

# NC Maritime Study Goal & Outcome

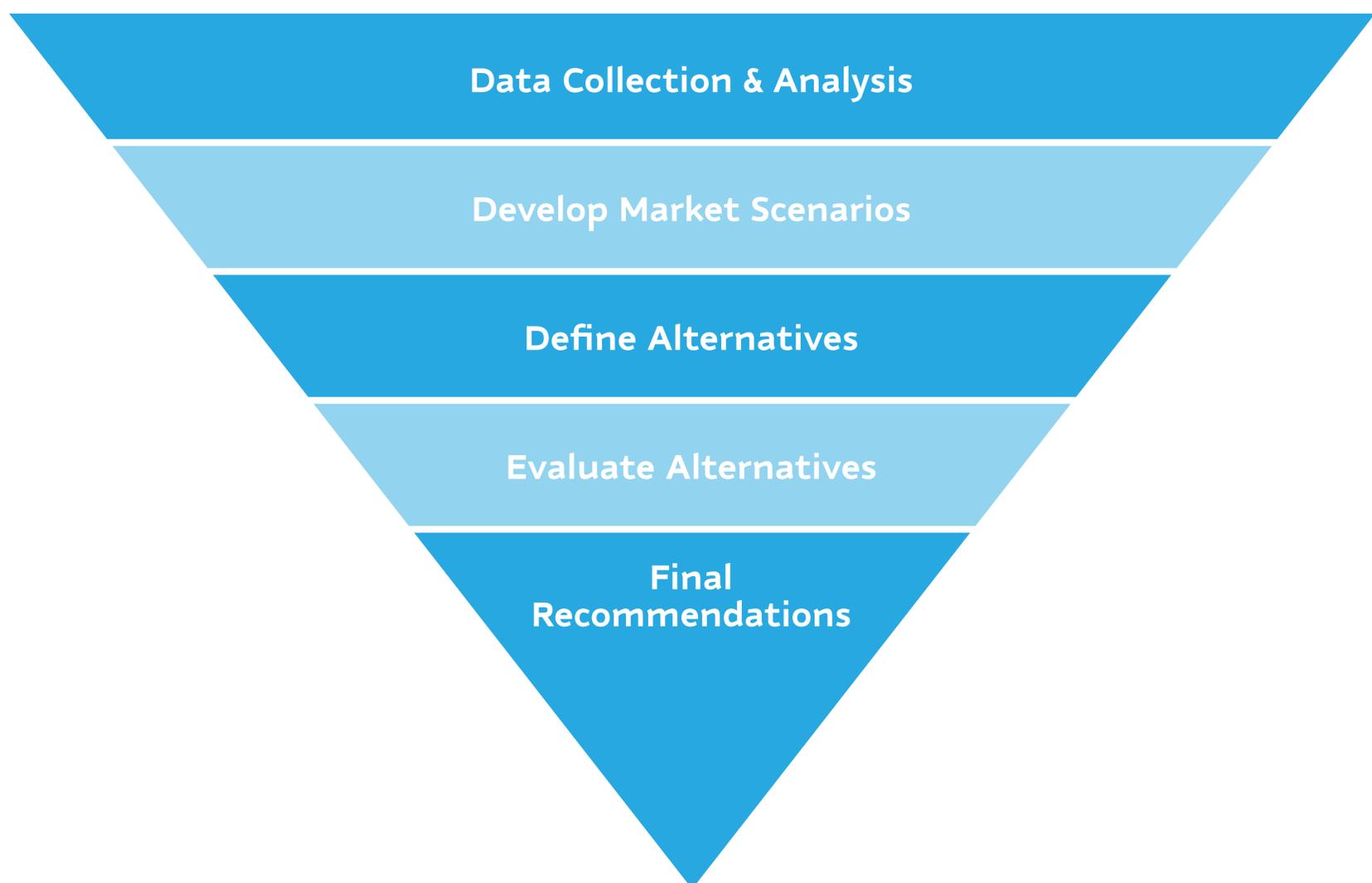
## Goal

Analyze and investigate how ports can help with job creation and improve the economic situation for all of North Carolina.

## Outcome

The study will present a menu of options to the State so the best opportunities for future maritime development can be chosen.

### Summary Timeline Project Kickoff — May 2011



**Final Report**  
February 2012

## NC Maritime Study Scope

- > Evaluate North Carolina's position, opportunities and challenges as a portal for global maritime commerce;
- > Examine the role of NC 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.

## Your Role

- > Review meeting materials, which include analysis of current port operations, import/export and specific market growth opportunities, transportation system overview and potential port improvements.
- > Ask questions.
- > Provide input/comments.

## Data Collection & Analysis

- > Reviewed more than 100 existing documents and reports to identify available and verifiable information that is applicable to the Maritime study.
- > Obtained updated import/export market forecasts for US Southeast region from IHS Global.
- > 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.
- > Integrated input from diverse industry stakeholders to assess market needs and opportunities.

# Industry & Stakeholder Meetings

## > Industry Workshops

- Agriculture, Non-Ag Shippers, Shipping Lines, Railroads and 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, US Army Corps of Engineers, 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 (statewide)

## > Public Workshops

- Government Officials Briefings and Community Information Workshops (in Morehead City and Wilmington)

# Summary of Stakeholder Input

- > Jobs, economic growth and the environment are top concerns.
- > Landside costs represent up to half of total transportation cost of North Carolina exports.
- > Enhanced road and rail connections are critical to the cost-effective movement of goods.
- > Cost to transport NC goods is increased by localized congestion and lack of back-haul opportunities on key routes.
- > Rail freight cannot be competitive within NC without sufficient volumes to support regular rail service.
- > Containerized imports are needed so that containers can be available for NC exporters.
- > Competitive containerized trade requires regular service by ocean carriers.
- > Maritime trade opportunities and needs include: refrigerated storage, facilities to support roll-on/roll-off and oversize cargo, and bulk handling for wood pellets and grain.
- > An integrated strategy for NC will include Commerce, Transportation and the US Military.
- > Better communication on maritime needs is sought — with the public and with local shippers.

