2015 Strategic Plan of the North Carolina State Ports Authority

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TABLE OF CONTENTS

TABLE OF CONTENTS..............................................................................................................1
EXECUTIVE SUMMARY........................................................................................................2
ABOUT THE NORTH CAROLINA STATE PORTS AUTHORITY...........................................3
STRATEGIC PRIORITIES........................................................................................................7
CONTAINERS.........................................................................................................................10
GENERAL TERMINAL..........................................................................................................13
INFRASTRUCTURE INVESTMENT NEEDS............................................................................18
ECONOMIC IMPACTS...........................................................................................................21
APPENDIX 1. STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS................23
APPENDIX 2. PEER PORT ANALYSIS..................................................................................25
APPENDIX 3. MEGAREGIONS.............................................................................................31
APPENDIX 4. PANAMA CANAL EXPANSION.......................................................................32
APPENDIX 5. GLOBAL VESSEL FLEET..............................................................................33
APPENDIX 6. DISTRIBUTION CENTERS AND INLAND PORTS..........................................36
APPENDIX 7. COMMODITY ANALYSIS.............................................................................37
APPENDIX 8. PORT OF WILMINGTON..............................................................................46
APPENDIX 9. PORT OF MOREHEAD CITY........................................................................48
EXECUTIVE SUMMARY

While the North Carolina Ports are physically located in Wilmington and Morehead City, the economic benefits of vibrant, growing ports reach from the coastal plains to the Blue Ridge Parkway.

North Carolina Ports support more than 76,000 jobs across the State and generate more than $700 million in annual state and local taxes. Goods moving through the Port of Wilmington contribute almost $13 billion to North Carolina’s economy, while goods through the Port of Morehead City contribute $1 billion.

North Carolina’s ports are a conduit of economic development. Business and industry need access to the global markets where their products are sold and their resources are found. The North Carolina State Ports Authority is dedicated to serving global and local business while attracting new companies to the economic development centers of the State.

North Carolina Ports is committed to enhancing the State’s economy. To do that, the Ports must constantly evaluate its market position and refine its business strategy to meet the demands of customers and the industry. This strategic plan outlines the four highest priority, near-term goals for the Authority:

- Double the container business to more than 530,000 TEUs
- Expand business on the general terminals by four million tons
- Execute an investment plan for needed terminal, road, rail and channel infrastructure to support the terminal growth goals, including the establishment of a channel project and reliable intermodal service
- Achieve financial sustainability to independently fund capital growth requirements

This strategic plan is based on sound industry expertise, competitive ports analysis and thorough market research. Combined with the Authority’s on-going long-term capital plan, this strategic plan will form the basis of the Ports business activities for the next five years. It is an ambitious plan, but one that well-positions the Authority to take advantage of the expanding marketplace. More importantly, this plan ensures North Carolina Ports will continue to help North Carolina’s economy grow.

From our beginnings as a World War II shipbuilding facility in Wilmington to today’s dynamic and fast-growing international seaports in both Wilmington and Morehead City, we are proud of our 70 years of service to the State. We invite you to read the plan and learn more about how North Carolina Ports is planning for the future.

After all, these aren’t just any ports. These are your ports.
ABOUT THE NORTH CAROLINA STATE PORTS AUTHORITY

International maritime terminals are a conduit of business activity connecting commerce with State industry. Volume growth through U.S. ports will continue to increase as the nation’s economy expands. U.S. East Coast ports are expected to benefit the most. U.S. East Coast ports have invested heavily in port infrastructure over the last 15 years. Simultaneously, import cargo from Asia that typically moved over the U.S. West Coast began shifting supply lanes to all water U.S. East Coast services. The Panama Canal expansion, port congestion, and west coast port labor disputes that result in work slowdowns also make the U.S. East Coast attractive to shippers. The resulting effect has been a large increase in container activity throughout the U.S. East Coast port range that is projected to continue.

The Panama Canal expansion will be completed by 2016 and the new canal will be capable of handling vessels almost three times larger than current ships. This in turn will offer large cost and operating efficiencies to the shipping community and is expected to stimulate additional volume. Congestion at U.S. terminals is becoming more prevalent. The congestion stems from terminal size and capacity constraints due to rail and road limitations near many seaports. The U.S. southeast ports are positioned well since capacity issues are not as prevalent in this region. The U.S. West Coast ports are plagued with labor disputes and resulting work slowdowns, causing tremendous disruption to the supply chain and compounding congestion issues. The confluence of these factors all signal a positive outlook for the U.S. southeast port region.

