

Maritime Strategy Executive Team

November 8, 2011

Raleigh, NC

AECOM



URS

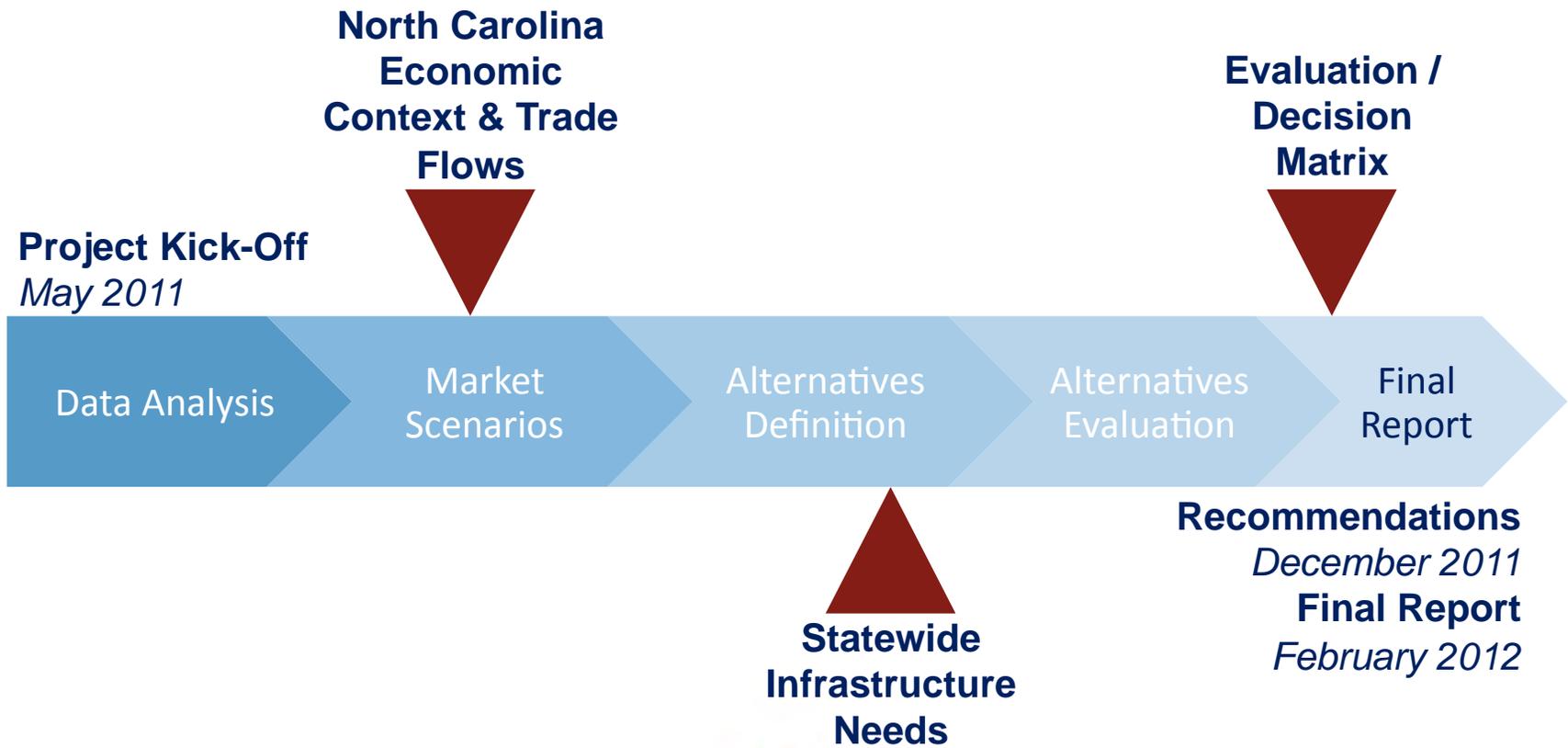
Agenda

- Overview Status – Scope and Schedule
- Strategy Progress and Interim Findings
 - Stakeholder Coordination
 - Market Scenarios
 - Infrastructure Constraints and Opportunities
- Next Steps

Maritime Study Scope

- Evaluate North Carolina's position, opportunities and challenges as a portal for global maritime commerce;
- Examine the role of North Carolina ports in sustaining and strengthening the State's economy;
- Obtain input from freight transportation, economic development, and community interests, and
- Identify specific strategies to optimize benefits received from the State's investments in port and associated transportation infrastructure.

Summary Timeline



Stakeholder Coordination

Industry and Stakeholder Meetings

- Industry Workshops
 - Agriculture, Non-Ag Shippers, Shipping Lines, Railroads & Trucking, Military, Special Zones, Bulk Shippers
 - Effort supported by hands-on Maritime Advisory Council
- Focused discussions and interviews
 - Metropolitan Transportation Organizations (statewide), NC Department of Commerce, NC Department of Transportation, USACE, UNC Wilmington, YesPort NC, No Port Southport, Save the Cape, Southport/Oak Island Chamber of Commerce, Clean Carteret County Coalition, Morehead City Port Committee, Progress Energy, Economic Development Commissions (seven economic regions, ongoing)
- Public workshops
 - Government Officials Briefings and Community Information Workshops, in Morehead City and in Wilmington

Recurring Themes from Stakeholders

- Jobs, economic growth, and the environment are top concerns
- Enhanced road and rail connections for cost-effective moves
- Importance of trucking costs – congestion and back haul
- Achieving import–export balance
- Opportunities and needs: refrigerated storage, Ro-Ro at Wilmington, bulk commodities
- Incentives to attract ocean carriers
- Value of integrated strategy that includes Commerce, Transportation, and US Military
- Communication: with public, with shippers

Market Scenarios

Data Collection and Analysis

- Reviewed more than 100 existing documents and reports to identify information that was:
 - available
 - supported by verifiable data
 - sufficient to advance Maritime Strategy
- Obtained updated import/export market forecasts for US southeast region from IHS Global
- Integrated input from diverse industry stakeholders to assess market needs and opportunities
- Performed independent analysis of infrastructure constraints
 - GIS-based evaluation of regional highway and rail networks
 - GIS-based evaluation of waterways
 - AECOM's proprietary port modeling tools to assess regional port capacity
- Developed independent Delivered Cost Model to evaluate time-based benefits of infrastructure improvements – will support identification of least cost market area for NC ports

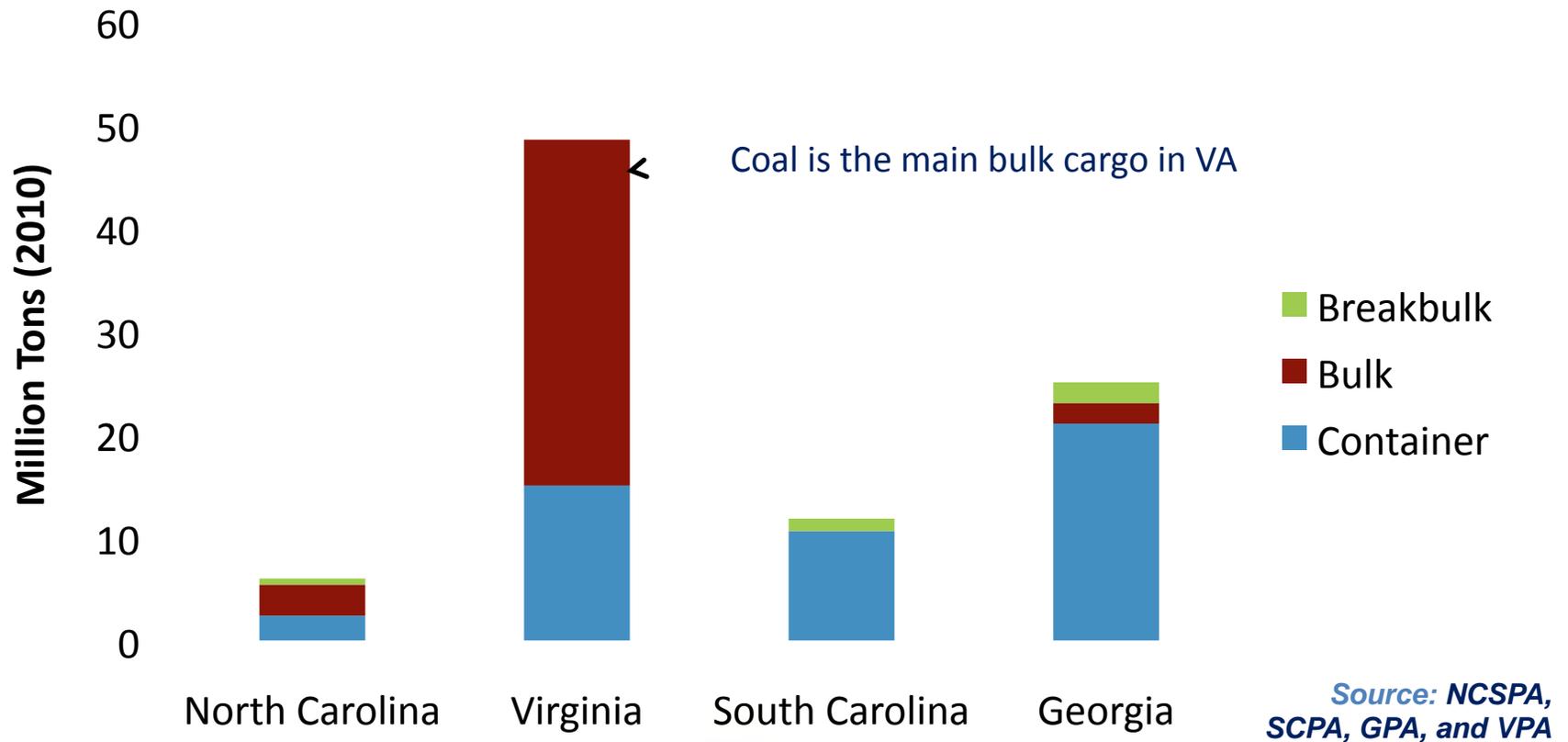
Initial Profile

- North Carolina ports have available capacity for business growth and some ability to expand (with limitations)
- A large import/export trade imbalance
- Strength in non-containerized cargo
- Comparatively uncongested highway access relative to other Atlantic ports, but rail and highway landside issues at Wilmington and Morehead City add to delivered costs
- Low port costs, but offset by landside costs and distance to ocean
- Not likely to be a primary port of call
- Strategic military port

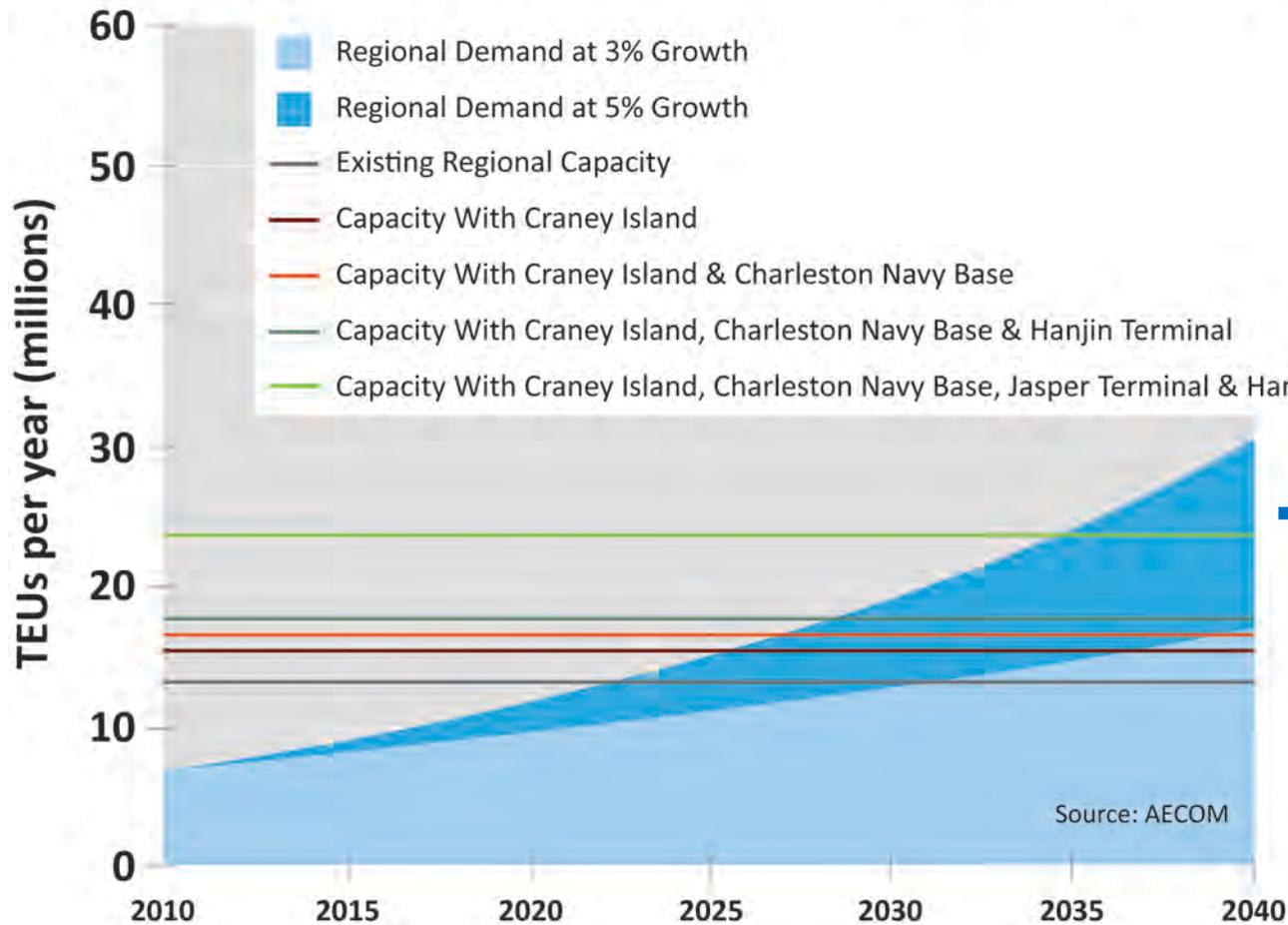
| Port | Miles to sea buoy |
|---------------|-------------------|
| Wilmington | 26 |
| Morehead City | 4 |
| Norfolk | 18 (estimated) |
| Charleston | 16 |
| Savannah | 13 |
| Jacksonville | 10 (Dames Point) |

Source: Port websites and NOAA

How do North Carolina Ports Compare to the Competition?