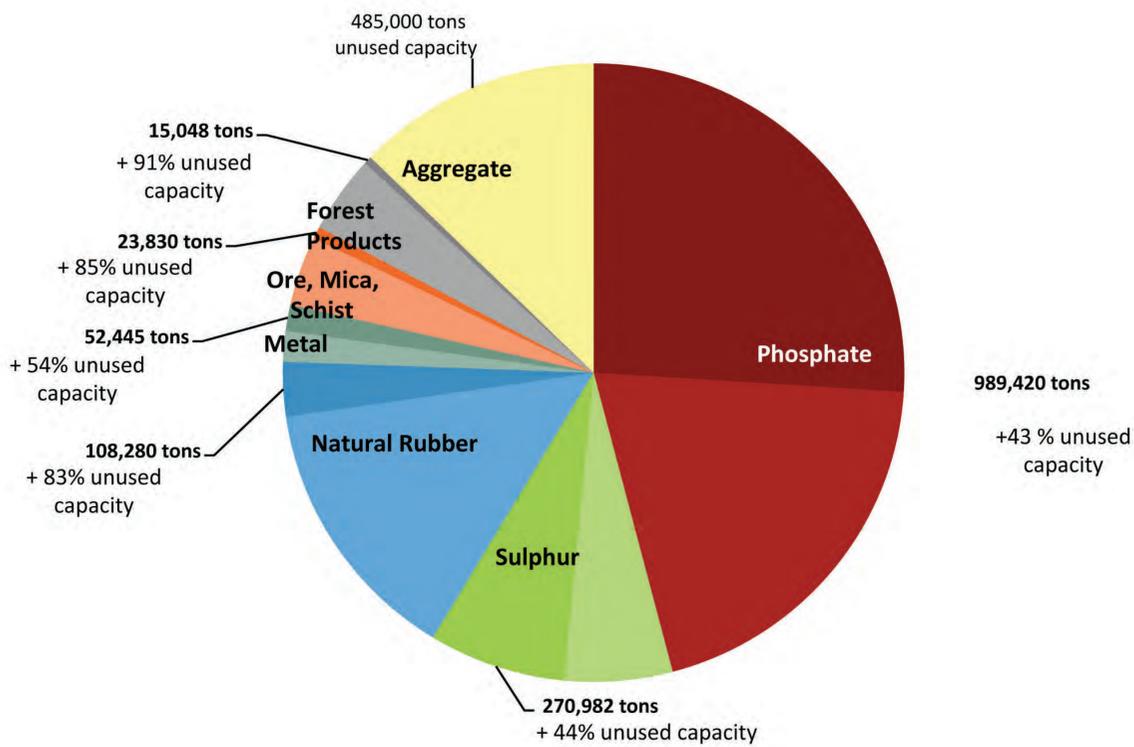
## Overview of NC Ports

- > North Carolina ports have a demonstrated strength in non-containerized (bulk and breakbulk) cargo.
- > Low port handling costs relative to other regional ports.
- > NC Ports' available capacity for growth is limited by terminal storage area (for all commodities but fertilizers and containerized goods, which are limited by berth capacity).