The North Carolina State Ports Authority (the Authority) is well-positioned geographically to leverage these competitive advantages. However, the Authority has not historically kept pace with neighboring ports in terms of market growth. Economists agree that international trade directly contributes to a successful and progressive business climate. An efficient supply chain will attract and retain producers, importers and other logistics-related industries to the region. An improved international gateway for North Carolina will also enhance the State’s ability to attract new business. As manufacturing and logistics firms continue to migrate to the U.S. East Coast, especially the U.S. southeast region, a significant portion of their site selection analysis is determined by an efficient supply chain that includes a global gateway.

Many of North Carolina’s importers and exporters are forced to utilize neighboring ports in Virginia, South Carolina, Georgia and Florida as international gateways since they cannot access the same number of vessel service trade options at North Carolina’s ports. These routing choices result in increased inland truck and rail costs, which in turn can make these companies less competitive. Expansion of the Authority’s business volumes and corresponding vessel service trade options will benefit North Carolina’s importers and exporters.

Trade through North Carolina’s ports provides an enormous benefit to the North Carolina economy, as identified in the recent economic contribution study that was independently completed by N.C. State’s Institute for Transportation Research and Education. The findings show that there is approximately $14 billion in annual economic contribution to the state’s economy constituted by goods moving through North Carolina ports and 76,700 jobs are associated with businesses that use North Carolina’s ports.

These economic contributions are heavily reliant on the existence of North Carolina’s container business. Continued market share loss could lead to a diminutive market position and potentially result in the complete loss of maritime containerization in North Carolina. If the container shipping companies do not feel that the Authority is a sustainable container option, there is a strong probability they will shift their container services to neighboring ports. In order to compete, the Authority must grow container volumes and provide needed vessel service expansions and service offerings.

This plan undertook extensive market research of industry and market data, coupled with an understanding of freight flows, to identify and understand the total and addressable markets for the Authority’s port commodity segments. The market opportunities were then coupled with the competitive factors of service and cost to determine possible scenarios for capturing additional volume and expansion. The Authority feels that North Carolina Ports has distinct potential for expansion in the coming years; however, several steps will need to be taken both organizationally and through investments to facilitate this growth.
The Authority believes that a sizable market opportunity exists and the combination of competitive factors of service and cost, targeted outreach and infrastructure investments will enable the Authority to grow new carrier services and build on existing cargo supply chains in North Carolina to provide customers an economically advantaged gateway to their global markets. Implementation of this plan would more than double the number of containers and general terminal cargo volumes over the next five years. This level of activity will provide more than $31 billion in annual economic contribution to the state’s economy by fiscal year 2020 and more than $39 billion in annual economic contribution to the state’s economy by fiscal year 2025.

The Authority’s plan is to be strategically positioned as the highest level service provider with the lowest cost on the U.S. East Coast. The management team strives to have the most operationally efficient port terminals where berth productivity, berth congestion, yard productivity, gate productivity and turn times need to be best in class. The Authority is also investing in additional sales and business development resources to vastly improve the commercial profile in identified markets. Sales training, specific sales targets and improved customer service are the cornerstone of the marketing plan.

Achieving the Authority’s strategic goals will necessitate additional planning and external assistance. A moderate capital infusion to support the capital investment plan will require $114 million over the next five years, with $75 million focused on the container business at Wilmington. An additional $135 million in infrastructure investment will be required over the next ten years. A feasibility study with the U.S. Army Corps of Engineers for enhancing the Cape Fear River channel must commence in 2015. After successful completion of that study, with specific harbor depths identified and an approval from the Wilmington District Corps of Engineers, a joint state and federal funded project will be required. For the Port of Morehead City, annual funding from North Carolina to maintain the current approved channel depth may be required. In addition, it is imperative that cost competitive intermodal service be provided by CSX at the Port of Wilmington to make the container services viable. Finally, an independent long range study needs to be initiated to examine a new strategic North Carolina seaport. The study will need to examine the benefits and advantages of Authority owned properties at Radio Island/Morehead City, in coastal Brunswick County, as well as other possible locations.

Facilities and Organization

Created in 1945, the Authority is charged with operating and promoting North Carolina’s deepwater ports and associated facilities. The Authority owns and maintains the Port of Wilmington, the Port of Morehead City as well as two inland facilities, the Charlotte Inland Terminal and the Piedmont Triad Inland Terminal.

