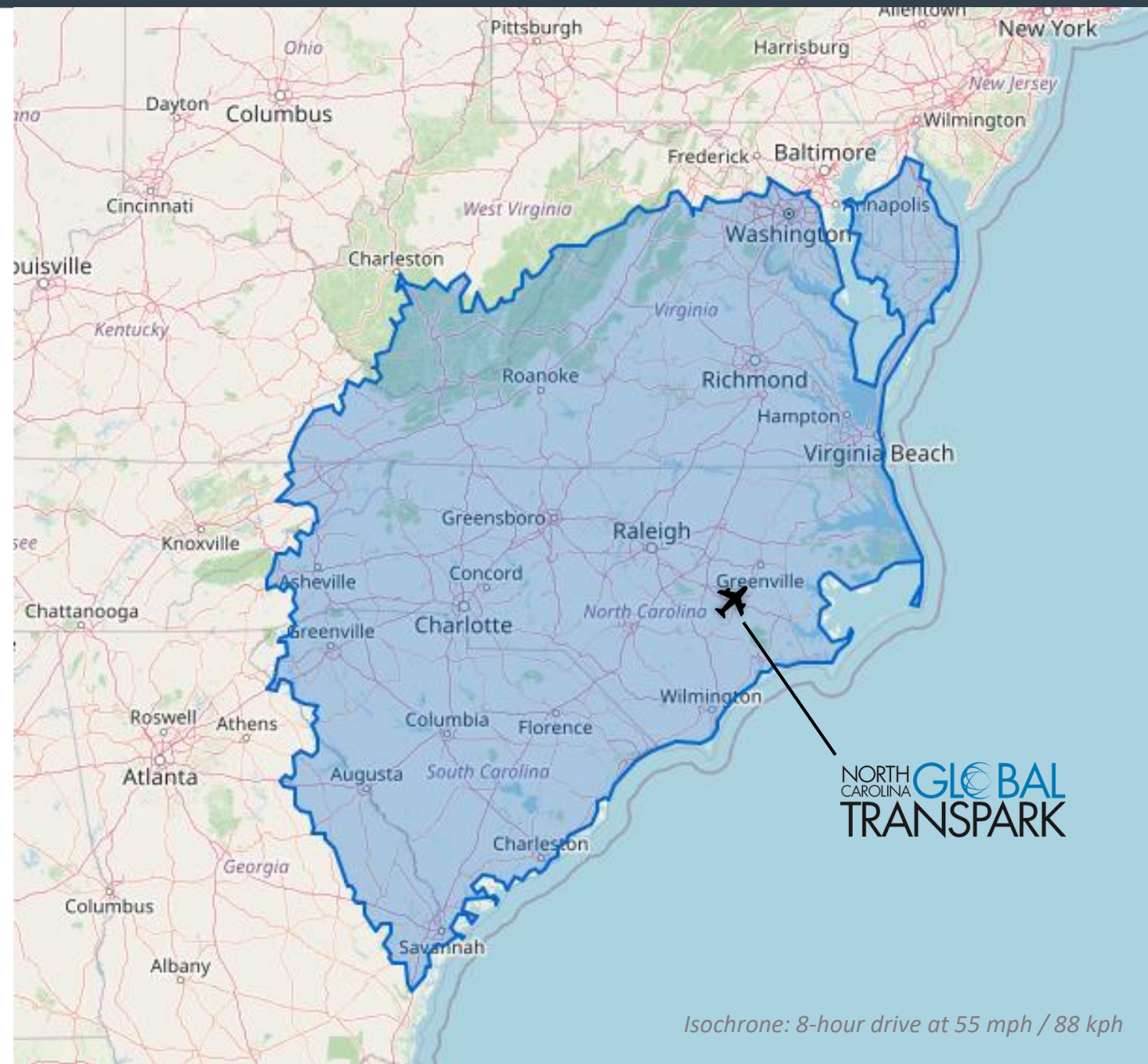
- 20-acre facility
- Norfolk Southern Class 1 Rail service
- General service through Port of Virginia
- 2 RTG (rubber-tire gantry cranes); top-lift assets
- Significant energy resources nearby (Colonial Pipeline)



# Inland Supply Chain Assets

## ***North Carolina Global TransPark***

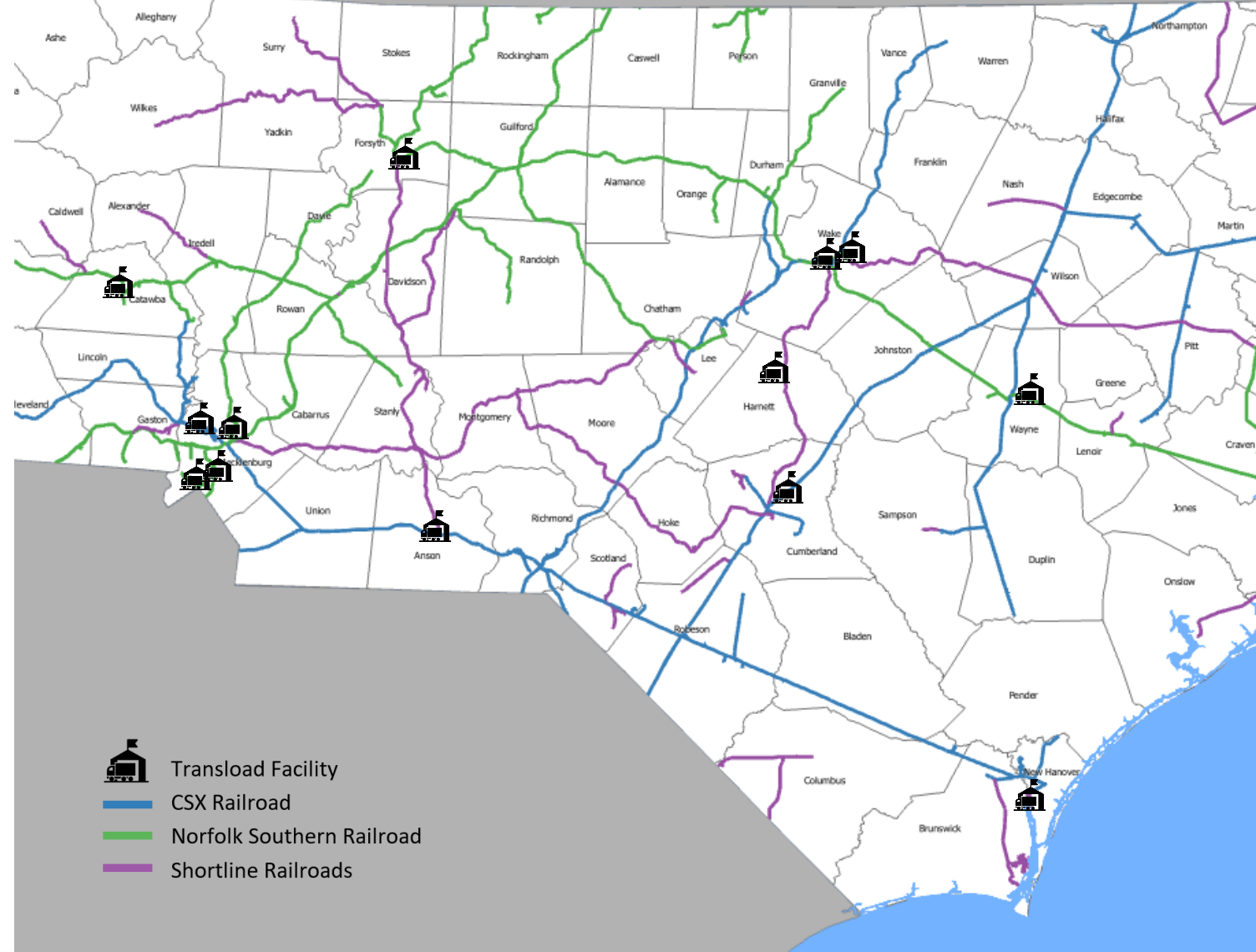
- Multimodal industrial park supporting manufacturing and logistics for aviation, aerospace, defense, emergency response and advanced materials industries
- 2,500-acre facility featuring a 11,500 ft runway with more than 5,775 acres of environmentally-permitted land adjacent
- On-site active community college training program with a 33,000 sq ft composite training center