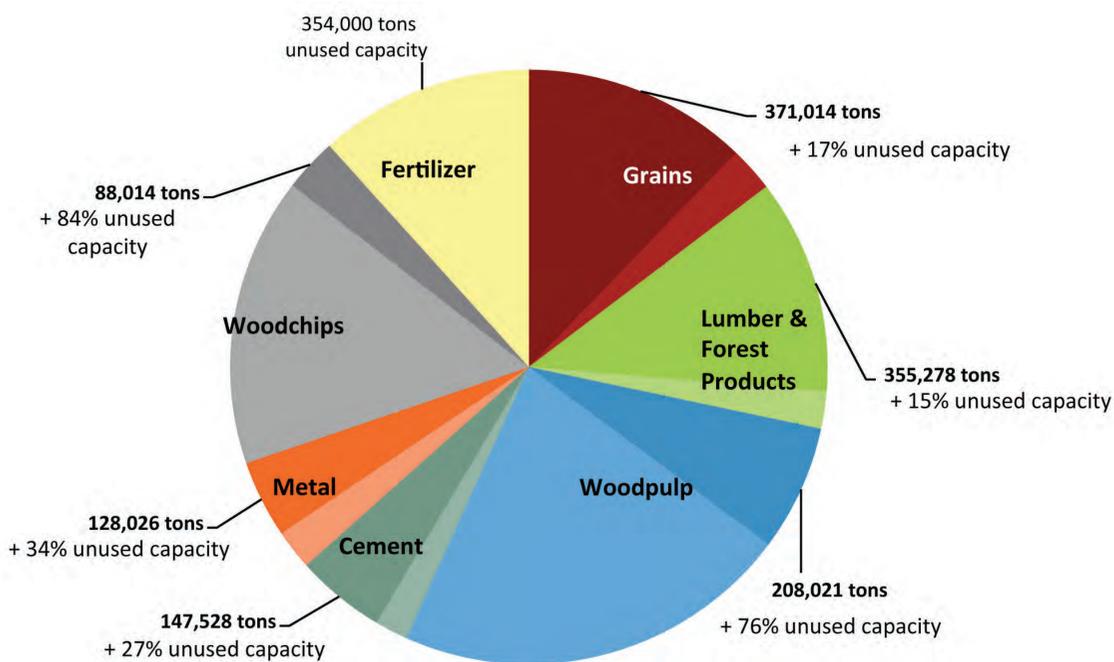


# Overview of NC Ports (CONT.)

## 2010 Non-containerized Goods Handled (in Tons) and Unused Capacity Available for Expansion (by Commodity)



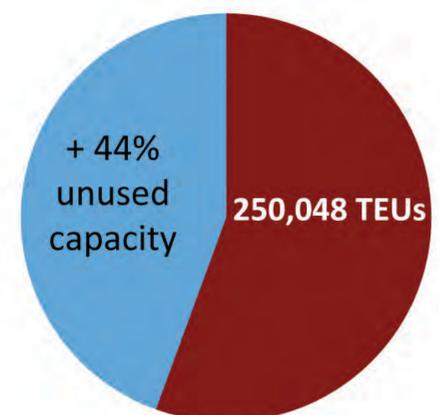
Port of Morehead City



Port of Wilmington

## 2010 Containerized Goods Handled (in 20-ft Equivalent Units or TEUs) and Unused Capacity Available for Expansion

Port of Wilmington



## Containerized Goods

The movement of containerized goods through ports supports both export and import activity across a large variety of industries — everything from goods destined to local retailers, to increased export of sweet potatoes and frozen chickens.

Infrastructure needs for a cost-efficient container port include:

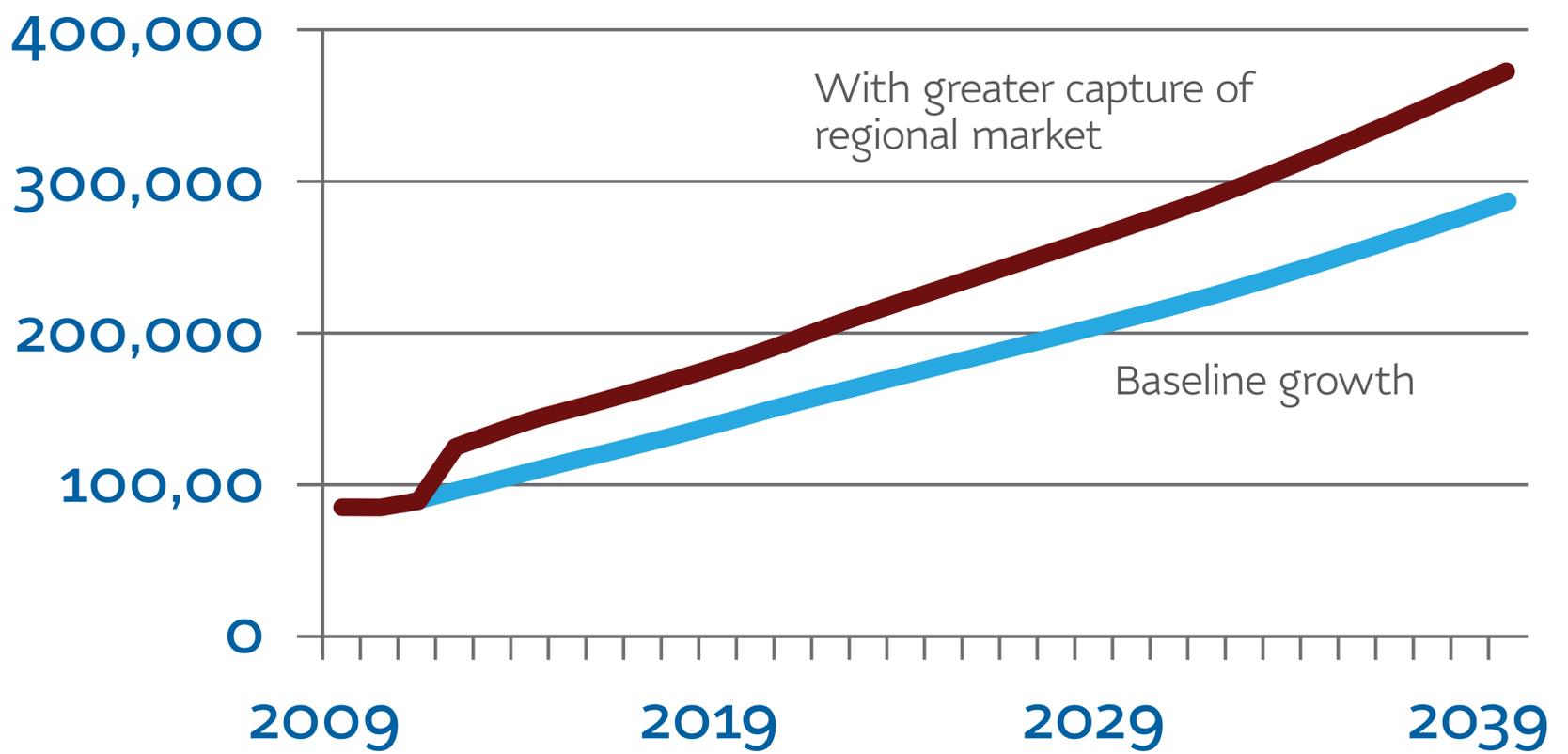
- > 50-ft+ water depth to accommodate Neo Panamax vessels, 40-ft+ water depth for Panamax vessels
- > 2 or 3 contiguous berths each 1200' long
- > Container storage area of 150-200 acres or more
- > Truck and rail access

**Challenge:** As the expanded Panama Canal improves access from Asia to the US East Coast, the volume of containerized imports to regional ports is projected to increase. Limited water depth and storage area at the existing Wilmington container terminal cannot adequately handle loaded Neo Panamax ships.