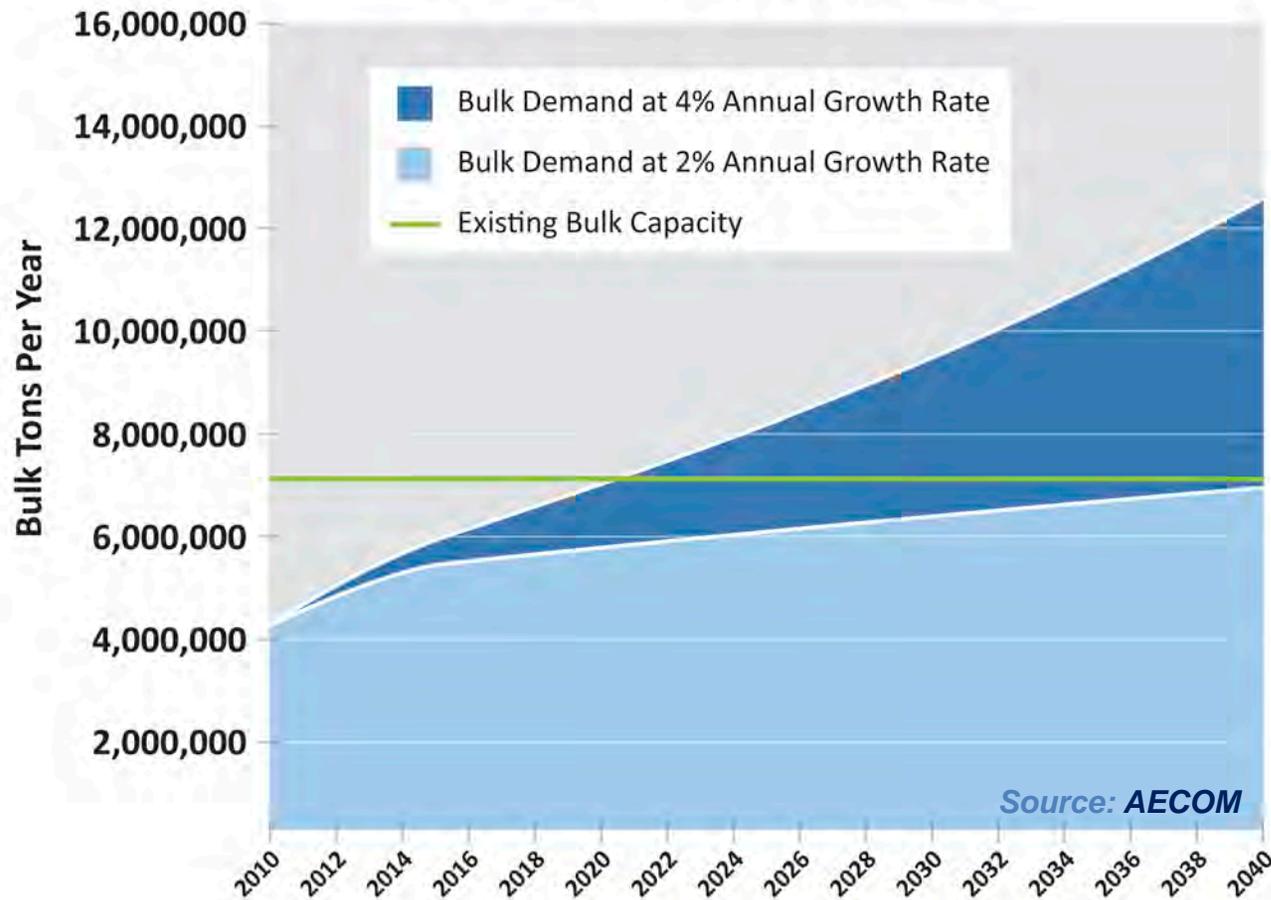


Regional Container Demand vs. Capacity



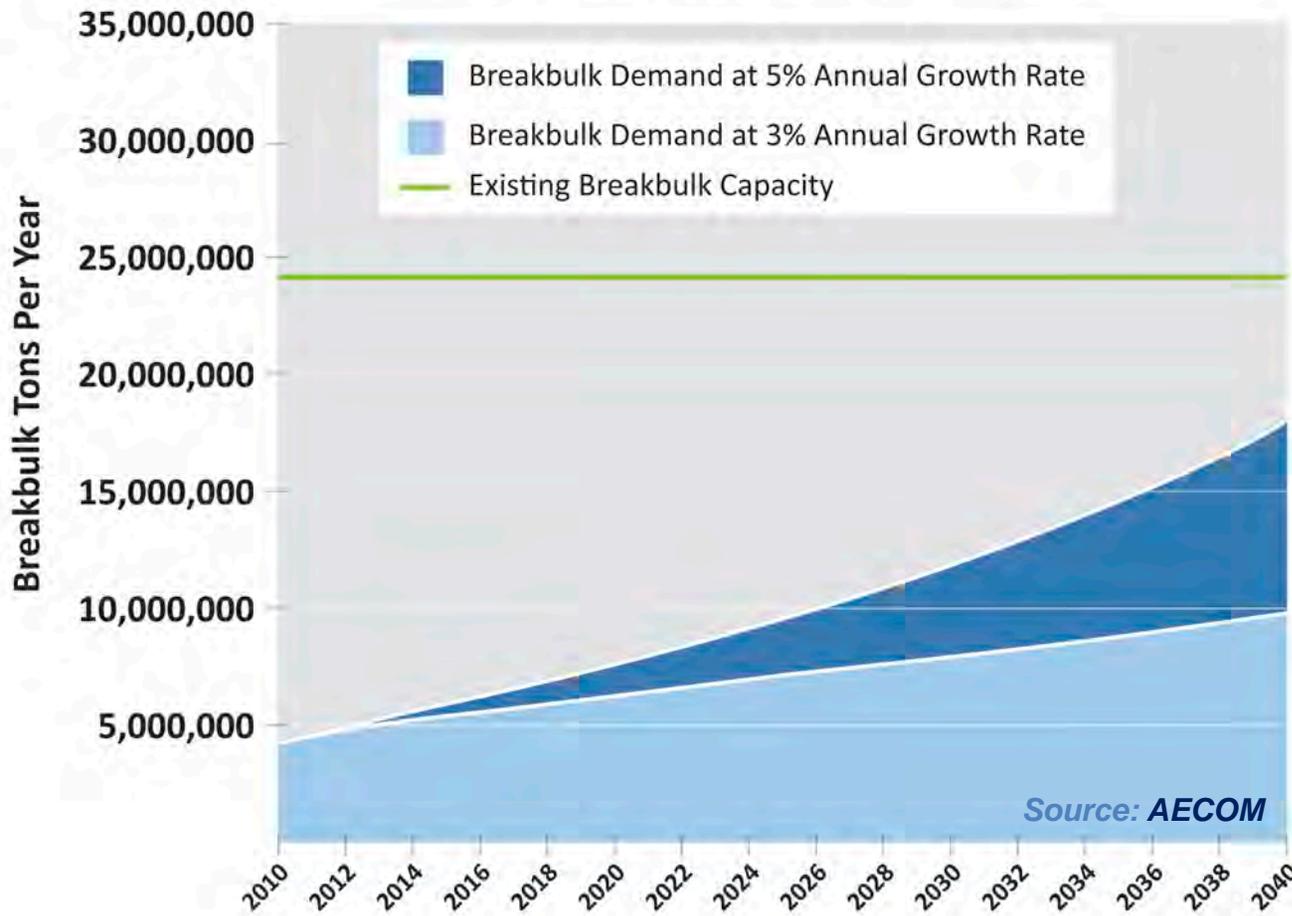
- Evaluation of regional need for additional container capacity must consider the likelihood and competitiveness of proposed container terminal expansions

Regional Bulk Demand vs. Capacity



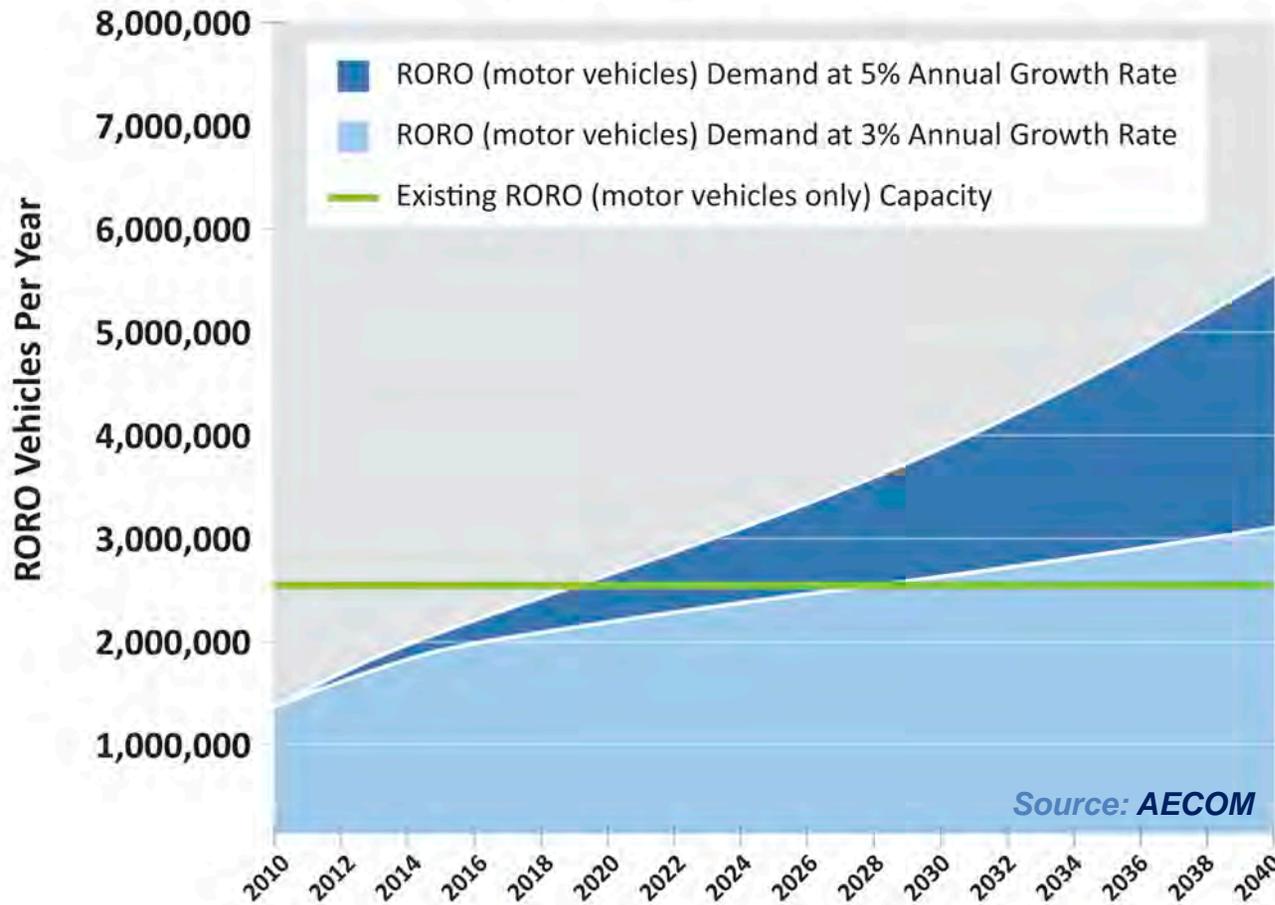
- Excludes coal and petroleum
- Neglects specialized equipment needed to handle individual bulk commodities – e.g. local grain exporters have identified a need for more grain-handling equipment at regional ports

Regional Breakbulk Demand vs. Capacity



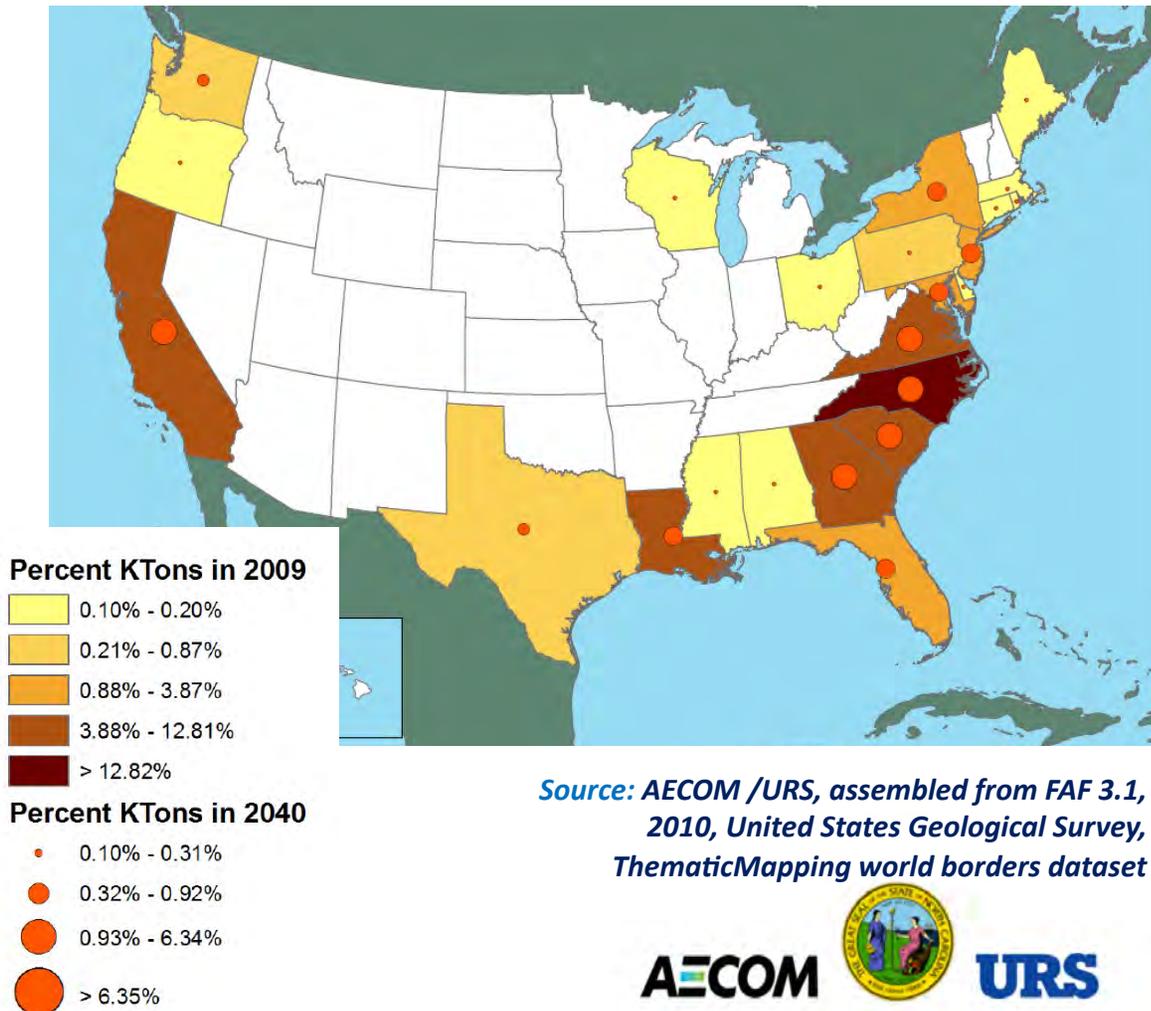
- Neglects constraints and specialized needs for large or heavy cargo – e.g. *oversize cargo is likely to use the port closest to its ultimate origin or destination due to land-side restrictions and costs*

Regional Ro-Ro Vehicle Demand vs. Capacity



- Capacity based on motor vehicle volumes only
- Auto Ro-Ro could be re-purposed to support equipment only if facilities are able to handle large or heavy cargo