# Inland Supply Chain Assets

## ***Transload Facilities***

- North Carolina has 13 active rail-served transload facilities connecting rail and highway freight users
- Transload facilities provide multimodal transport and last-mile logistics solutions
- Materials serviced include:  
Construction materials; warehouse merchandise; palletized freight; oversized cargo; vehicle or aerospace components; telecommunication equipment; heavy machinery; specialized freight; hazardous materials; climate-controlled product



# Aviation

- NCDOT Aviation investment and strategic planning supports economic development, manufacturing
- 72 publicly-owned airports
- 13 major air cargo-handling companies operating in North Carolina
- 22% growth in air cargo between 2019 and 2021
- Key airports include: Charlotte Douglas Intl.; Piedmont Triad Intl.; Raleigh-Durham Intl.; Coastal Carolina Regional, Wilmington Intl.; Rocky Mount/Wilson Regional
- Advanced air mobility including NCDOT's UAS Beyond Program



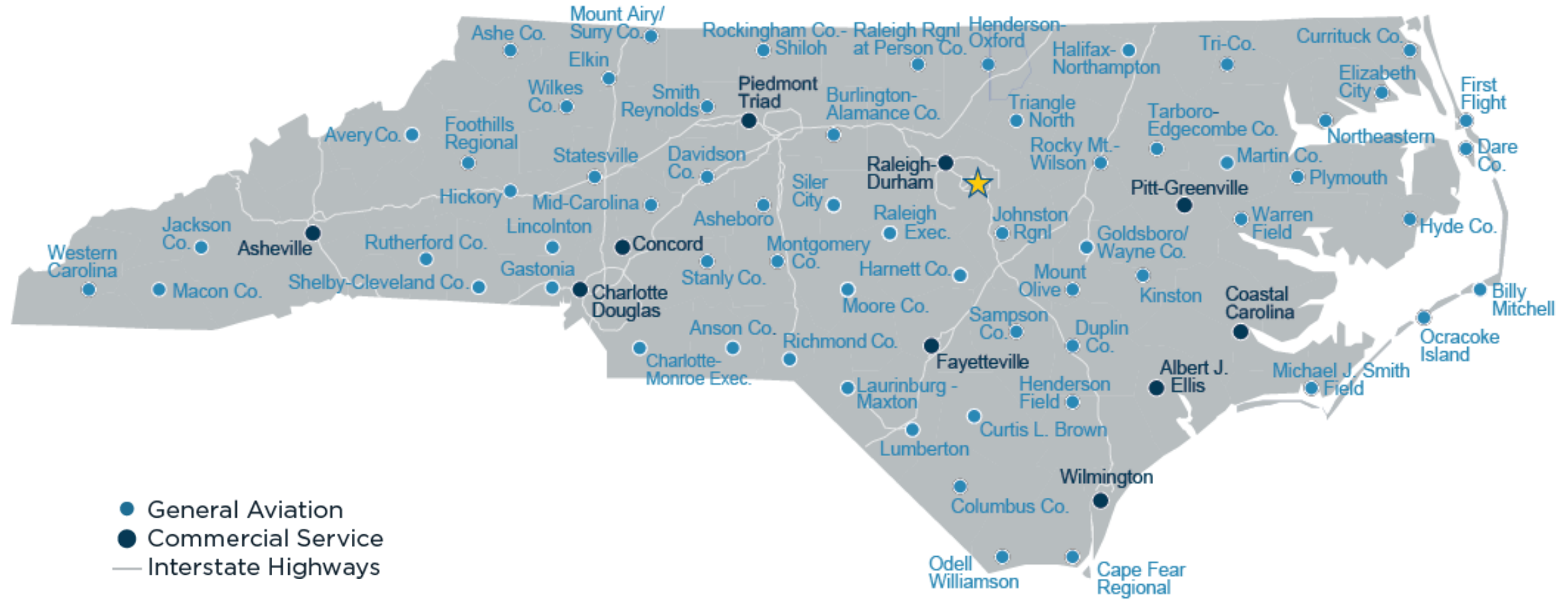
*Top 3 Airports - Air Cargo Activity in NC, 2019*

Airport Name	Total Tons	% Of Total
Charlotte Douglas International	85,967	44%
Piedmont Triad International	65,957	34%
Raleigh-Durham International	41,804	21%





# Aviation

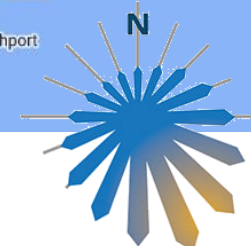
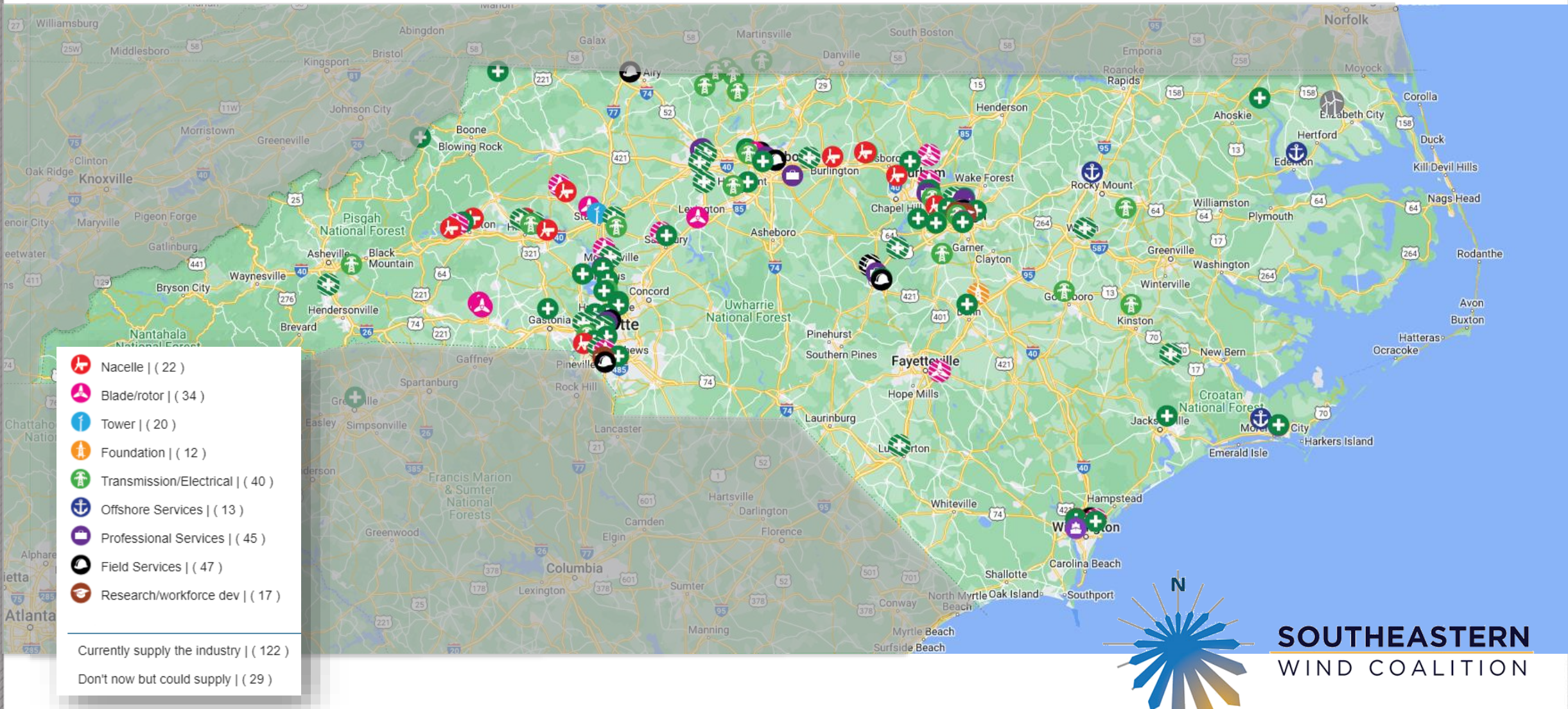