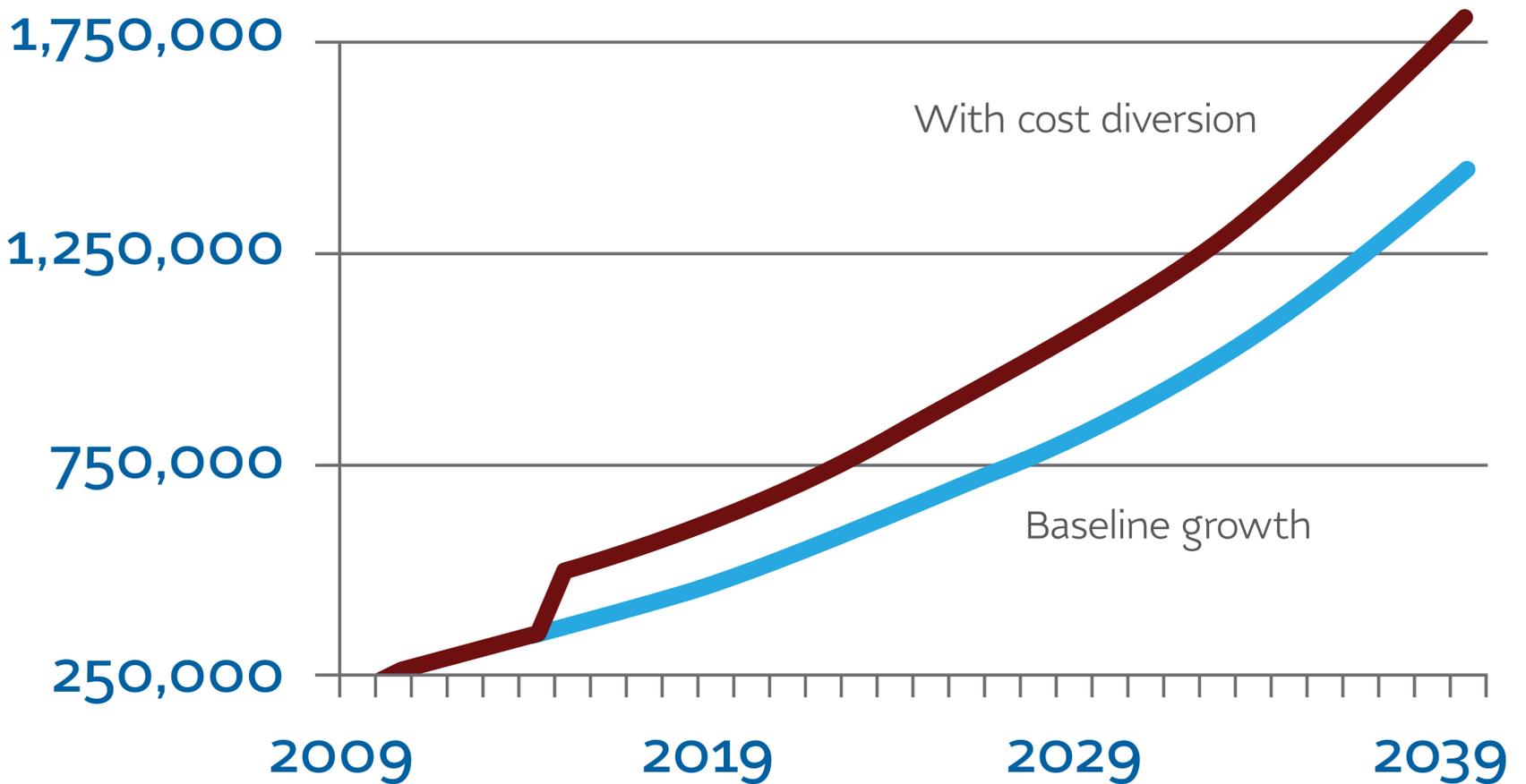
**Opportunity:** Growth in container activity at the port would make NC facilities more attractive destinations for shipping lines, which provides a larger market for NC producers and their shipping needs.