States of entry for North Carolina waterborne imports, 2009 & 2040

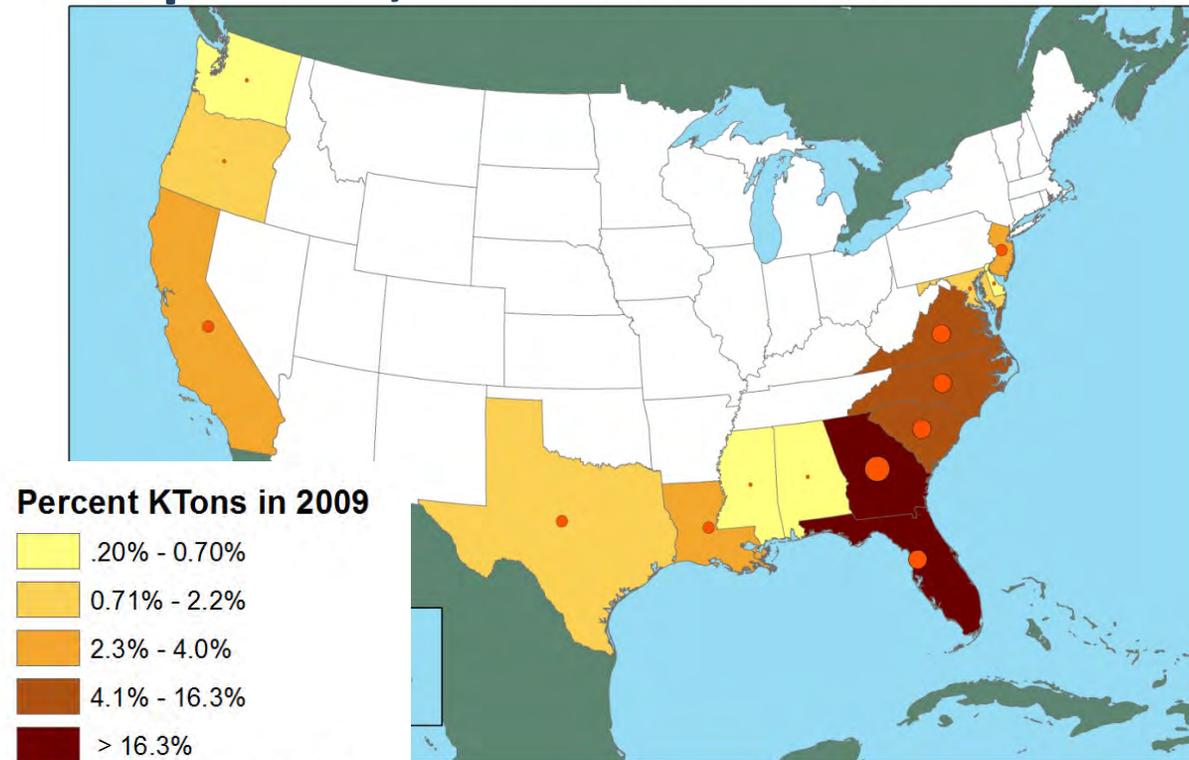


- More than 80% of NC imports arrive through ports in North Carolina, Virginia, Georgia, South Carolina, California and Louisiana
- In 2040, use of North Carolina and Louisiana ports for import is projected to decline in favor of ports in Georgia and California

Shading in chart reflects exports by volume.

Source: AECOM /URS, assembled from FAF 3.1, 2010, United States Geological Survey, ThematicMapping world borders dataset

Waterborne exports from North Carolina by state of departure, 2009 and 2040

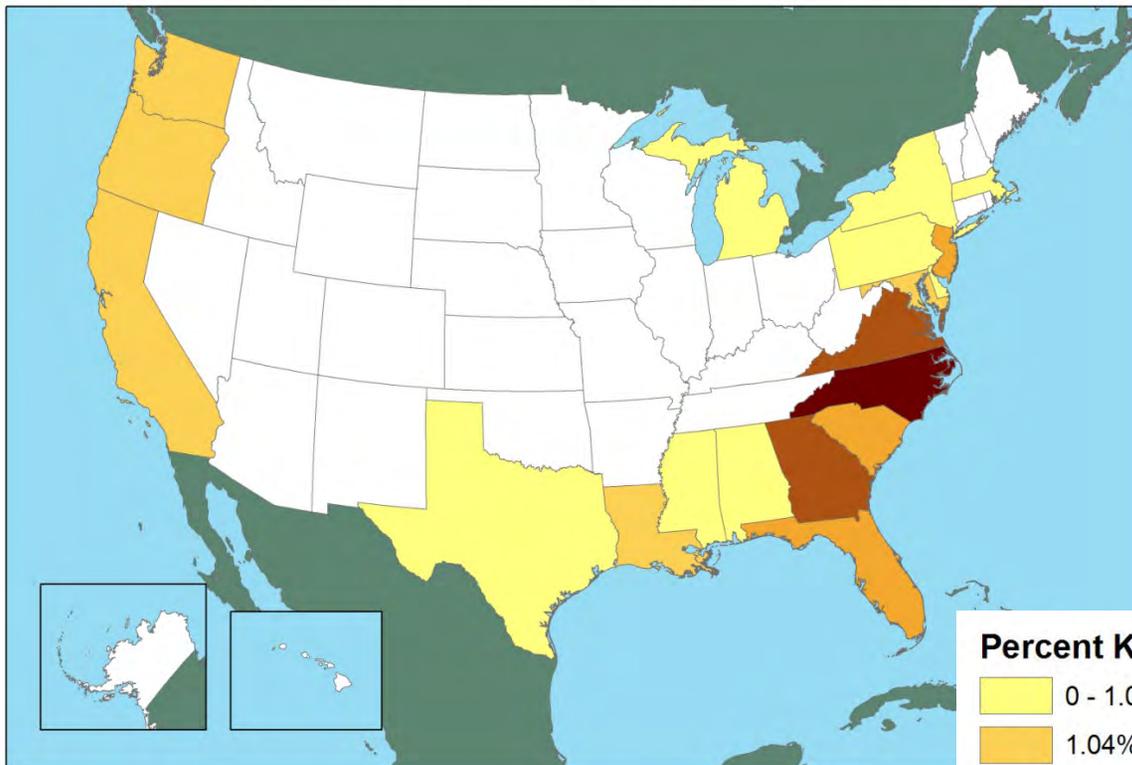


- North Carolina shippers use facilities in Florida and Georgia more than they use NC ports
- Virginia and South Carolina are also important to North Carolina shippers
- Southeastern gateways favored

Shading in chart reflects exports by volume.

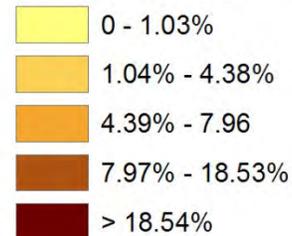
Source: AECOM /URS, assembled from FAF 3.1 and USGS ThematicMapping

Waterborne agricultural exports from North Carolina by state of departure, 2009



- North Carolina exporters of agricultural goods rely most heavily on in-state facilities.
- Virginia and Georgia are also important for North Carolina's agricultural exports.
- Ag products also shipped cross-country to West Coast ports.

Percent Ktons in 2009



Shading in chart reflects exports by volume.

Source: AECOM /URS, assembled from FAF 3.1 and USGS ThematicMapping

Market Scenario Framework

| Upper Bound | Conservative | Lower Bound ("Do Nothing") |
|--|--------------------------|----------------------------|
| Advance Market Position | Maintain Market Position | Declining Market Position |
| Growth Outcome | | |
| <ul style="list-style-type: none"> ▪ Market share capture or decline ▪ New markets | | |
| Necessary Conditions | | |
| <ul style="list-style-type: none"> ▪ Vessel calls and sizes ▪ Port capacity and equipment ▪ Land and water access ▪ Industry growth | | |
| Risks and Opportunities | | |
| <ul style="list-style-type: none"> ▪ Improvements at competitor ports outpace NCSIPA investments in capacity, reliability, and efficiency ▪ Competitor ports attract more frequent ship calls ▪ Business costs rise in NC, tempering manufacturing growth ▪ Spending profile of aging NC population shifts away from goods; migration weakens ▪ Key bulk and breakbulk markets falter ▪ Containerization of bulk/breakbulk accelerates | | |
| Strategies | | |
| <ul style="list-style-type: none"> ▪ Cooperative agreements ▪ Niche markets ▪ Targeted infrastructure investments ▪ Leverage strength in bulk and breakbulk | | |

Market Opportunities

| Commodity | Import/ Export | Current market | Growth | Considerations |
|---------------------------|-------------------|------------------------------|--------------------|--|
| Grain | Both | Large | Strong | NC grain producers located near port |
| Wood pellets | Export | Emerging | Strong | Industry interest in NC ports Potential to diversify wood products |
| Wood / paper | Export | Large | Strong | Supports existing industry strength |
| Refrigerated cargo | Export | Large (across diverse goods) | Strong | Local shippers indicate an unmet need for cold storage |
| Ro-Ro / oversize | Export | Moderate | Moderate to strong | Supports local supplier industry with purchases of goods and services Supports emerging aviation/equipment industry |
| Wind | Export Import | Emerging | Moderate | Development opportunity tied to securing manufacturing within NC |
| Containers | Import | Large | Strong | Growth influenced by policies and innovations to ensure that containers available to export shippers |

Grain and Soybeans

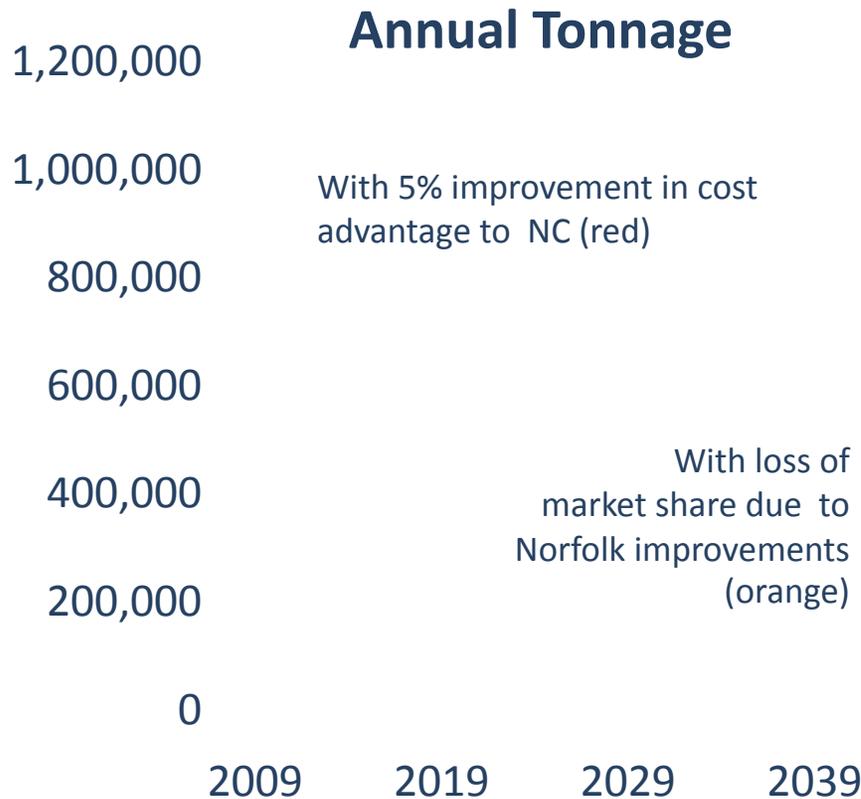
Annual Tonnage



Source: AECOM, from IHS Global Insight projected growth and PIERS historical data

- Forecast extrapolates from current export volumes—in -state and out-of-state and assumes facilities to handle grain are available and unconstrained
- Potential for greater capture of in-state production
- Growth potential is significantly increased if NC ports captured only half of exports via out of state ports
- Grain producers report excess capacity and ability to ship more for export—**this would increase volumes beyond that shown here**
- Shippers maintain there would be price benefits to exporting, benefiting the state

Wood Products



- Supports large existing NC-based industry
- Strong baseline growth projected (blue)
- Wood pellets industry accelerates growth over the next 10 years
- Shippers suggest additional capacity available for export
- Port has signed an initial deal for new pellet facility
- Strong growth and opportunity to capture greater share of NC production
- Preliminary results suggest Improvements to Norfolk access yield large cost advantages over the forecast horizon that could erode NC’s market share (truck)

Source: AECOM, from IHS Global Insight projected growth and PIERS historical data



Refrigerated Container Goods

Annual Tonnage



- Serves a variety of markets—both agricultural and manufactured goods
- Potential for greater capture of North Carolina production at North Carolina ports
- Supports sweet potatoes, specialized textiles, fresh and frozen meats and fish
- Capture estimate based on 5% reduction in costs and improvements in non-cost factors such as availability of cold storage facilities/containers (preliminary estimate for trucks)

Source: AECOM, from IHS Global Insight projected growth and PIERS historical data

Ro-Ro and Oversize Cargo

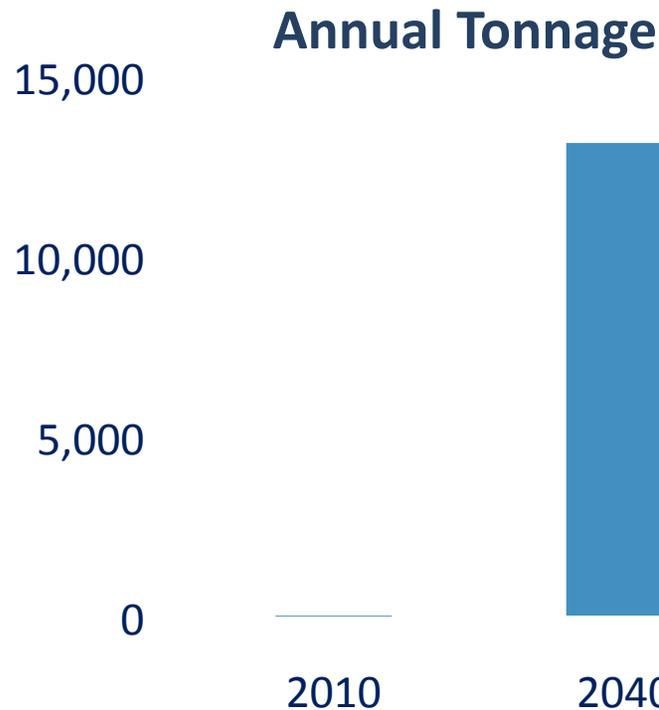
Annual Tonnage



- Steady growth projected
- Desirable industry from economic development perspective because industry purchases large amounts of local goods and materials in the production process
- Estimate excludes wind power equipment
- Limited diversion potential; strategy is to support local manufacturers
- Firms consider whether port has this capability when deciding to expand within or relocate to the state

Source: AECOM, from IHS Global Insight projected growth and PIERS historical data