## North Carolina's Industrial Ecosystem

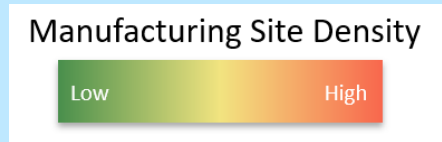
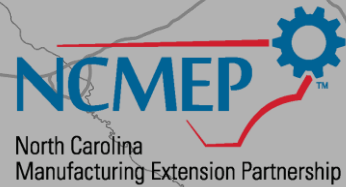
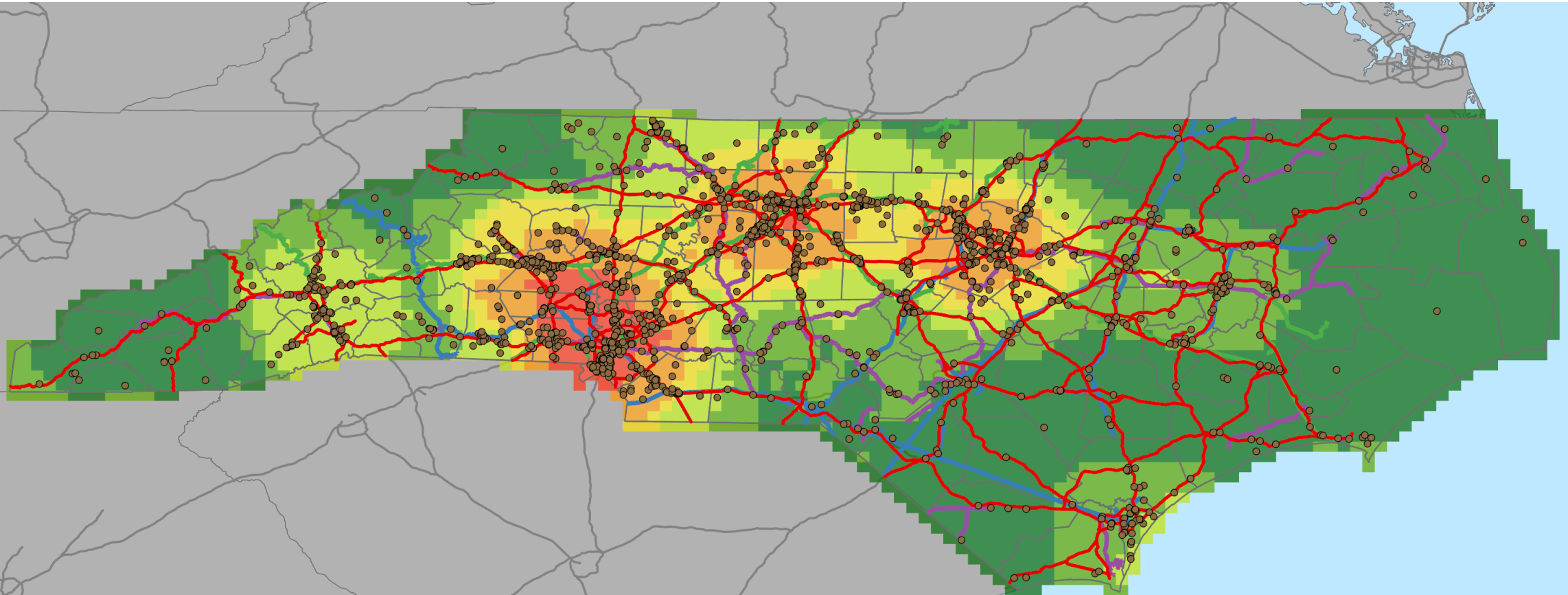