# Containerized Goods (CONT.)

## Refrigerated Goods Annual Tonnage



## Annual Container Volumes (20-foot equivalent units)

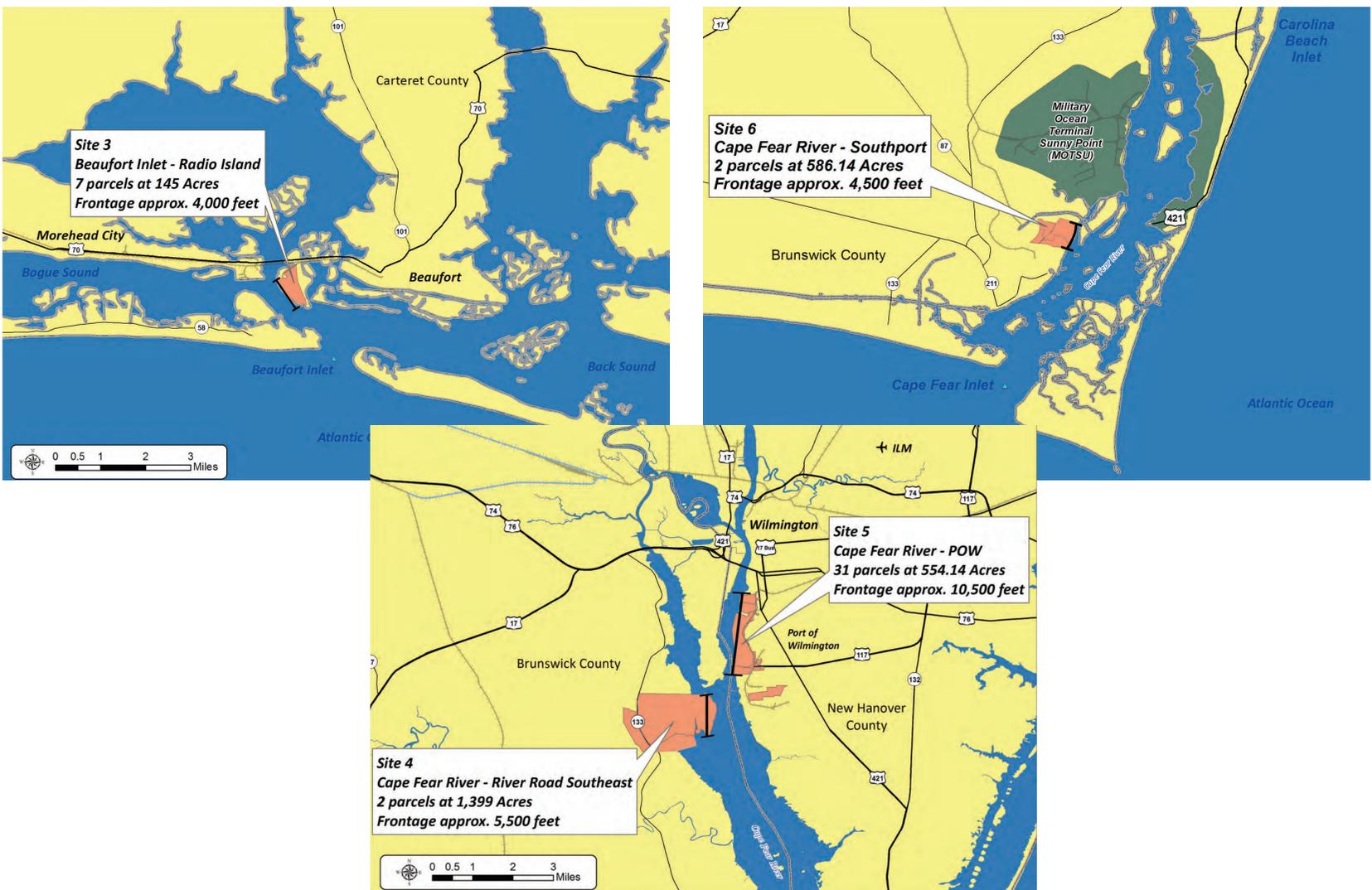


# Containerized Goods (CONT.)

## Criteria Used for Selecting Potential Deepwater Port Sites

Initial Screening	<b>Water Suitability</b>	<ul style="list-style-type: none"> <li>&gt; Offers ocean access</li> <li>&gt; Provides adequate protection from wind and waves</li> </ul>
	<b>Land Suitability</b>	<ul style="list-style-type: none"> <li>&gt; Avoids National Parks, Wilderness and Refuge Areas</li> <li>&gt; Avoids Military Lands</li> <li>&gt; Complies with Coastal Barrier Resources Act (COBRA)</li> <li>&gt; Limits displacement of other uses: vacant lands or existing port use</li> <li>&gt; Meets minimum port terminal requirements: 200 acres, 3000' berth</li> </ul>
Analysis Underway	<b>Comparative Cost and Impact</b>	<ul style="list-style-type: none"> <li>&gt; Limits extent and cost of dredging as compared to alternatives</li> <li>&gt; Offers opportunity for cost-effective land access</li> <li>&gt; Complies with Coastal Barrier Resources Act (COBRA)</li> <li>&gt; Limits environmental impacts as compared to alternatives</li> </ul>
Next Steps	<b>Benefit Analysis</b>	<ul style="list-style-type: none"> <li>&gt; Port improvements are suited to meet projected market demand</li> </ul>

## Maps of Potential Deepwater Port Sites



# Grain & Soybean

Greater capacity to export grain and soybean through North Carolina ports would support one of the State's existing economic strengths. World demand for grain and soybean is projected to grow strongly, so increased exports would attract more income to the State.