Wind Power Cargo

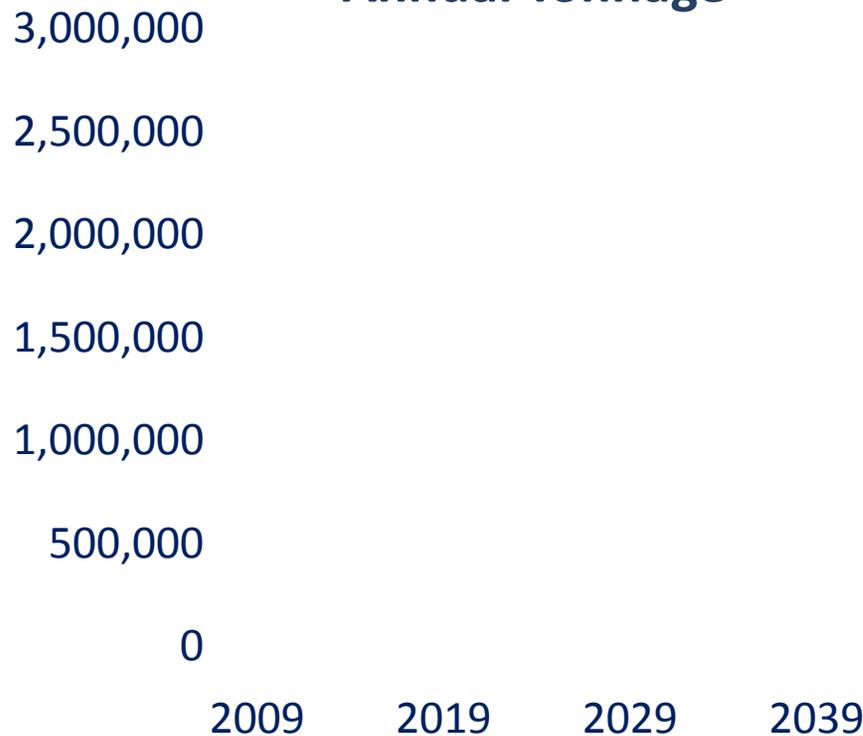


Source: AECOM, based on current dimensions of equipment, NC policy and market maturation forecasts

- Wind towers in 31 NC locations
- NC has goal of supplying 12.5% of electricity via wind by 2021
- Each turbine weighs 164 to 334 tons
- Market projected to mature by 2025-2030; long-term activity is maintenance unless local manufacturing industry develops
- New wind farm going into state; long term opportunity depends on whether installations go on land or offshore, and whether manufacturers follow
- Can benefit rural NC; surveys indicate general acceptance

Chemicals and Phosphates

Annual Tonnage

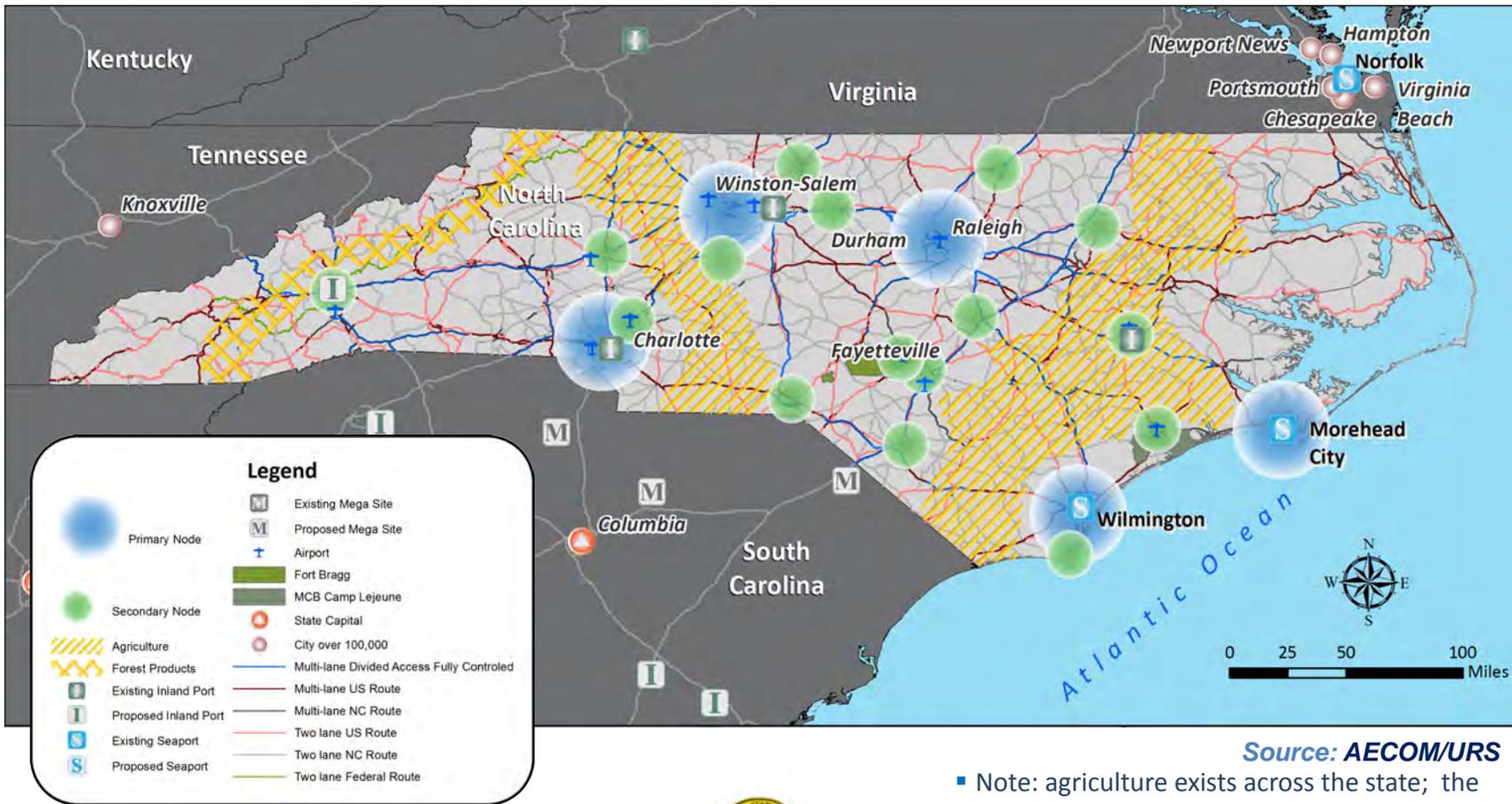


- Supports large existing industry
- Solid baseline growth projected
- Potential for diversion to NC ports but additional capture not anticipated to yield large increment in volumes (preliminary result for trucks)
- This is already a source of strength for NC Ports; no cost or other impediment to remove to foster stronger growth

Source: AECOM, from IHS Global Insight projected growth and PIERS historical data

Infrastructure Constraints and Opportunities

NC Freight Nodes and Facilities

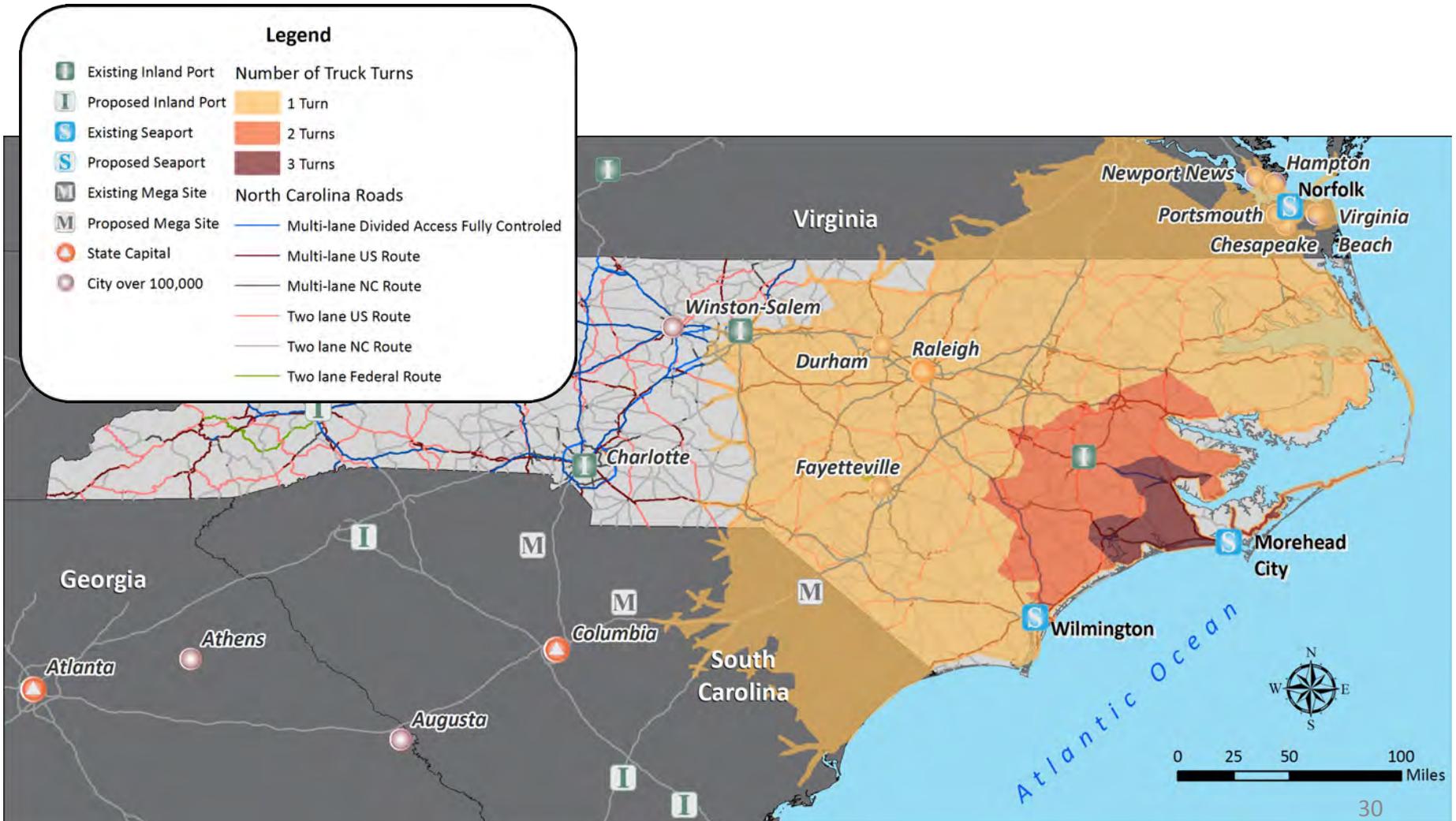


Source: AECOM/URS

- Note: agriculture exists across the state; the areas of dense agricultural production illustrated are intended to be representative

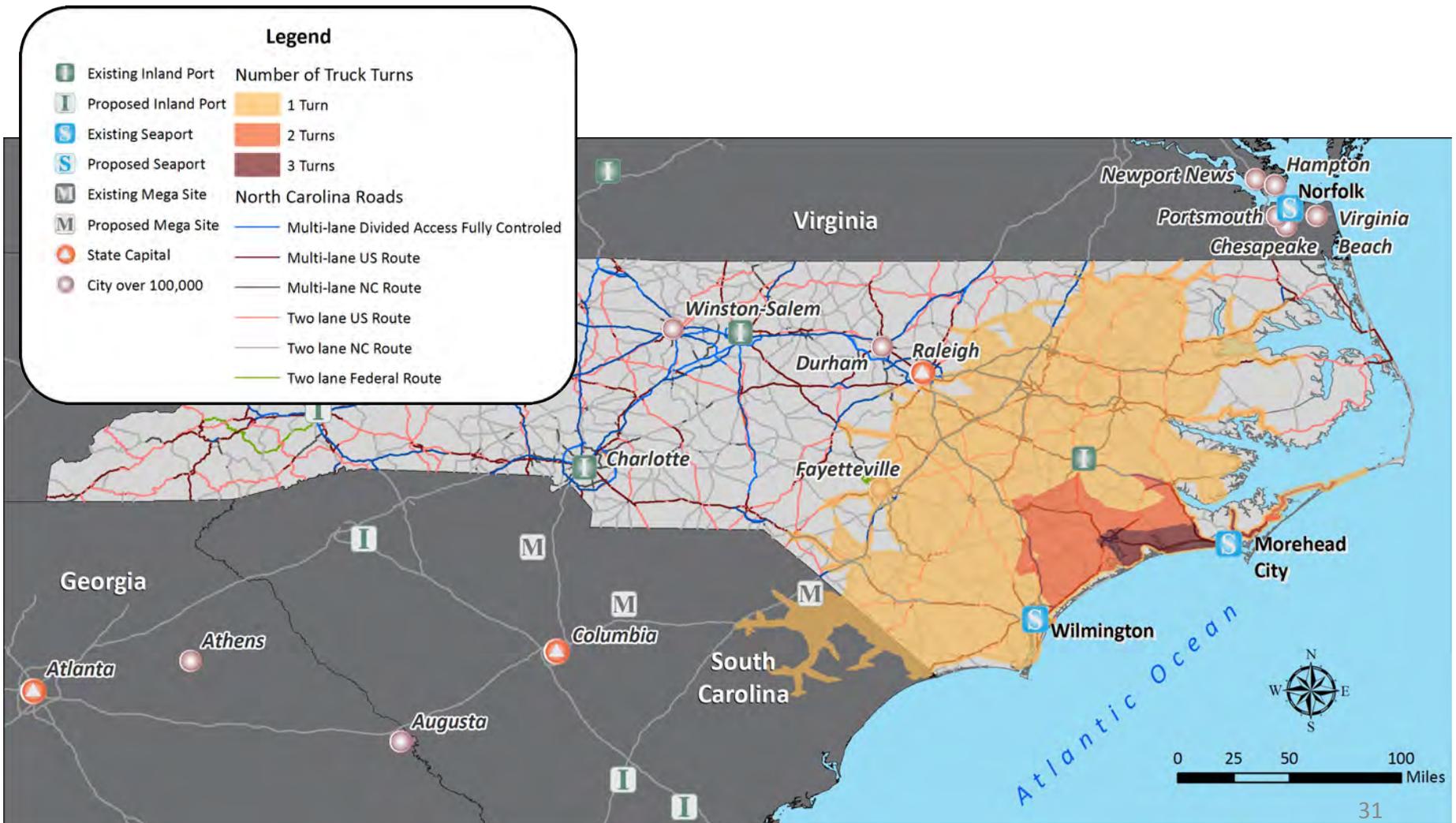
Highway Network

Truck Turn Distances—Morehead City (2007)