# North Carolina's Industrial Ecosystem



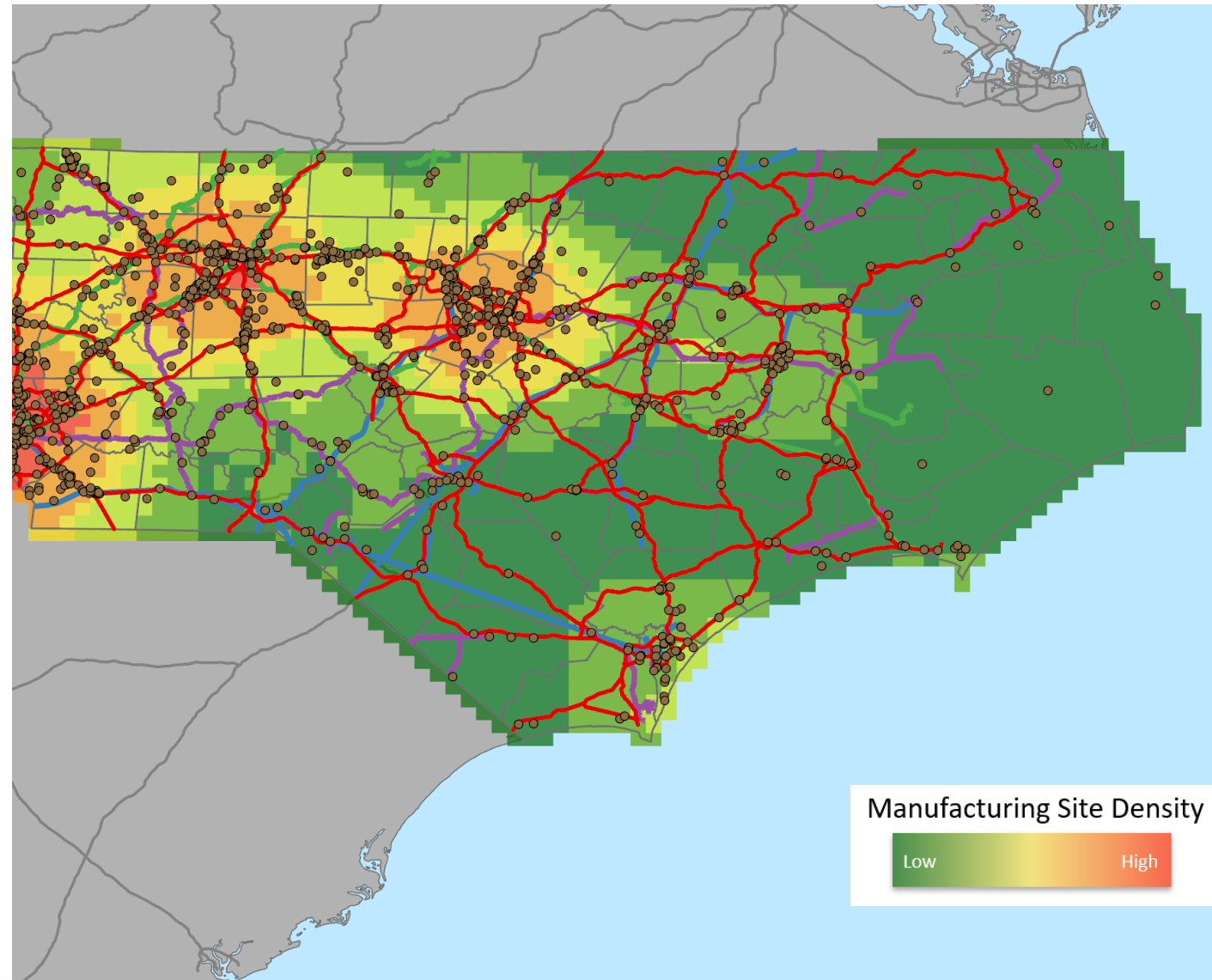
**SOUTHEASTERN**  
WIND COALITION

# North Carolina's Industrial Ecosystem

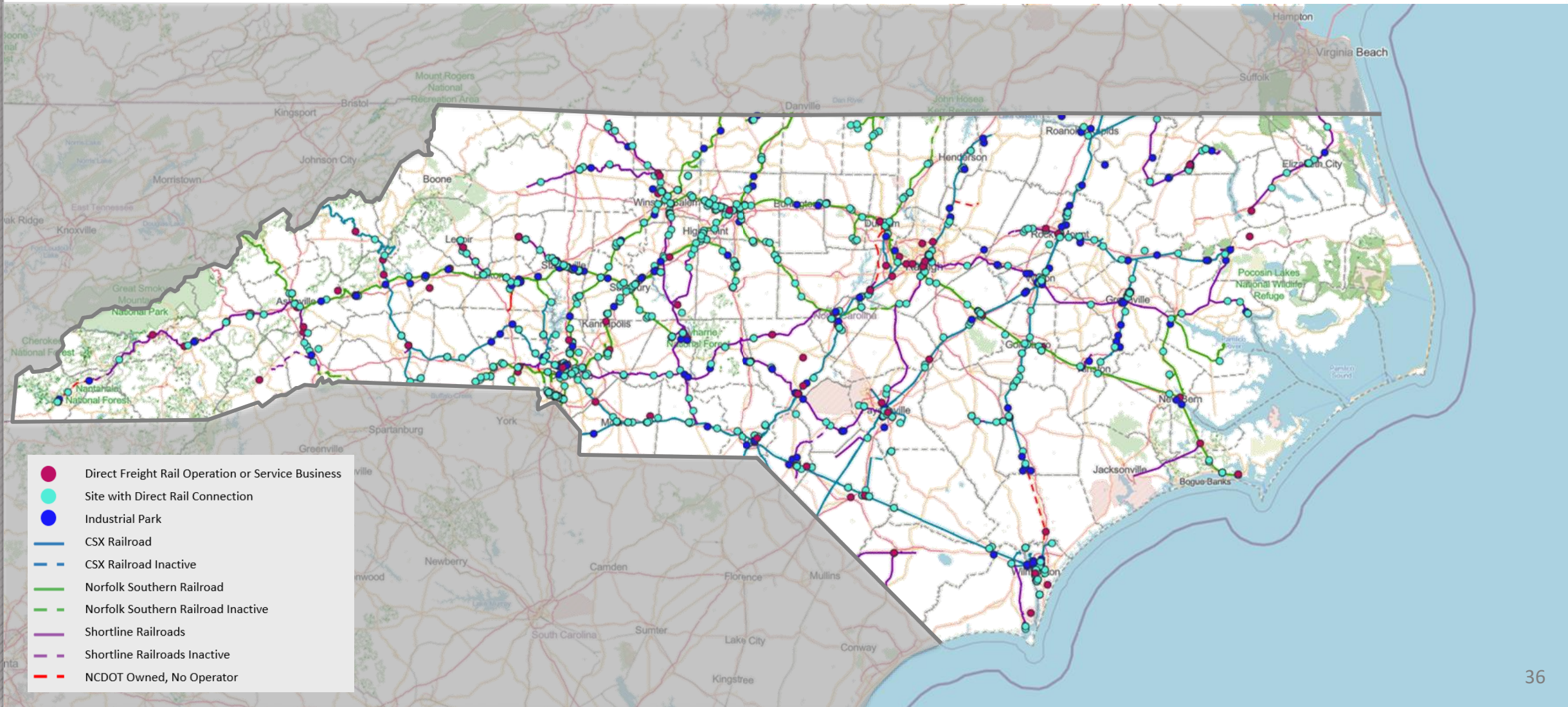


# North Carolina's Industrial Ecosystem

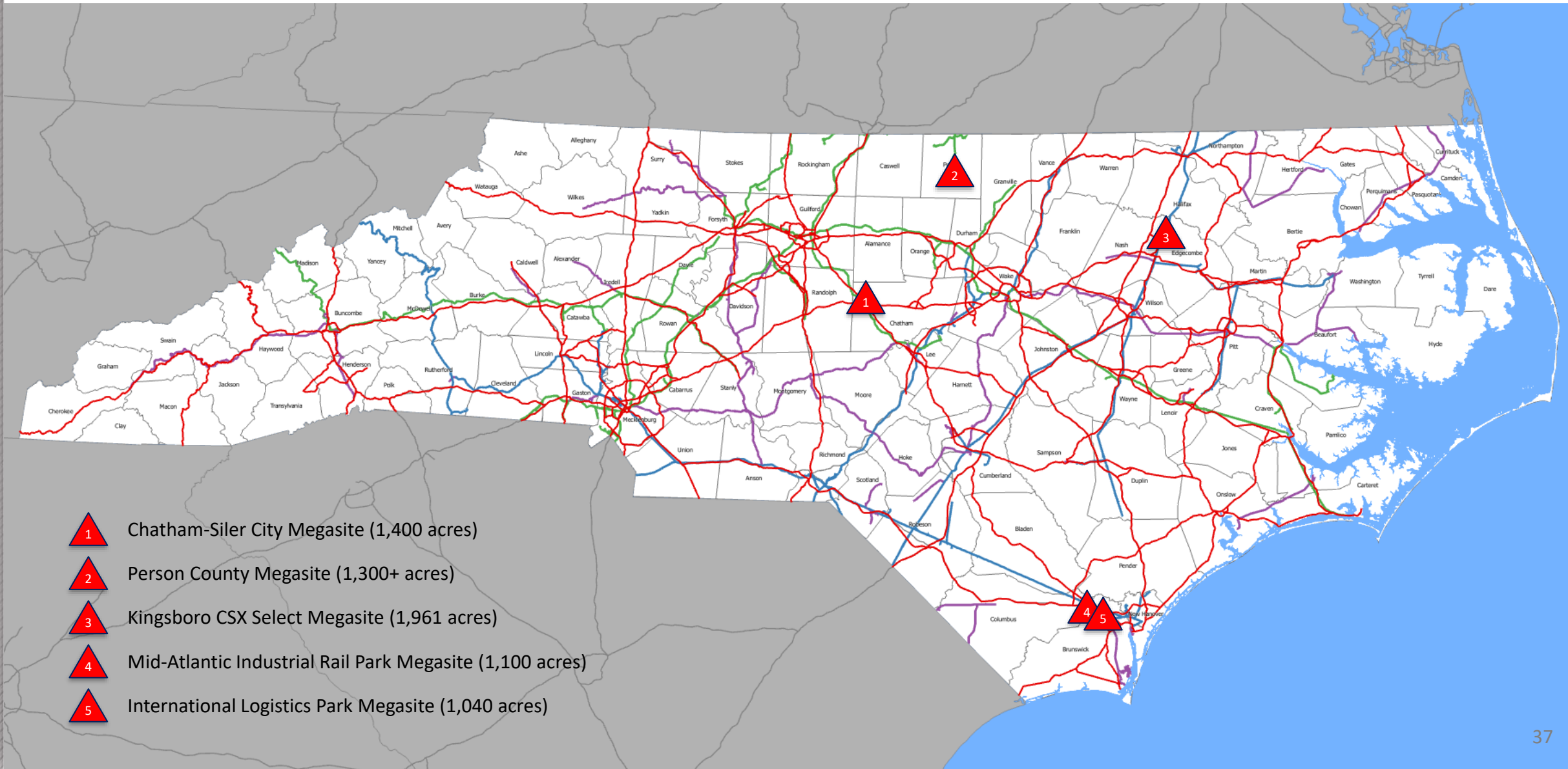
- *Manufactured NC* database managed by North Carolina Manufacturing Extension Partnership (NCMEP)
- Includes 1,700+ manufacturers organized by NAICS/SIC codes based on manufacturing specialty
- Searchable by map, industrial category, sectors served, alphabetical



# North Carolina's Industrial Ecosystem - Railroad



# North Carolina's Industrial Ecosystem - Megasilites



# North Carolina's Industrial Ecosystem - Megsites

1

## Chatham-Siler City Megsite

- 1,400 acres focused on Advanced Manufacturing