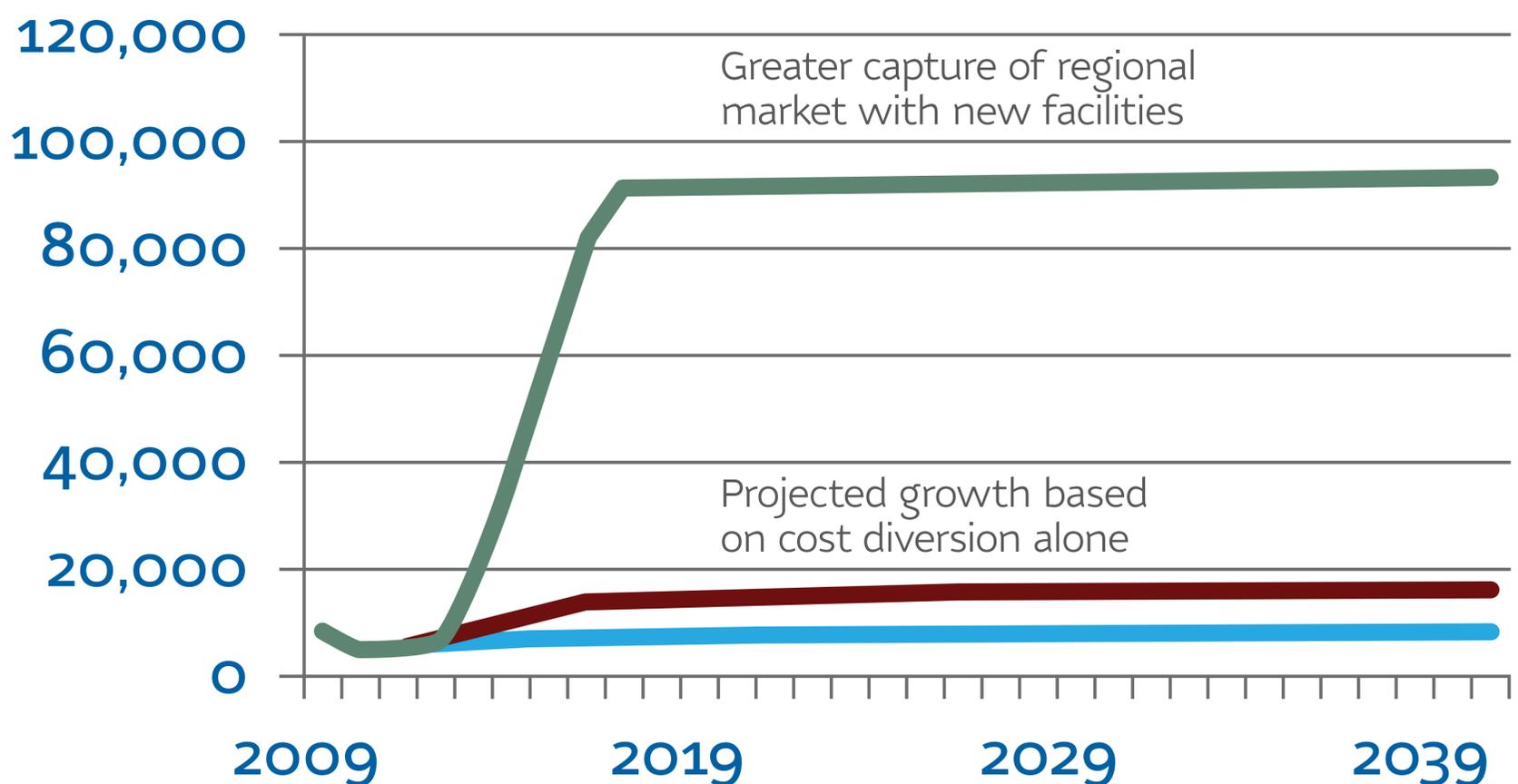
Infrastructure needs for grain and soybean export include:

- > 40-ft+ water depth
- > Grain silos and buildings, along with specialized vessel loaders
- > Road and rail capacity to match vessel demand

**Challenges:** Currently there is no bulk grain terminal at either port to handle exports of grain and soybean; the majority of NC grain and soybean are exported from outside of the State.

**Opportunity:** Potential for grain and soybean producers to export more at lower cost if closer in-state ports became an option.

## Annual Tonnage



# Grain Export Facilities

## Potential Layout at Radio Island and at Wilmington



<table border="1"> <thead> <tr> <th>Revision #</th> <th>Revised by</th> <th>Approved by</th> <th>Date approved</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>Drawn by: EAC          Approved by: VPA          Date: 11/23/11          Date: 11/23/11</p>	Revision #	Revised by	Approved by	Date approved					<p><b>AECOM TRANSPORTATION</b>          701 Corporate Center Drive, Suite 475          Raleigh, NC 27607          T 919.854.6211 F 919.854.6259          www.aecom.com</p>	<p>NORTH CAROLINA  <b>MARITIME</b> Strategy</p>	<p><b>SITE 3</b>          BEAUFORT INLET-RADIO ISLAND          PORT OF MOREHEAD CITY          NORTH CAROLINA</p>	<p>Sheet Title  <b>GRAIN, BREAK BULK AND RORO          TERMINAL PLAN</b>          Project Number: 60197138 Sheet Number: 9</p>
Revision #	Revised by	Approved by	Date approved									



<table border="1"> <thead> <tr> <th>Revision #</th> <th>Revised by</th> <th>Approved by</th> <th>Date approved</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>Drawn by: EC          Approved by: VPA          Date: 06-29-11          Date: 11-23-11</p>	Revision #	Revised by	Approved by	Date approved					<p><b>AECOM TRANSPORTATION</b>          701 Corporate Center Drive, Suite 475          Raleigh, NC 27607          T 919.854.6211 F 919.854.6259          www.aecom.com</p>	<p>NORTH CAROLINA  <b>MARITIME</b> Strategy</p>	<p><b>SITE 5</b>          CAPE FEAR RIVER          PORT OF WILMINGTON NORTH CAROLINA</p>	<p>Sheet Title  <b>GRAIN / BREAK-BULK /          RORO TERMINAL</b>          Project Number: 60197138 Sheet Number: 10</p>
Revision #	Revised by	Approved by	Date approved									

# Roll-on, Roll-off (Ro-Ro)/ Oversize Cargo

Producers of manufactured goods, especially those who make large bulky products such as Caterpillar and Spirit AeroSystems, rely on port access to receive parts and to deliver products to customers. North Carolina has had recent success in attracting these firms to the State. Wind power, which includes large components, is also an opportunity for the State.