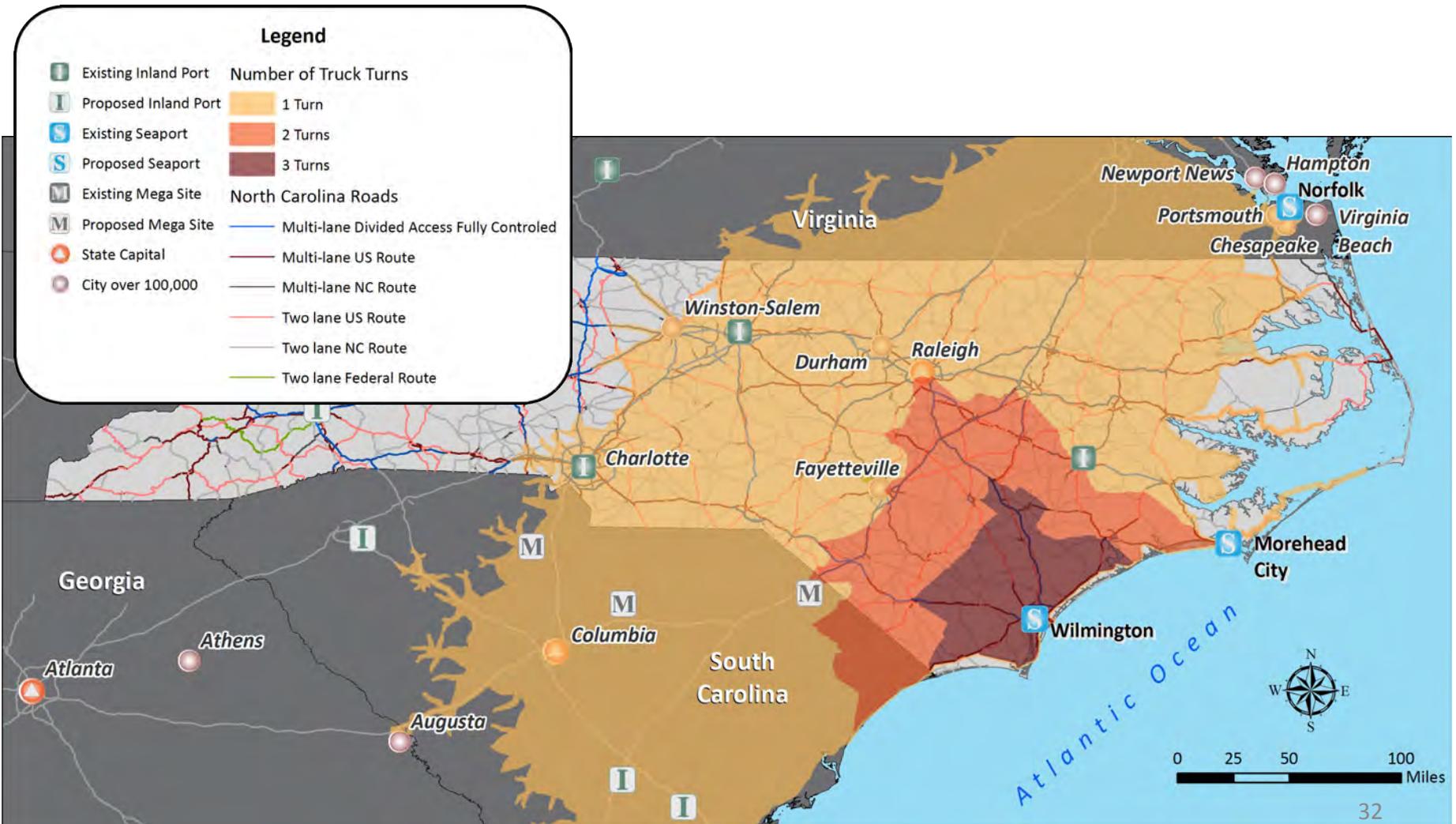
Source: AECOM/URS compiled from ESRI, NCDOT, USDOT FAF 3.1, and USGS ThematicMapping

Truck Turn Distances—Morehead City (2040)



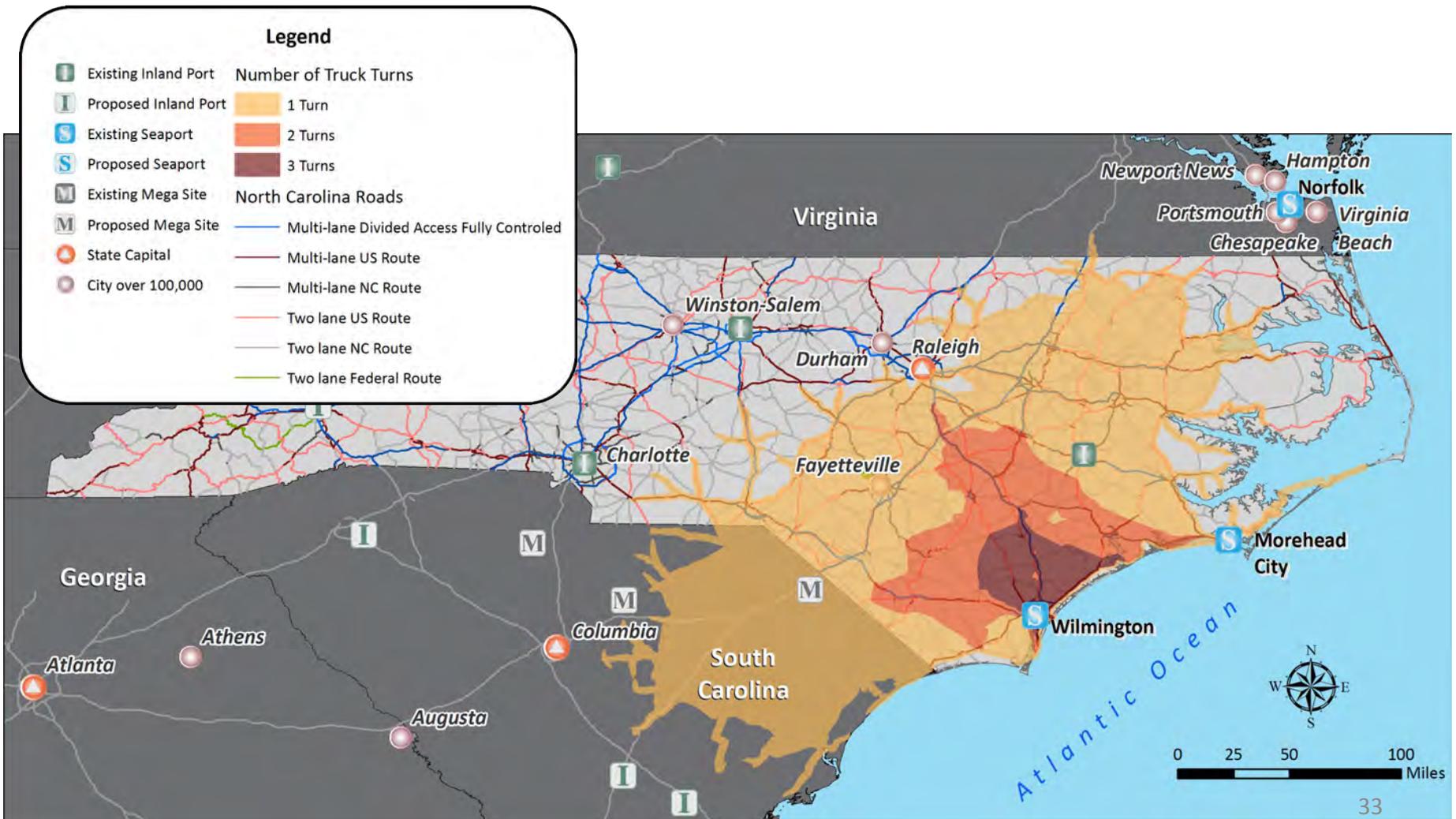
Source: AECOM/URS compiled from ESRI, NCDOT, USDOT FAF 3.1, and USGS ThematicMapping

Truck Turn Distances—Wilmington (2007)



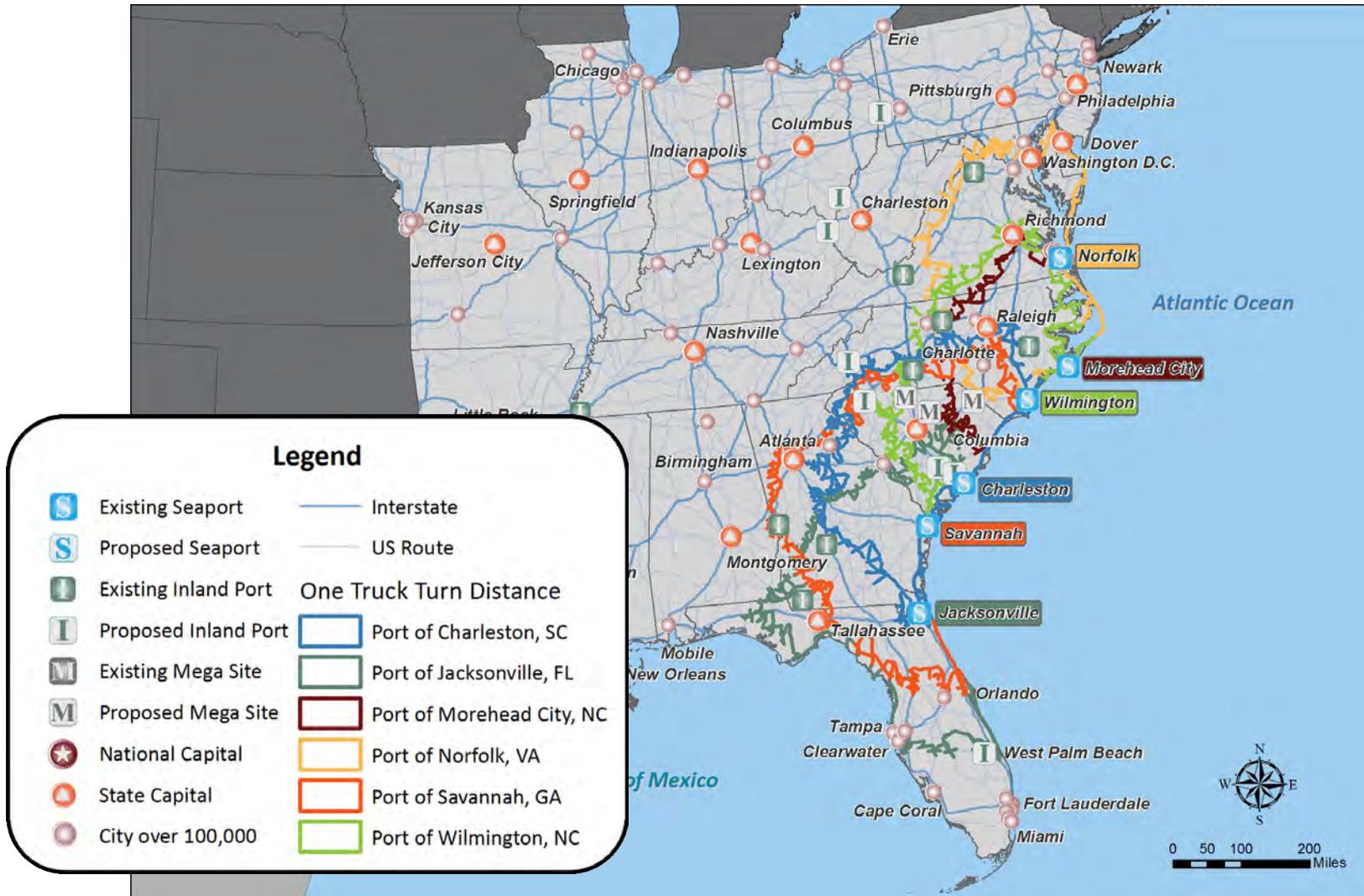
Source: AECOM/URS compiled from ESRI, NCDOT, USDOT FAF 3.1, and USGS ThematicMapping

Truck Turn Distances—Wilmington (2040)



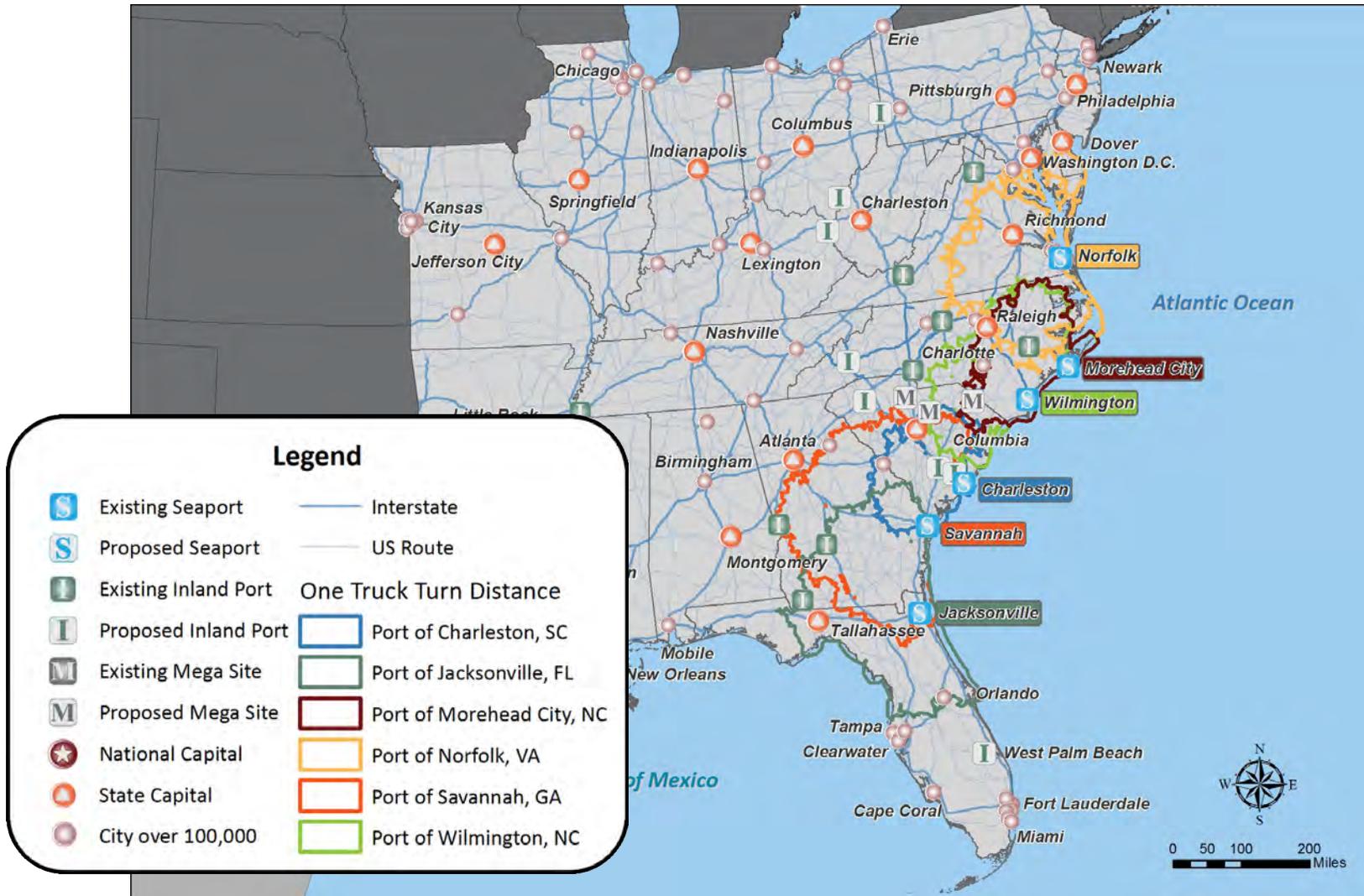
Source: AECOM/URS compiled from ESRI, NCDOT, USDOT FAF 3.1, and USGS ThematicMapping

Regional Ports—One Turn Truck Distance (2007)