- Rail served by Norfolk Southern
- Located on US-421 (Future I-685); 42 mi to Piedmont-Triad Intl. Airport
- Foreign Trade Zone 93

2

## Person County Megsite

- 1,300+ acres with significant large water, electricity service capacity
- 50 miles to Raleigh-Durham International Airport
- Foreign Trade Zone 93

3

## Kingsboro CSX Select Megsite

- 1,961 acres focused on Advanced Manufacturing
- Located adjacent to CSX's Carolina Connector Intermodal Facility
- 17 miles to Rocky Mount-Wilson Airport
- Foreign Trade Zone 214

4

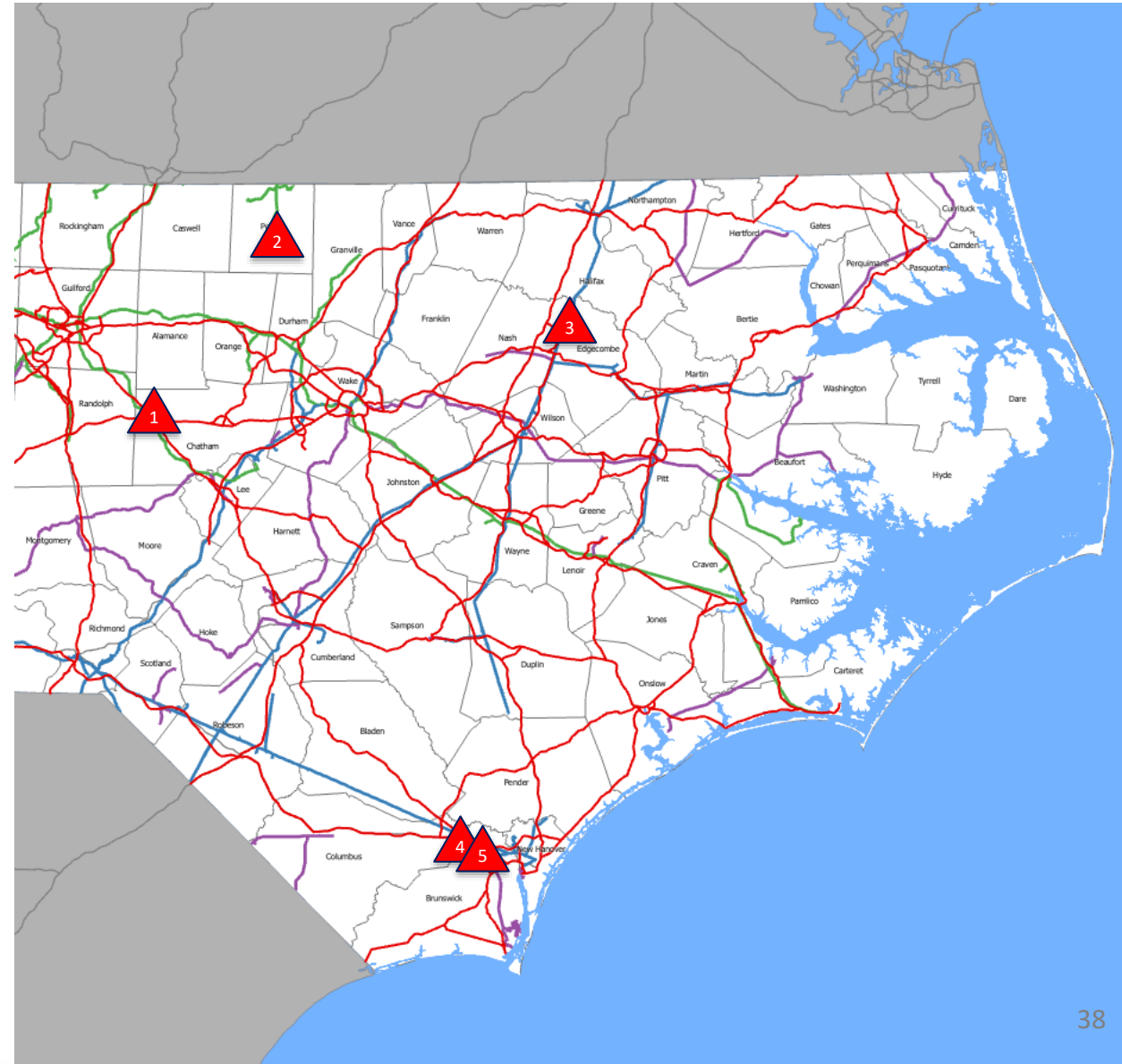
## Mid-Atlantic Industrial Rail Park Megsite

- 1,100 acres with Phase 1 Environmental Site Assessment Completed
- 18 mi to Port of Wilmington; 11 mi to Wilmington Intl. Airport
- Rail served by CSX
- Foreign Trade Zone 214