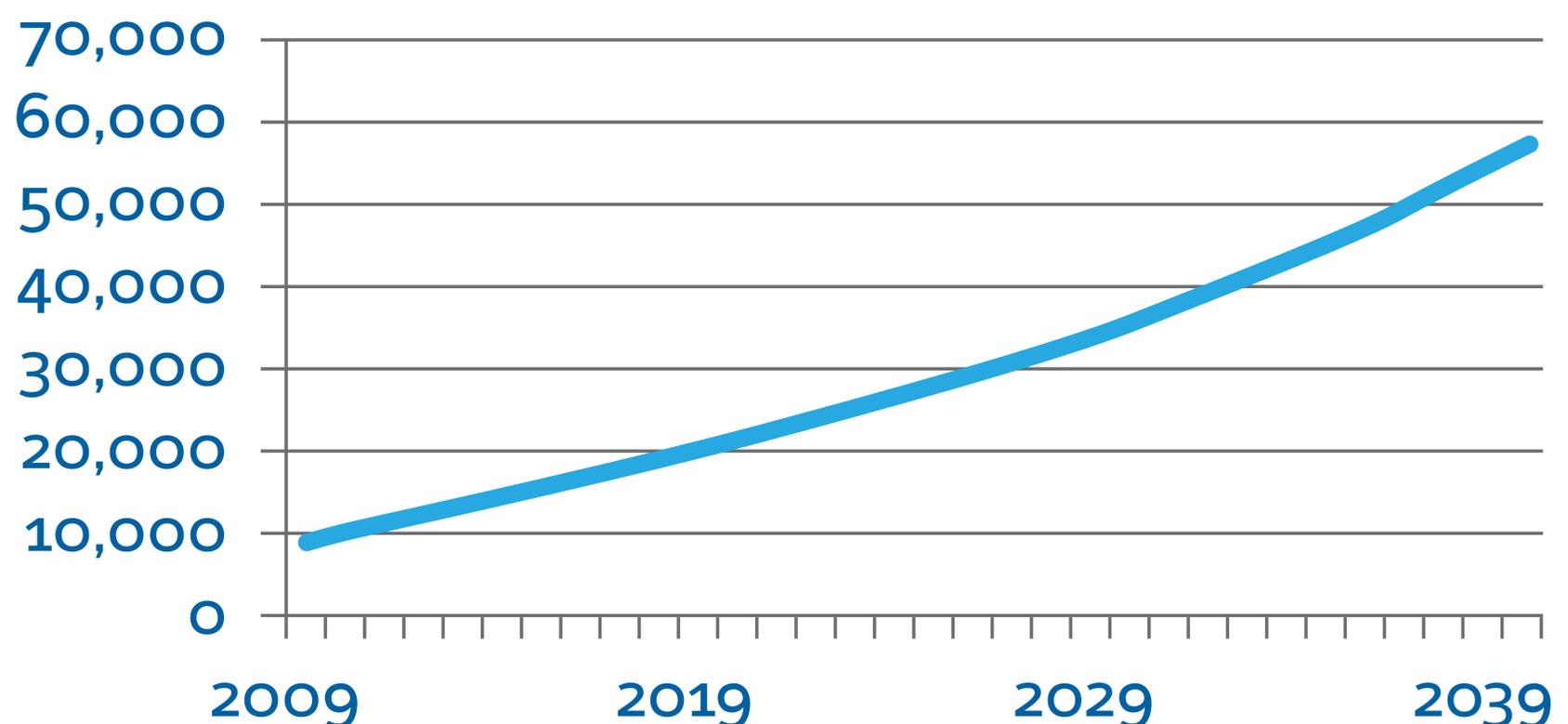
Infrastructure needs to support the movement of Ro-Ro and oversize cargo include:

- > 35-ft+ water depth
- > Open storage area near wharf
- > Heavy cranes for lifting non-wheeled cargo
- > Rail and truck access
- > Infrastructure that can accommodate large and heavy loads

**Challenge:** Large bulky goods are costly to move because of their weight, but also because their physical dimensions make it difficult to traverse underpasses and narrow roadways.

**Opportunity:** Expanding and relocating firms who produce large goods consider port access in making their site selection decisions. These are attractive employers because they not only hire workers directly, but they also make large purchases of goods and services from the economy, which also indirectly supports jobs.

## Annual Tonnage



## Military Cargo

Both the Port of Wilmington and the Port of Morehead City are designated as Strategic Seaports, two of just 15 nationwide. This makes North Carolina an important location for military investment and the associated spin-off employment that is supported by military centers.

Infrastructure needs to handle military cargo include:

- > 35-ft+ water depth
- > Container cranes and mobile harbor cranes with various grabs
- > Ro-Ro facilities
- > Open area near the wharf that can meet military storage and security needs
- > Truck and rail access that can accommodate heavy loads

**Challenge:** Expanding commercial activity while preserving those aspects of port operations that support military operations.

**Opportunity:** The economic return on investment to preserving the Ports' attractiveness to the military is important. Military facilities support over 416,000 workers, about 8% of total State employment, through military or jobs supported by military installations in the State.



# Wood Products

Increased export of wood products through North Carolina ports would support an important existing industry in the State. World demand for wood products, such as pellets as a source of replenishable energy, is expected to grow strongly in next 10 years.