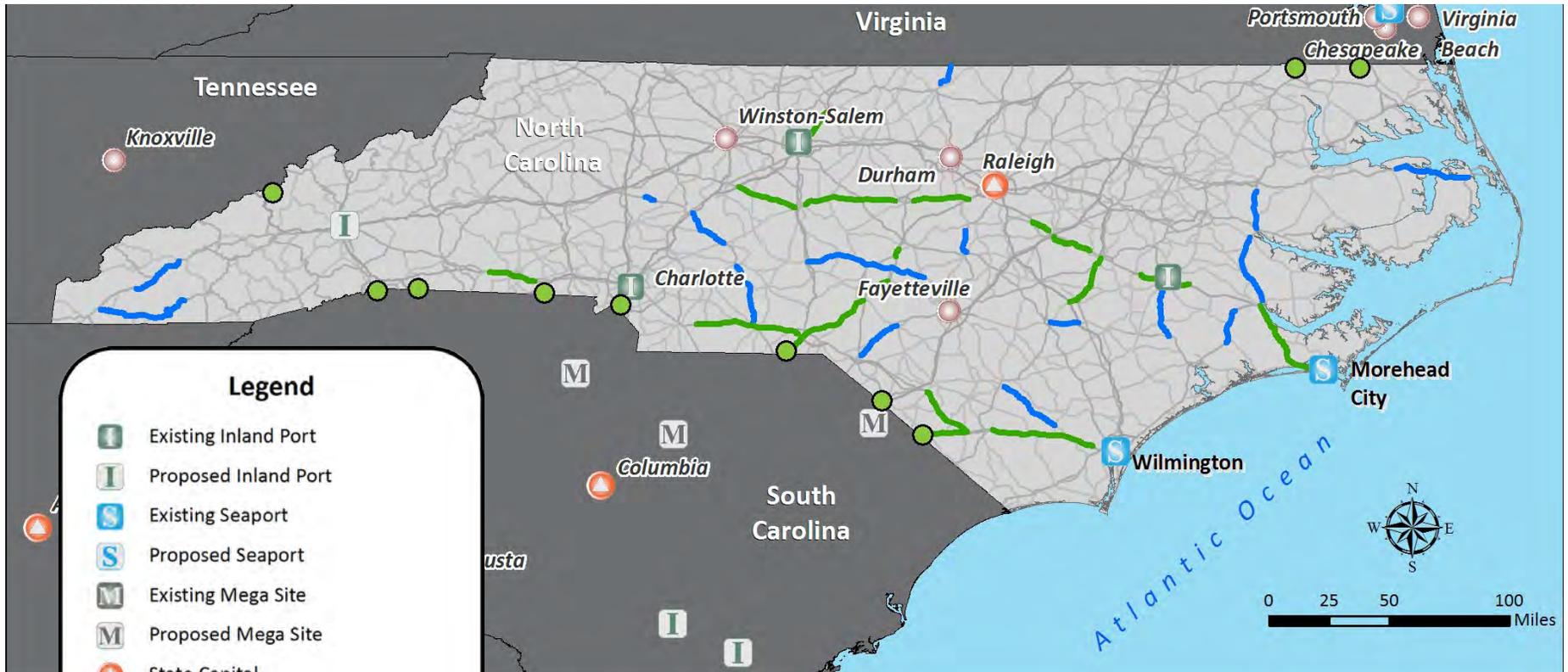
Source: AECOM/URS compiled from ESRI, NCDOT, USDOT FAF 3.1, and USGS Thematic Mapping

Regional Ports—One Turn Truck Distance (2040)



Source: AECOM/URS compiled from ESRI, NCDOT, USDOT FAF 3.1, and USGS Thematic Mapping

North Carolina Highway Gaps and Constraints



Source: AECOM/URS compiled from ESRI, NCDOT, USDOT FAF 3.1, and USGS Thematic Mapping