5

## International Logistics Park Megsite

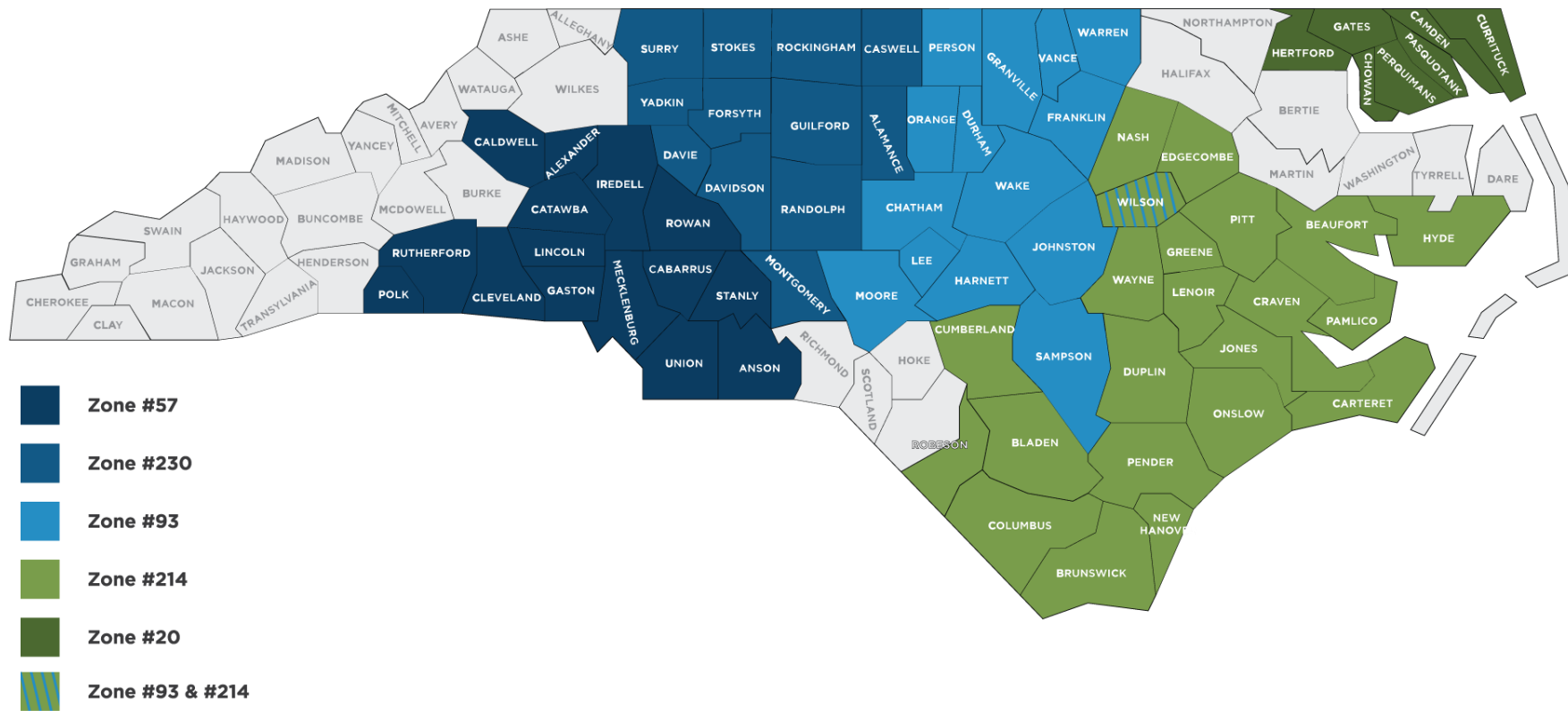
- 1,040 focused on logistics
- 18 mi to Port of Wilmington; 11 mi to Wilmington Intl. Airport
- Rail served by CSX
- Foreign Trade Zone 214



# North Carolina's Industrial Ecosystem

## Foreign Trade Zones

- Zone #214: Includes the Port of Wilmington, Port of Morehead City and NC Global TransPark. Managed by NCDOT.
- Zone #93 – Includes the Research Triangle area including Raleigh, Durham, Sanford, Clayton, and more. Managed by the Triangle-J Council of Governments.
- Zone #230 – Includes the Piedmont Triad area including Greensboro, Winston-Salem, Burlington, and more. Managed by the Piedmont Triad Partnership.
- Zone #57 – Includes the greater Charlotte metro area and surrounding counties. Managed by the Charlotte Regional Business Alliance.
- Zone #20 – Based in Norfolk, Virginia; includes seven Northeastern North Carolina counties. Managed by the Virginia Port Authority.



### About FTZs:

Foreign or domestic merchandise may enter an FTZ without a formal customs entry document or payment of customs duties or government excise taxes. If the final product is exported from the United States, no customs duty is levied. If the final product is imported into the U.S., duty and excise taxes are due at the time of transfer from the FTZ and formal entry is made into the United States. Duty is paid on the product itself or its imported parts, whichever is lower. (Source: EDPNC)





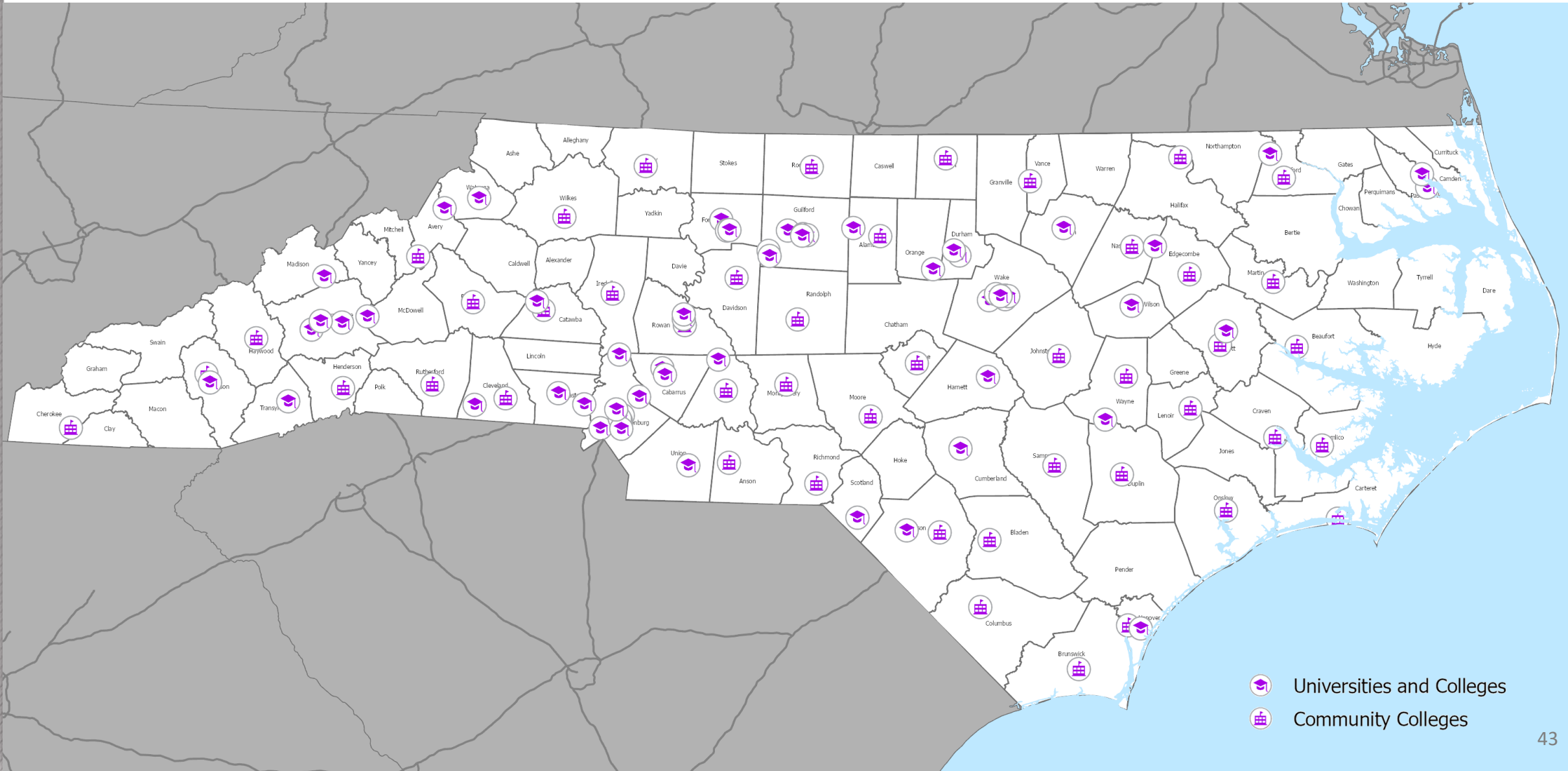
The Supply Chain is  
North Carolina's  
edge.