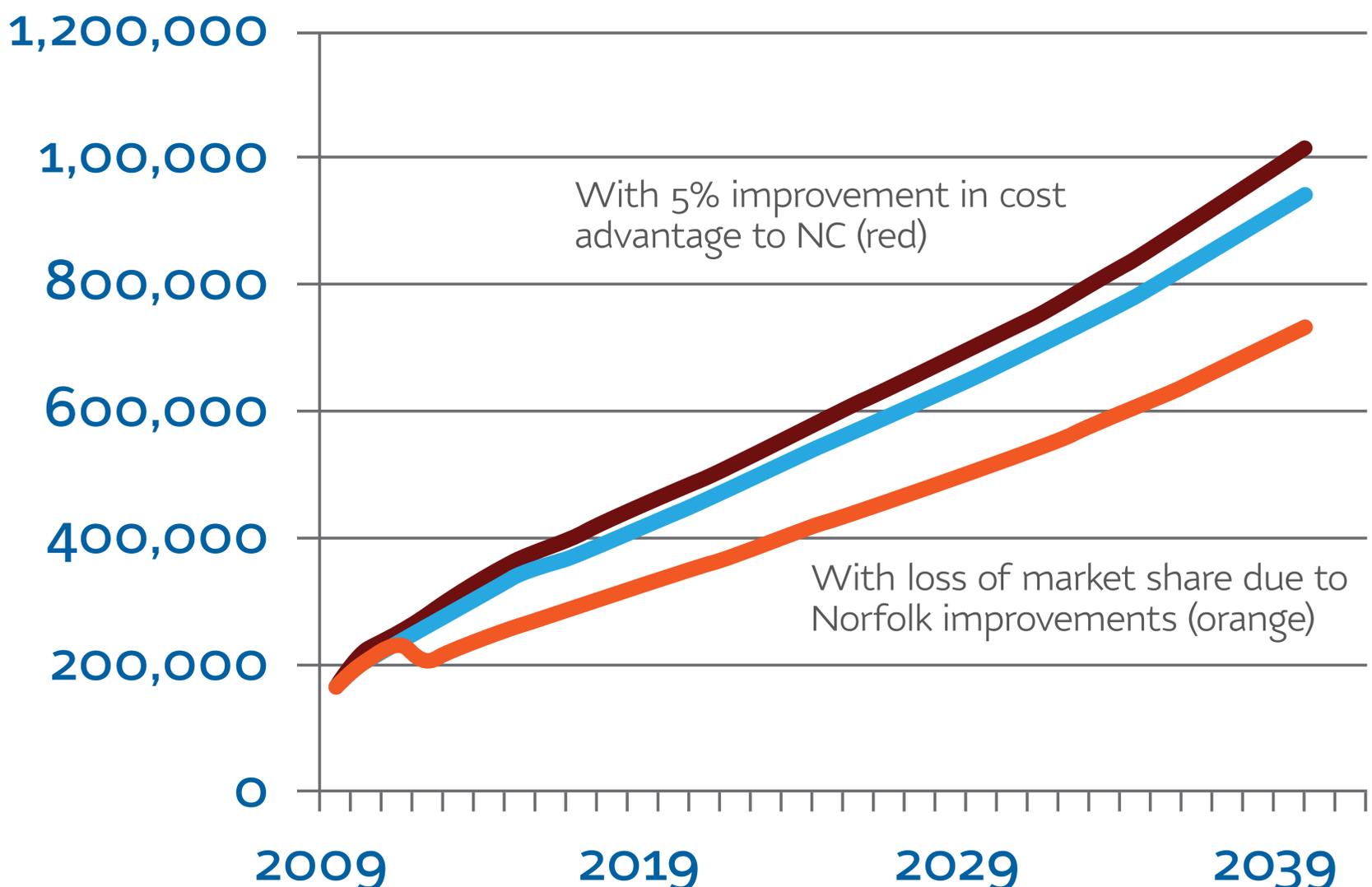
Infrastructure needs to support the export of wood products include:

- > 40-ft+ water depth
- > Mobile harbor cranes with various grabs for break-bulk cargo
- > Specialized storage and vessel loading equipment for bulk cargo
- > Road and rail capacity to match vessel demand

**Challenge:** Providing infrastructure support to enable NC wood products producers to capitalize on this favorable market trend.

**Opportunity:** Heavy commodities such as wood and wood products are particularly affected by transportation costs. Potential for improved land access and handling facilities at NC ports supports this large industry's ability to capture its maximum share of the world market.

## Annual Tonnage



# Transportation Challenges

Improving water, road and rail access to existing and potential port locations is important to the cost-effective movement of goods. Limited State and Federal funding means that these investments must be prioritized for greatest benefit.

## > Highways

- Gaps in North Carolina highways limit access between inland trade centers and port locations.
- Due to road congestion, trucks leaving Morehead City or Wilmington will be able to travel fewer miles in one day in 2040 than they did in 2007.
- On average, trucks using all East Coast ports will be able to travel fewer miles in one day in 2040 than they did in 2007.

## > Railroads

- Lack of sufficient volume on NC's freight rail network makes rail service more costly to the State's businesses.
- Improved at-port rail connections are needed.

## > Water

- The existing Cape Fear Channel is limited to 42-ft authorized water depth.
- The Port of Wilmington lies 26 miles upriver from the ocean.
- Larger vessels are challenged to navigate the S-turn configuration at the Cape Fear entrance channel.
- Morehead City is authorized to 45-ft water depth and is located less than 4 miles from open ocean.

## Next Steps

- > Quantify investments that can reduce transport costs to North Carolina shippers.
- > Evaluate shipper cost savings that can be achieved through more efficient transportation network.
- > Translate growth of maritime volumes into economic benefits.
- > Align strategies with other North Carolina initiatives.
- > Develop evaluation measures.