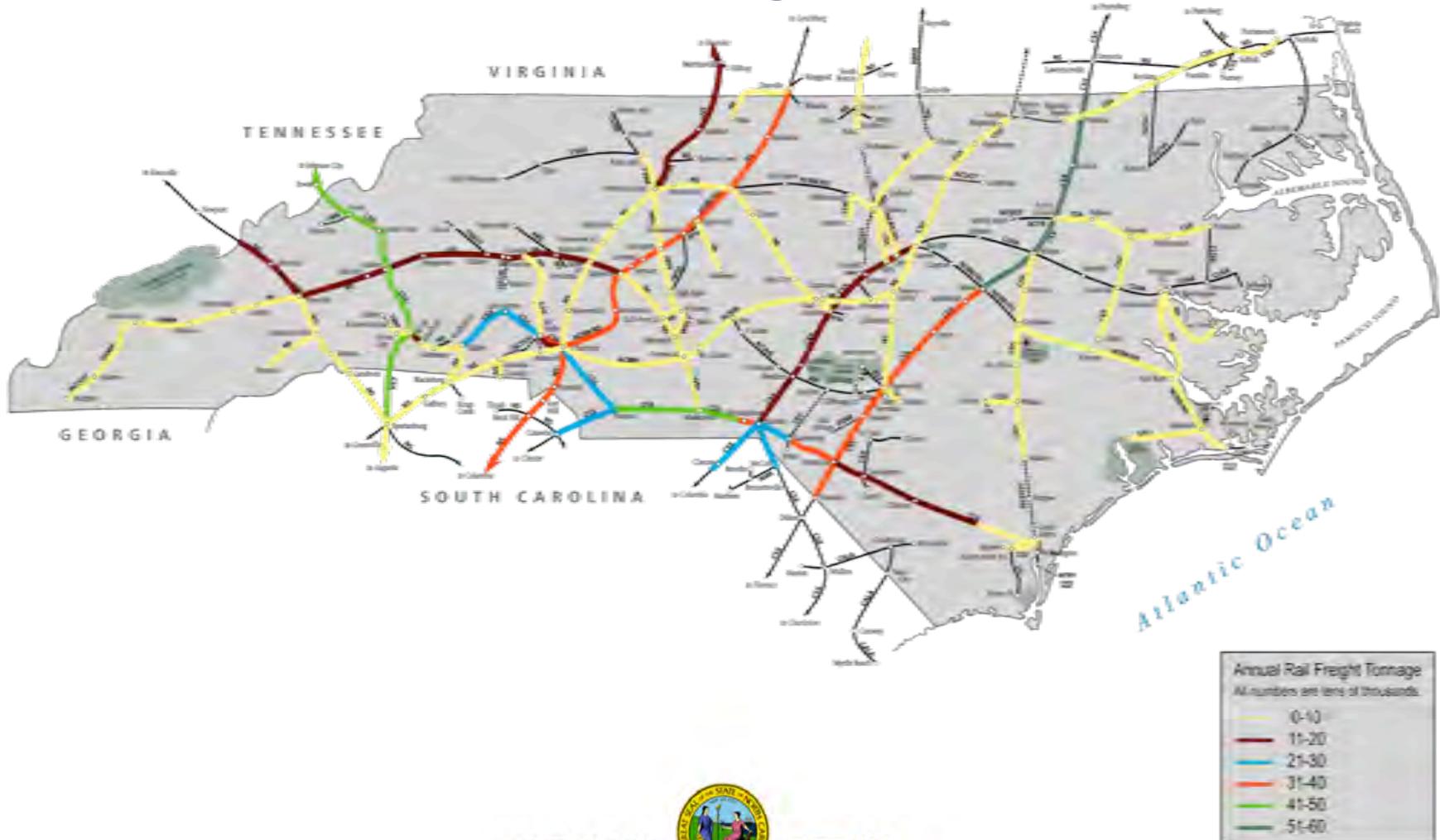
Railroad Network

AECOM



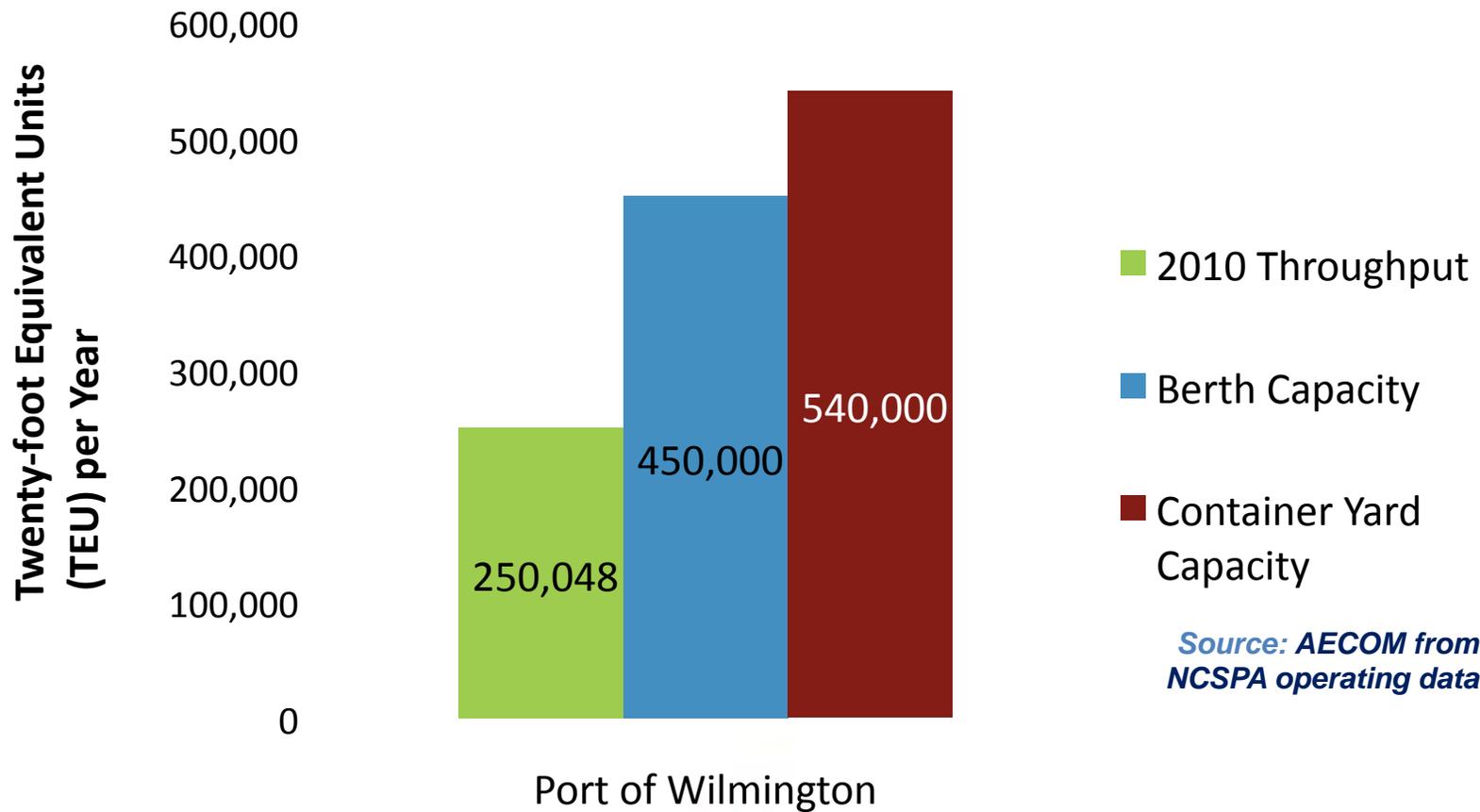
URS

North Carolina Freight Rail Network

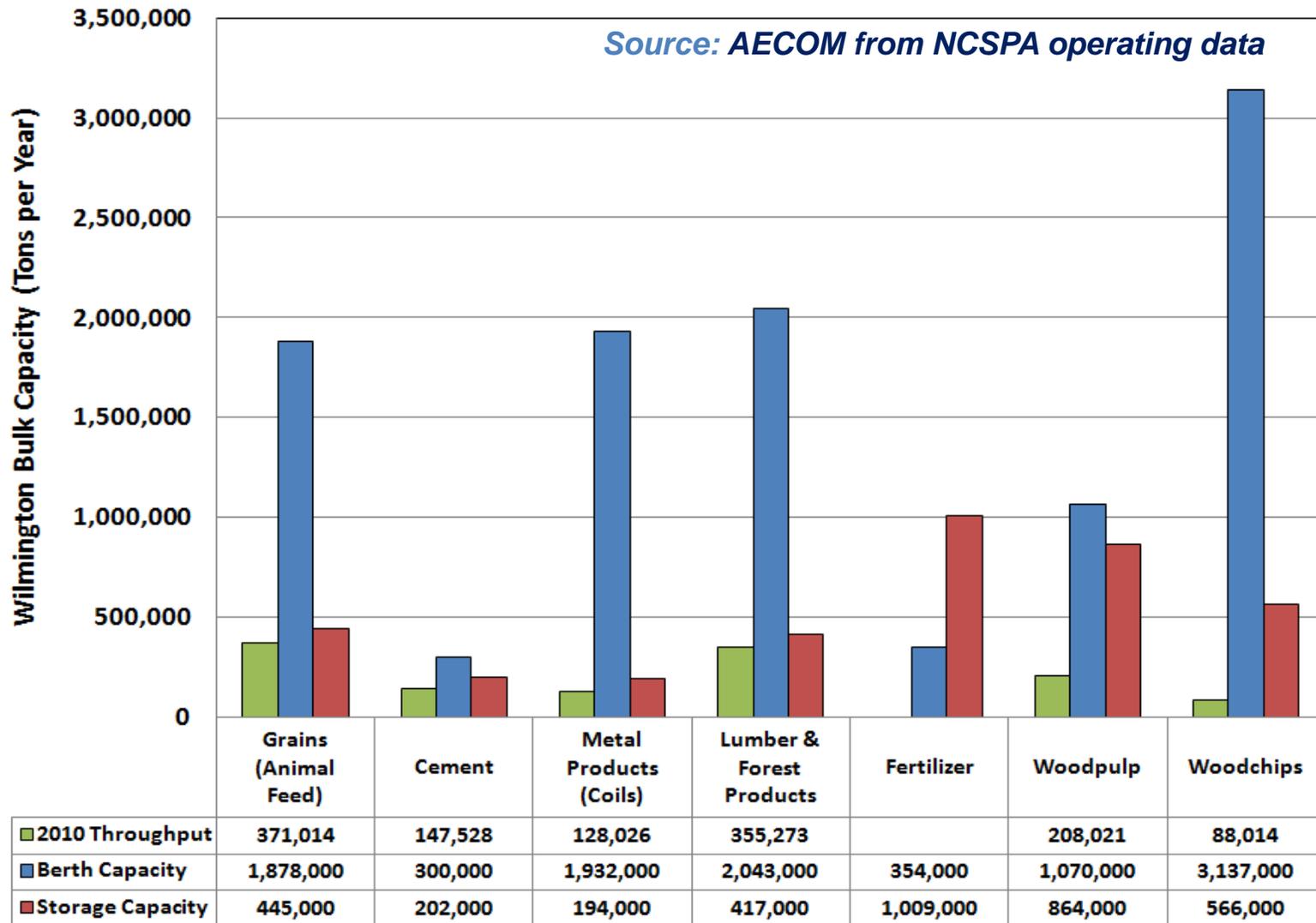


Port Terminals and Waterways

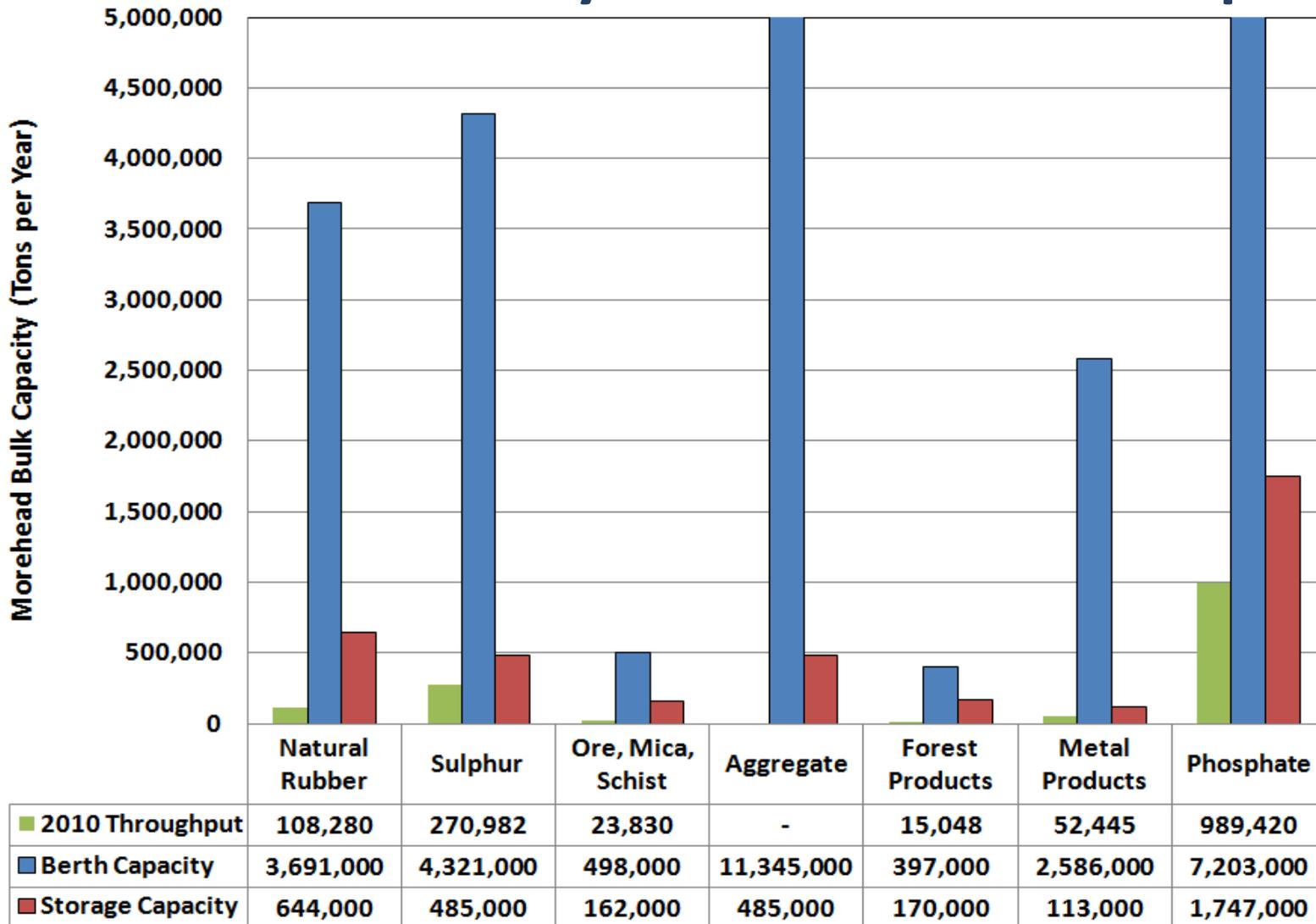
Wilmington Container Capacity



Wilmington Bulk & Breakbulk Capacity

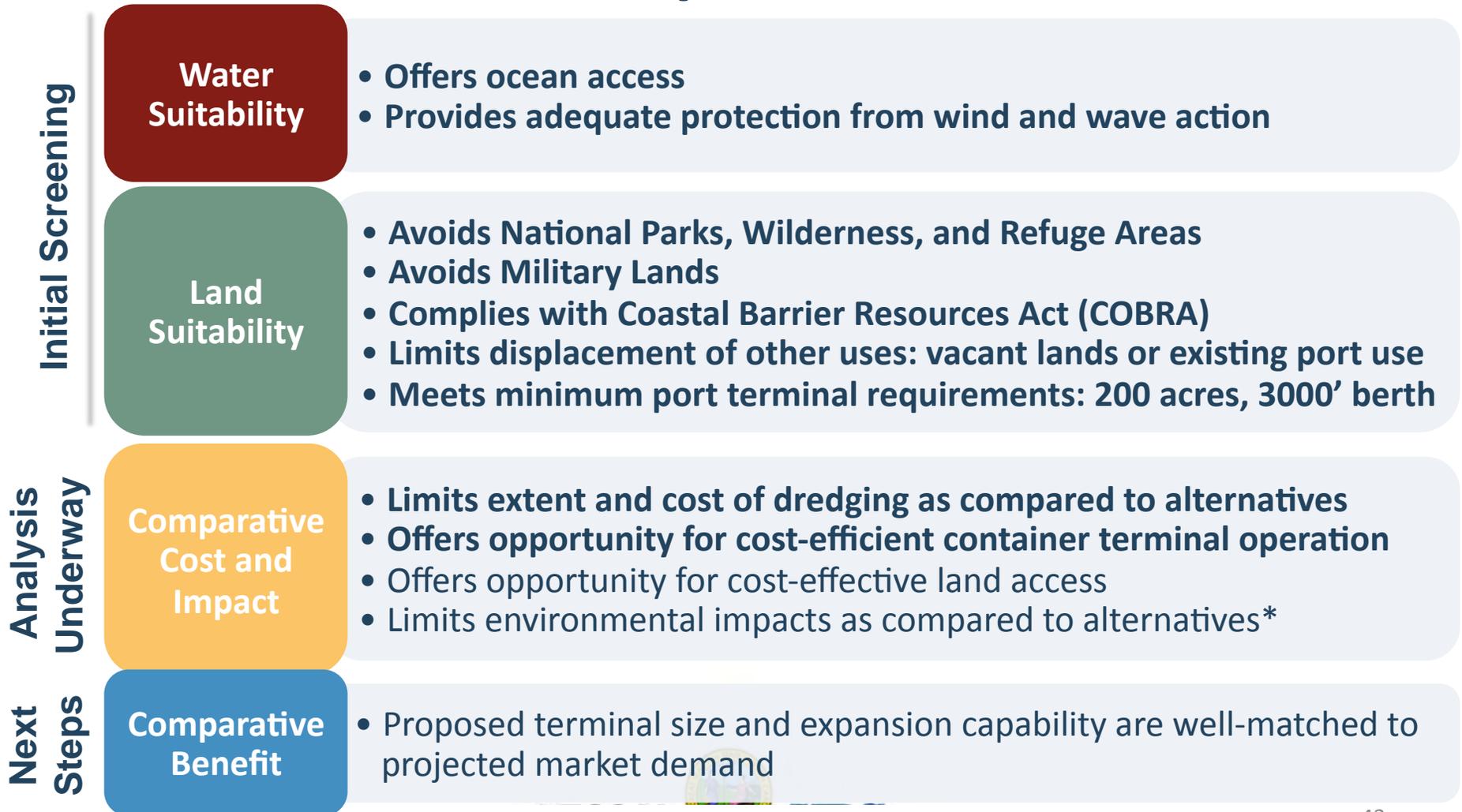


Morehead City Bulk & Breakbulk Capacity



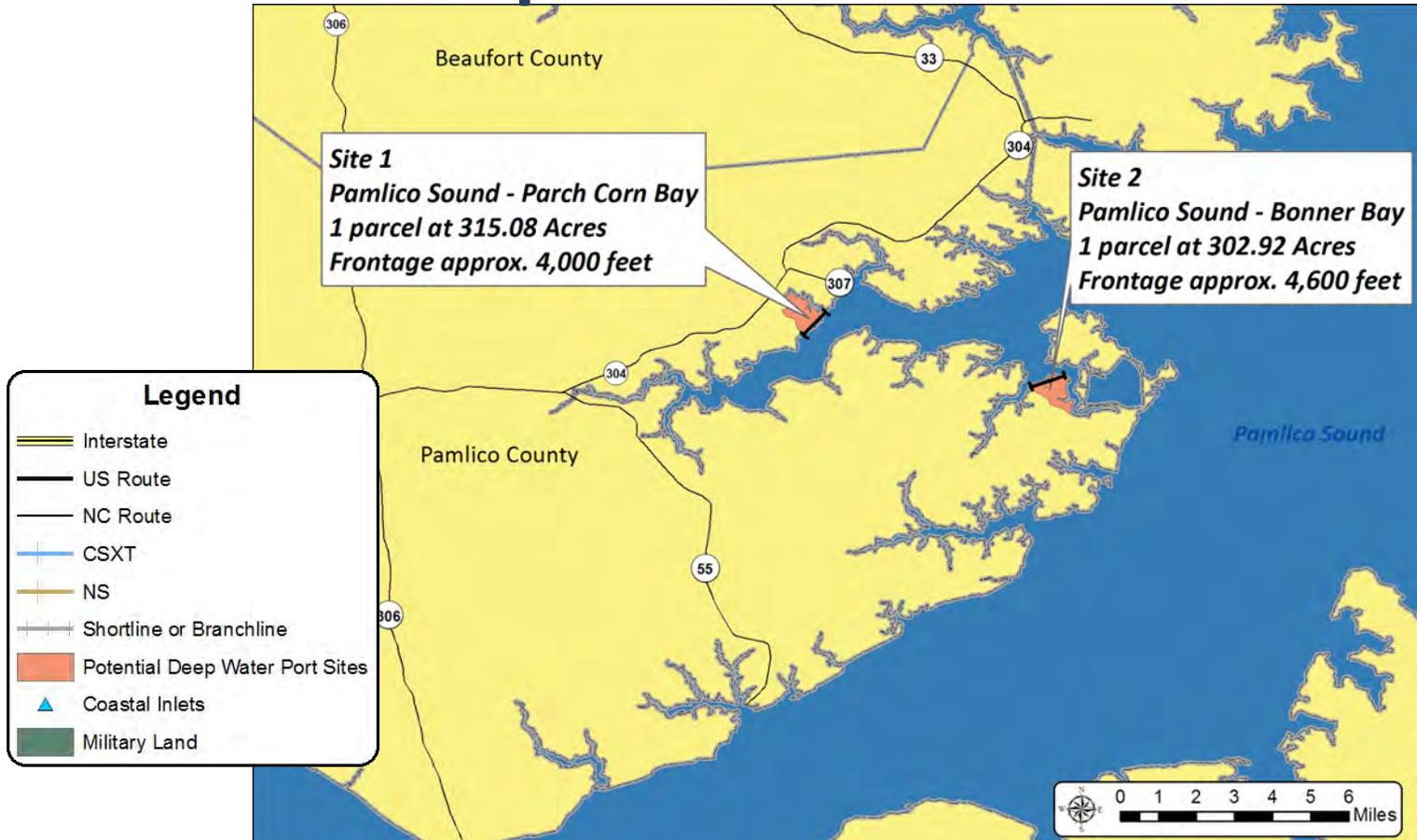
Source:
AECOM
 from NCSPA
 operating data

Potential Deepwater Port Sites



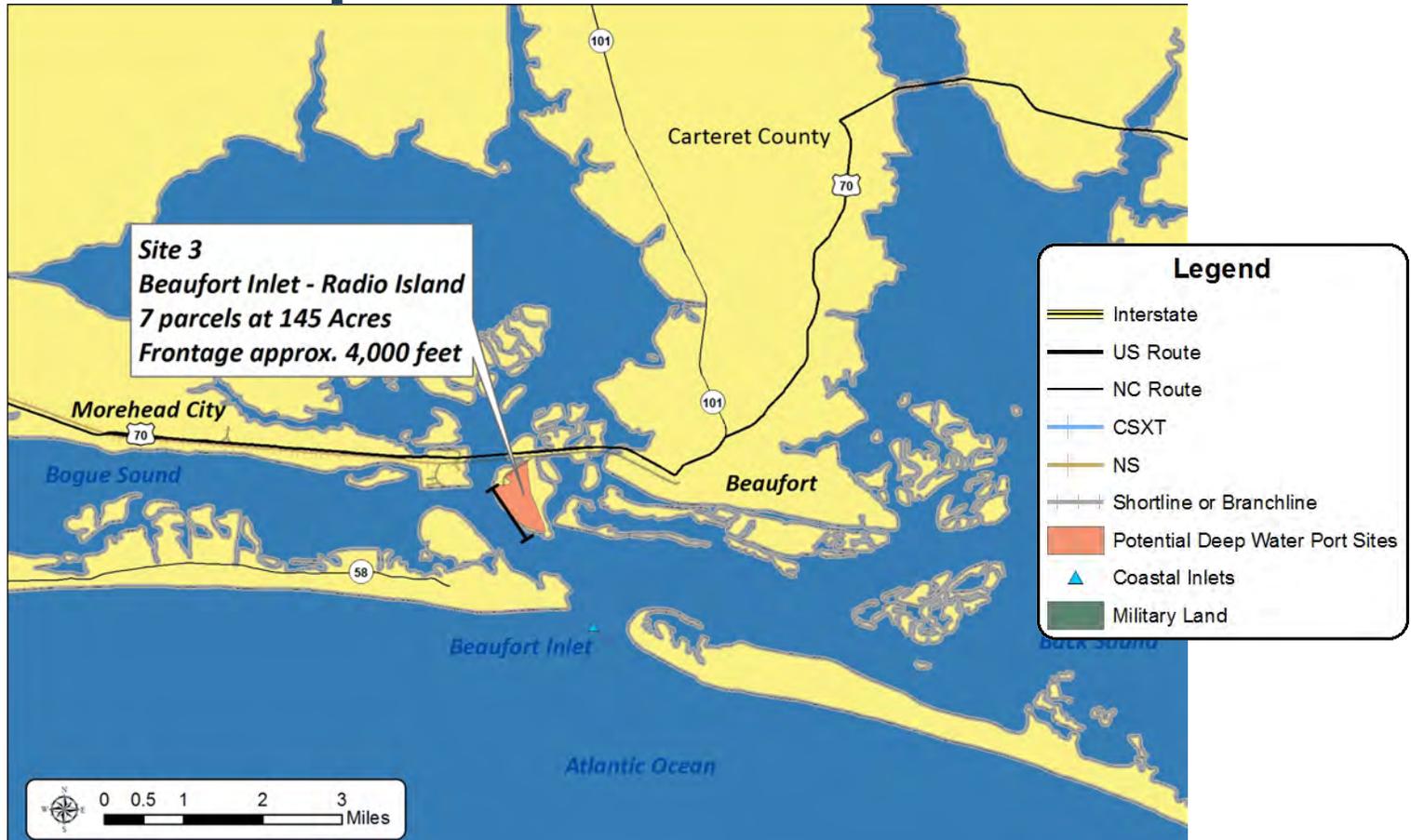
* Environmental screening does not include full environmental impact analysis