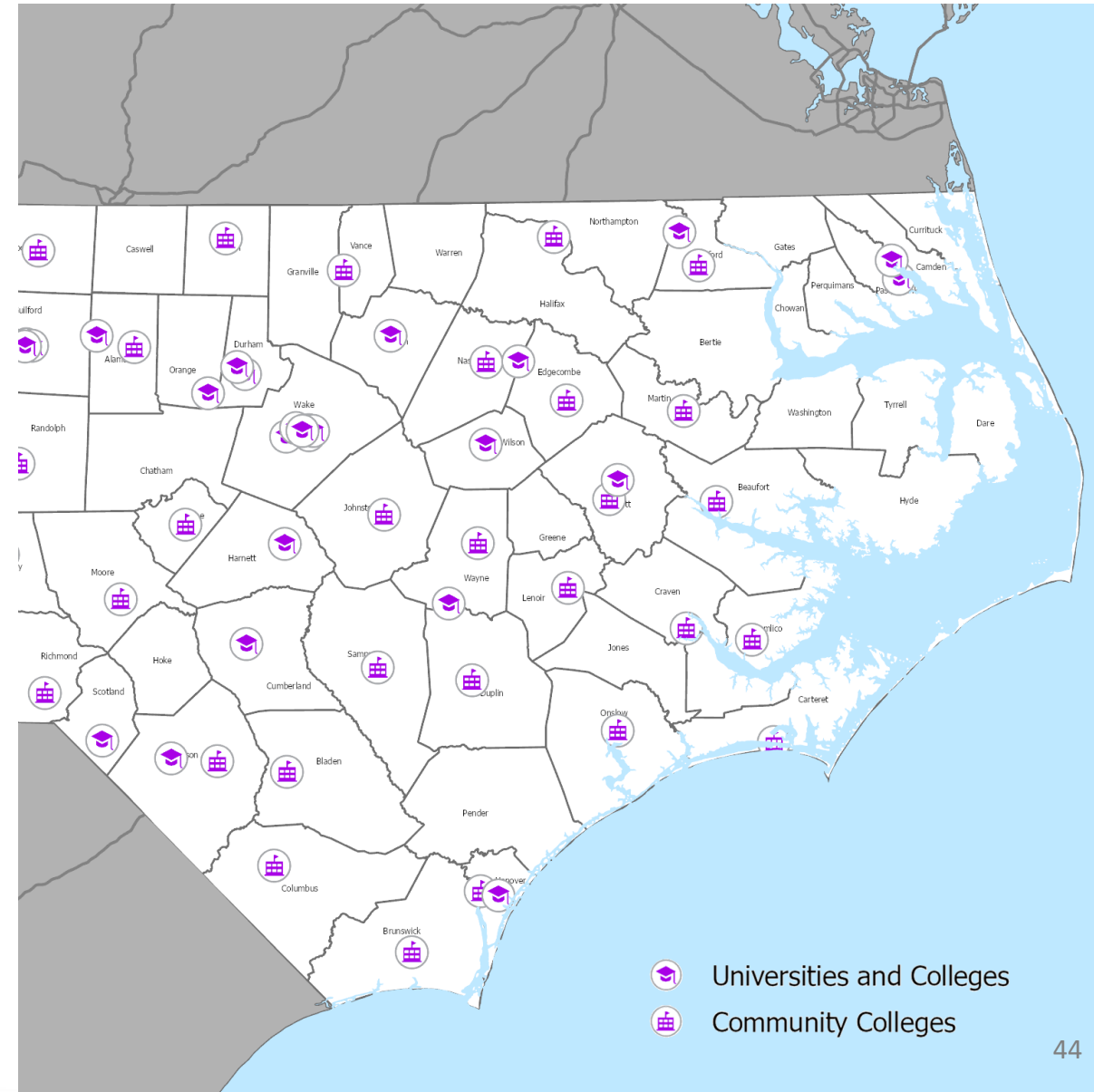
## Workforce & Industrial Development Resources

# Workforce & Industrial Development Resources



# Workforce & Industrial Development Resources

- Community Colleges
  - 58 community colleges, serving all 100 counties of the state
  - Workforce skills for industries including aerospace, automotive, healthcare, life sciences, advanced manufacturing, technology, customer service, and construction trades
  - Customized training, career and technical education (CTE); 58 Small Business Centers statewide
  - 40% of NC wage earners have received education or training at a NC community college during the last 10 years
- UNC System
  - Multi-campus system encompasses 16 universities and the NC School of Science and Mathematics; granting 4-year degrees, as well as graduate degrees
  - 250,000+ students are enrolled across the state
- Private Colleges & Universities
  - 55+ four-year colleges or universities with more than 76,000 undergraduate students enrolled

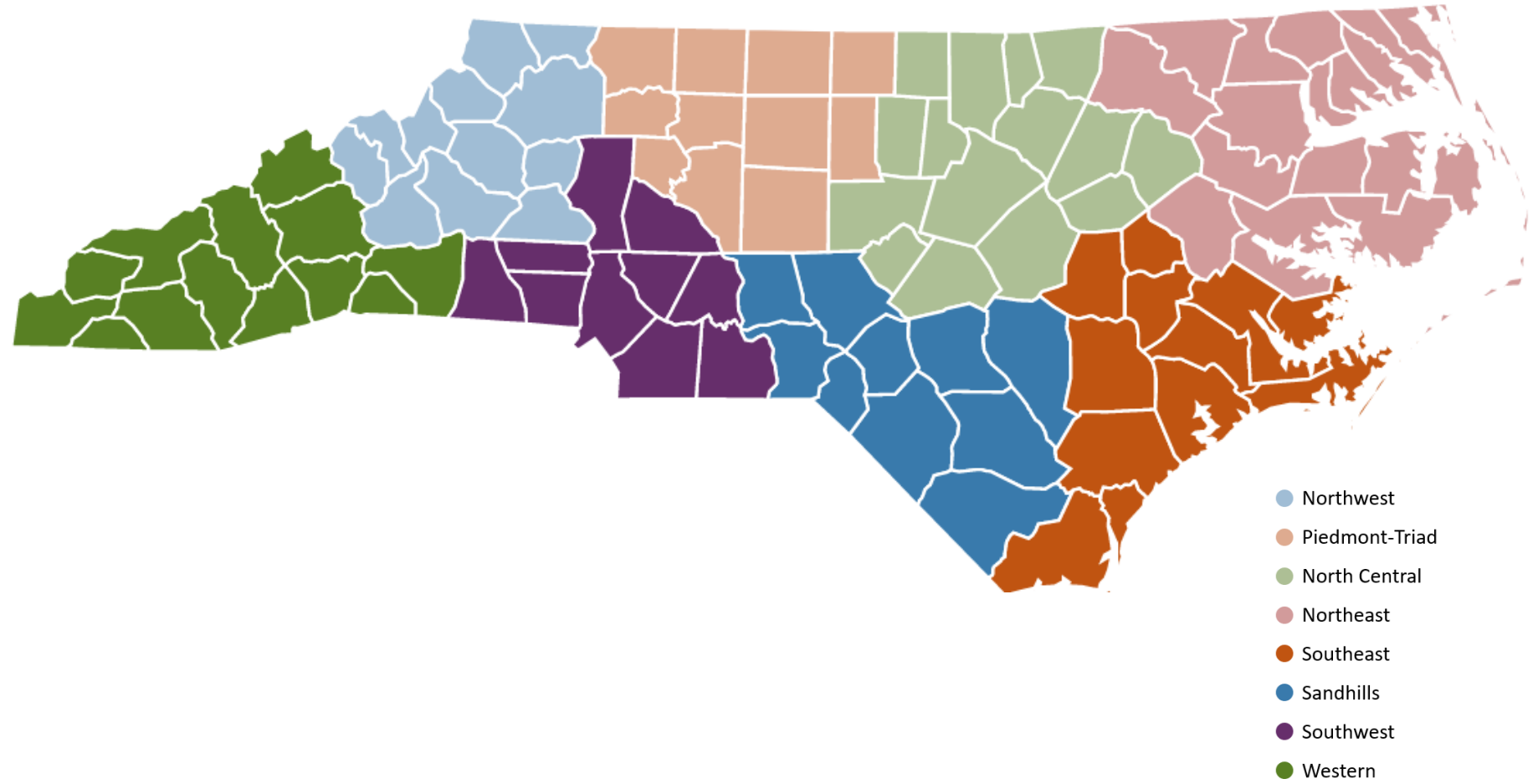




# Workforce & Industrial Development Resources

## *NC Department of Commerce's Prosperity Zones*

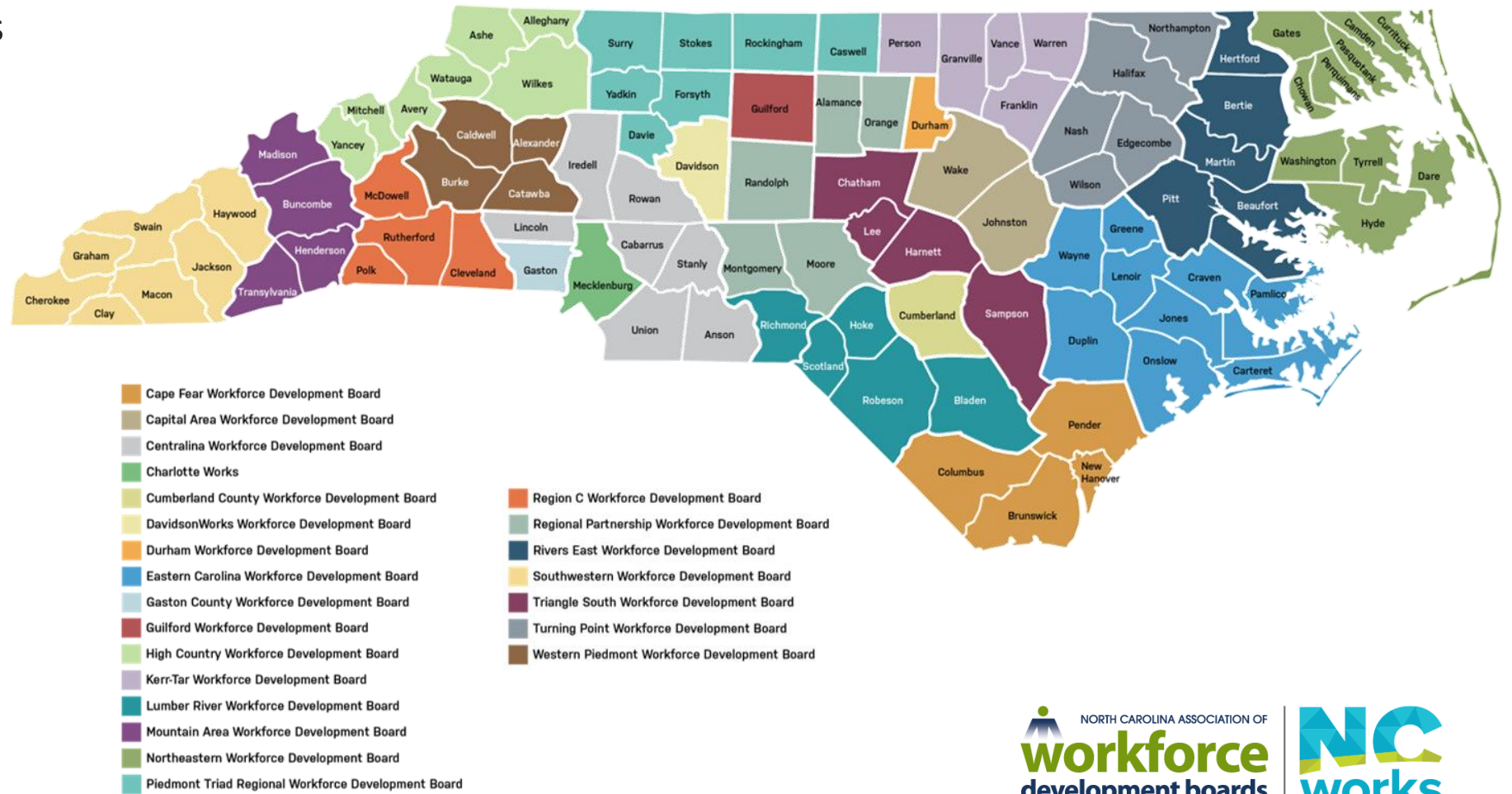
- Each Zone features a one-stop, physical location, providing businesses with access to multiple state agencies
- Encourages resources and collaboration between businesses and state agencies





# Workforce & Industrial Development Resources

- Active workforce development boards state-wide support industrial workforce needs
- NC Works program





## Context & Forward Focus

- OSW sector development is a full state effort & opportunity
- Supply chain assets across the state will enable success
- The big opportunity is manufacturing supply chain development
- We have resources & expertise to help meet this challenge & grow this sector in North Carolina
- It's a long game (but one we must start today!)



*The Start of the Murphy to Manteo Highway*  
J. Chris Wilson  
2007



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NCDOT Connect Resources:

[bit.ly/FreightConnectNC](https://bit.ly/FreightConnectNC)

*NCDOT is a part of your supply chain.*