Deepwater Port Sites 1 & 2



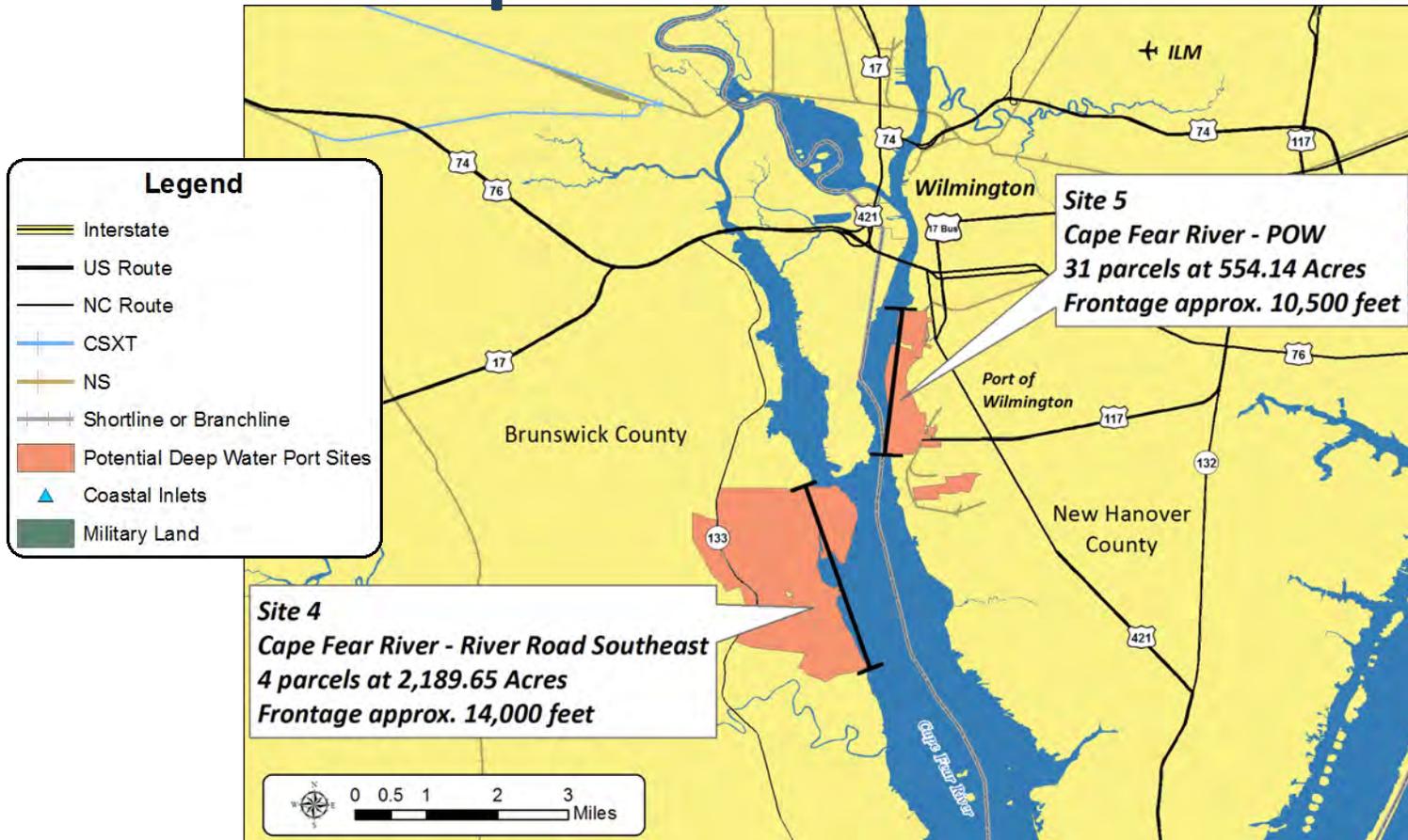
Source: AECOM/URS compiled from ESRI, NCDOT, USDOT Freight Analysis Framework v3.1, USGS ThematicMapping world borders dataset, SeaMap SA 2001, and Moser and Taylor 1995

Deepwater Port Site 3



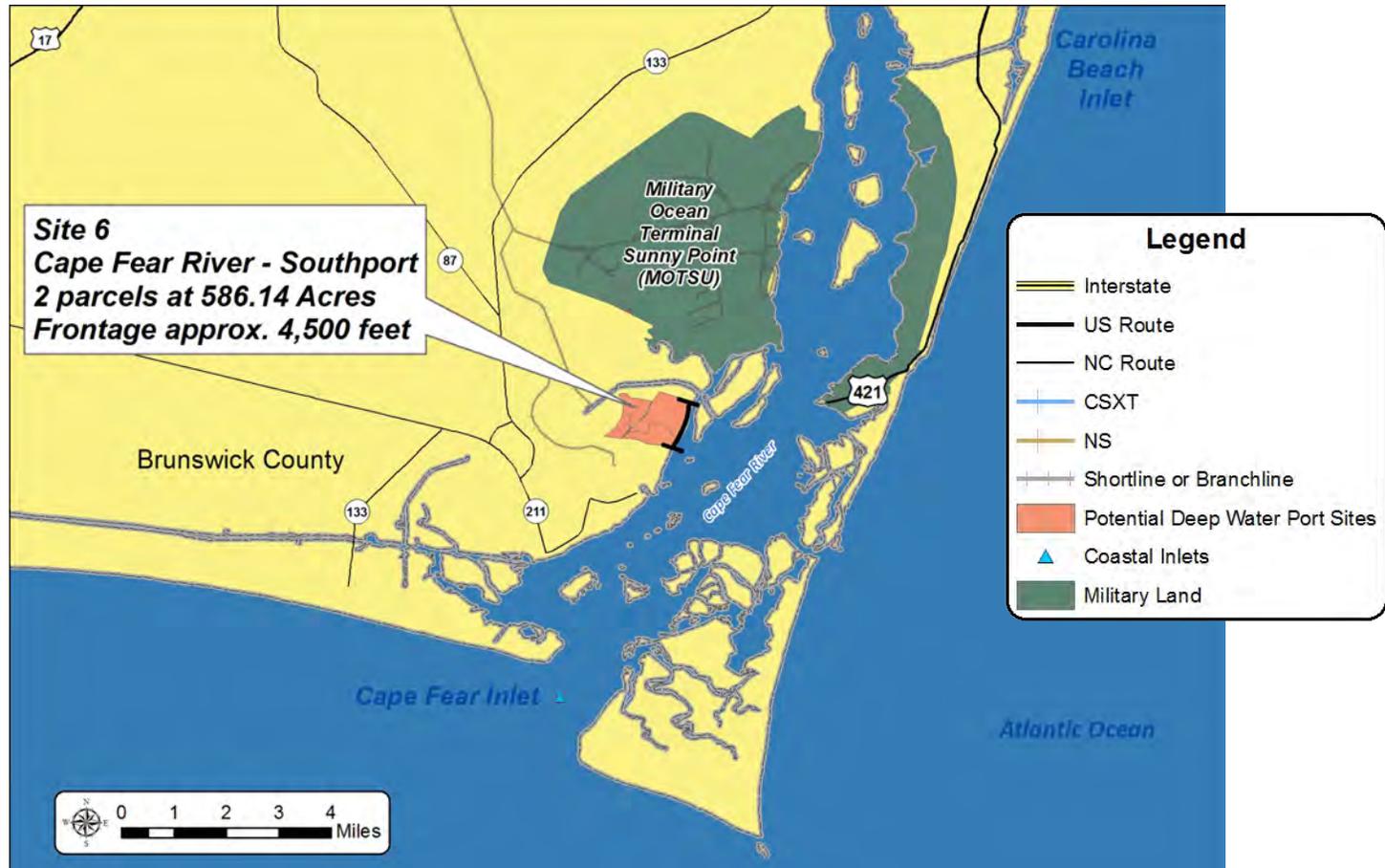
Source: AECOM/URS compiled from ESRI, NCDOT, USDOT Freight Analysis Framework v3.1, USGS ThematicMapping world borders dataset, SeaMap SA 2001, and Moser and Taylor 1995

Deepwater Port Sites 4 & 5



Source: AECOM/URS compiled from ESRI, NCDOT, Brunswick County, New Hanover County, USGS ThematicMapping world borders dataset, SeaMap SA 2001, and Moser and Taylor 1995

Deepwater Port Site 6



Source: AECOM/URS compiled from ESRI, NCDOT, Brunswick County, New Hanover County, USGS ThematicMapping world borders dataset, SeaMap SA 2001, and Moser and Taylor 1995

Next Steps

Next Steps

- Quantify investments that can reduce transport costs to North Carolina shippers
 - Highway gaps
 - Railroad connections
 - Port infrastructure and waterways
- Evaluate shipper cost savings that can be achieved through more efficient transportation network

Next Steps

- Translating growth in maritime volumes into economic benefits
 - Shipping savings yield a productivity benefit, making local industry more competitive in the market
 - NC-based industries located in state and using ports to export support in-state jobs and earnings
 - Lower delivered costs result in consumer benefit
 - Reduction in truck freight saves road maintenance costs, limits road emissions, and yields safety benefits

Next Steps

- Align strategies with other North Carolina initiatives
 - Develop synergies to guide overarching market approach
 - Identify and propose supporting policies or programs
- Develop evaluation measures

APPENDIX

Industry Workshop Summaries

Agriculture Workshop

- Landside costs are 50% or more of total transportation cost—efficient highway and rail access is key to port selection
- Rail costs to NC ports are often prohibitive—perception that the railroads do not want NC agriculture business
- Availability of containers is an influential factor driving port selection—exporters use ports with good import volumes
- Perceived lack of capacity to handle bulk at NC ports
- Need for refrigeration/cold storage facilities
- Time to market is an important port selection factor for perishable goods

Non-Agriculture Shipper Workshop

- Availability of containers is important factor in port selection – exporters must use ports that have good import volumes
- Access to carriers and frequency of calls noted several times in port selection—suggestion to offer incentives to carrier to build business
- Landside costs are 50% or more of total transportation cost—perception that NC highways do not efficiently support port access
- Growing need for Ro-Ro and oversize cargo handling
- Perception that port, state, and community do not speak with one voice—other port communities welcome port business more than in North Carolina

Shipping Lines Workshop

- Operating water depth for vessels likely to call at NC ports: 46'-48'
- 10%+ discount may incentivize carriers to move to new port
- Interested in ports' ability to cross-dock or transload (transfer cargo from international 20'/40' boxes to 53' domestic boxes)
- Port of Wilmington:
 - Experienced workforce, good interstate access, gateway to Latin America
 - Limited by turning basin and water depth, no intermodal rail, no trans-Pacific trade
- Port of Morehead City:
 - Deeper water, good for ag cargo
 - Poor land access, limited area for expansion if used for container operations

Railroad and Trucking Workshop

- Interest in continued collaboration to better understand and advance complementary goals of port and railroads
- Railroads respond to, rather than dictate, port development
- The market competition isn't between railroads, but actually between railroads and trucks, especially at NC ports
- Railroads have pre-established contracts with big-box retailers that can skew the true marketplace pricing— and steamship companies may have similar arrangements
- Port's need for dual rail service may be more perception than reality—possible solution in shared *haulage* rather than *dual operation* of NS and CSX to achieve threshold freight volumes

Coastal Engineering and Regulatory Input

- Funding is the biggest challenge to channel dredging— priorities based on military need and national economic benefit
- Deeper channel means wider footprint – and associated environmental impacts
- USACE is examining Battery Island turn, shoaling at Bald Head Island, and expanded turning basin
- Good quality sand currently dredged from Cape Fear and Beaufort Inlet; however significant deepening will need to consider presence of rock and hard bottom features

Metropolitan Planning Organizations

- Most freight in NC travels by truck; some rail freight
- Highway congestion is a concern—need improved freight planning and investment in roadway and rail networks, particularly port connections
- Freight hubs identified:
 - (primary) Wilmington, Morehead City, Raleigh-Durham, Charlotte, and Winston-Salem/Greensboro/High Point
 - (secondary) Rocky Mount, Henderson, Global TransPark, Lumberton, Ft. Bragg, Fayetteville, Camp Lejeune, Southport, Military Ocean Terminal at Sunny Point, Hamlet, Burlington, Statesville, Concord, Linwood, Reidsville, and Asheville
- Some explicitly indicated the need for a deepwater port in NC

Military Workshop

- Ports of Morehead City and Wilmington support limited military use as compared to other east coast ports
 - Use driven by TRANSCOM and “commercial first” policy
 - Lack of Ro-Ro capability at Wilmington
 - Limited tugs at Morehead City
 - As Strategic Seaports, should be regularly used to assure readiness
- Improved access to both NC ports would be attractive
 - Pembroke rail turn; Wallace-Castle Hayne connection; US 70
- Commercial pressure at other ports is opportunity for NC ports
- Security related to a new container facility considered routine, but fixed cranes and dense storage (like APM Terminal at Norfolk) could limit military benefit

Special Zones Workshop

- Today, waterborne goods handled at NC's logistics parks are primarily moved through ports at Savannah or Norfolk
- Congestion at Greensboro and at Charlotte makes NC ports less attractive to shippers west of Raleigh
- Unbalanced truck route to Morehead City: 110+ mile empty haul
- Limited cold storage available: Kernersville and Norfolk
- Lack of Ro-Ro at Port of Wilmington sends shippers elsewhere
- Business incentives to collocate industries with complementary transport needs, foreign partnerships, and deconsolidation commissions could enhance use of NC facilities
- Need coordinated marketing with NC Dept of Commerce

Bulk and Breakbulk Workshop

- Trucking distance is the key cost differential
- Cargo handling cost differences across ports is not major driver
- Deadheading to/from Port of Morehead City limits trucking availability
- Lower tonnage limit for over-the-road dry trailer vs. container presents a disadvantage to breakbulk and bulk shippers
- Sufficient volumes needed at port to attract a break-bulk carrier
- Service at NC ports is equal or better than peer ports
- NC ports need to market themselves better

Progress Energy

- No official position on NCIT until all issues are vetted and satisfactorily resolved
- Progress Energy concerns related to adjacent container port development that would require resolution include:
 - Potential siltation or compromise of intake canal could contaminate or affect access to cooling water
 - Plant security related to berthing and storage of containers
 - Impact to nuclear facility evacuation plans
 - Land access crossing of the discharge canal cannot restrict outflow
 - Compatibility with transmission and distribution lines

Economic Development - Southeast Region

- 40 % of potential recruits have at-port or near-port requirement
- Active Bio-Energy (wood pellet) pursuits
- Agricultural need for cold storage, potential public-private partnership
- Potential synergy of hog spray lagoons, grasses, and bio-fuel production (military as potential fuel consumer)
- US 74 corridor has potential for economic development – parallel rail, gas, water, sewer, and two parks totaling 2,000 acres
- Highway access is improving. Additional needs: US 74 / I-74, Monroe Bypass, Murchison Road / Bragg Blvd, future NC 87 / I-74 interchange, service roads between industrial parks
- Limited rail access near port

Economic Development - AdvantageWest

- Many port users are using Charleston and Savannah; northwest portion of region can use Wilmington
- Exports – automotive parts, wood, pulp, paper
- Imports – consumer goods,
- Opportunity for value-added industries in automotive industry
- Top employers – health care, transportation / heavy equipment, aerospace industries
- Highway needs – I-26, US 19-23, US 221 from SC to I-40, Corridor K
- Frequency of rail service
- Noted Inland Port Study

Community Stakeholder Groups

- Concerns expressed in focused meetings reflect the individual interests of stakeholder groups
- Need for jobs and viable industry vs. potential negative impacts of port development
- One common theme: environmentally-responsible port development is crucial
- Governor's Executive Order 99