The Port of Wilmington is North Carolina’s largest port with an operating terminal of 284 acres. The Port of Wilmington handles containers and a variety of bulk and breakbulk cargo.

The Port of Morehead City is a slightly smaller port than the Port of Wilmington in terms of size and volume, and does not handle any container cargo. The Port of Morehead City serves breakbulk and bulk customers, including a tenant-operated liquid bulk facility on the Radio Island terminal.

The Charlotte Inland Terminal and the Piedmont Triad Inland Terminal were created to meet several port and transport challenges, including the need for professional neutral container yard operations for container carriers and to provide staging for empty and loaded containers that are bonded by U.S. Customs and Border Protection.

North Carolina Ports are a self-sustaining organization, generating revenues used to fund operations. There are considerable advantages to this organizational design. The Authority is able to develop strategic relationships throughout all levels of state government while maintaining autonomy to make decisions and manage its resources. The Authority is governed by a Board of Directors that is appointed by the Governor, the Speaker of the North Carolina House of Representatives and the North Carolina Senate President Pro Tem.
The Strategic Plan

Strategic planning closes the gap between the organizational strategy that occurs once every five to ten years and the annual tactical planning and budgeting. This plan examines a horizon of three to five years and was developed much like a commercial business plan; thoroughly analyzing the current industry, market, competing ports and an assessment of the organization itself, to fully understand the total and addressable market and its dynamics. Once the market was fully identified and understood, growth goals were established with identifiable targets and infrastructure investment requirements were identified. In some cases, longer term planning will be necessary. Input was provided from a wide range of sources and partners, including the expertise and support of the Authority’s Board of Directors.

Mission

The mission of the Authority is to be the gateway to global markets and enhance the economy of North Carolina by supporting and improving the state’s logistics network.

Core Competencies

The core organizational competencies of the Authority are competitive pricing and a superior portfolio of differentiated services. Lack of congestion on North Carolina terminals provides the basis for unparalleled customer service, boasting quick truck turn times and best in class crane productivity. Also, the terminals in Wilmington and Morehead City have plenty of terminal space to grow.

The Authority’s Strategic Goals 2015 - 2020

The highest priority goals for the Authority are:

- Double the container business to more than 530,000 TEUs
- Expand business on the general terminals by four million tons
- Execute an investment plan for needed terminal, road, rail and channel infrastructure to support the terminal growth goals, including the establishment of a channel project and reliable intermodal service
- Achieve financial sustainability to independently fund capital growth requirements

Strategic Success Measures

The Authority’s quantifiable key performance indicators are identified as Strategic Success Measures (SSMs). SSMs serve as the foundation to analyze and track performance and base key strategic decisions regarding priorities, staffing and resources. The strategic success measures are used to measure performance against the stated strategic goals and will be reported to the Authority’s Board of Directors quarterly.
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<tr>
<th>Table 1. Executive Strategic Success Measures</th>
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<tr>
<td><strong>Financial Performance</strong></td>
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<td>EBIDA</td>
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<tr>
<td>Net Income</td>
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<td><strong>Market Performance</strong></td>
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<tr>
<td>Cargo Tonnage</td>
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<tr>
<td>Annual Container Moves</td>
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<tr>
<td>New Container Services Acquired</td>
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<tr>
<td>New Lines of General Cargo</td>
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<tr>
<td><strong>Internal Efficiency and Effectiveness</strong></td>
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<tr>
<td>Containers</td>
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<tr>
<td>Crane Moves per Hour</td>
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<tr>
<td>Truck Turn Times</td>
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<tr>
<td>Crane Downtime</td>
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<tr>
<td>General Terminal</td>
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<tr>
<td>Steel Truck Turn Times</td>
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<td>Pulp Truck Turn Times</td>
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<td>Rubber Truck Turn Times</td>
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<tr>
<td><strong>Safety</strong></td>
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<td>Lost Time Accidents</td>
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STRATEGIC PRIORITIES

Identifying and addressing the Authority's strategic priorities is vital to accomplishing the port’s strategic goals. There are a number of strategic priorities that must be addressed in order for the Authority to be successful.

Increased Market Share

A sizable market opportunity exists and targeted marketing and infrastructure investments will enable the Authority to grow new carrier services. In the container segment, underserved customers and market opportunities in the North Carolina's addressable market have been identified as nearly 2 million TEUs. A successful Ports strategy must include serving businesses that are utilizing other ports but would be more competitive with better cost and service if the right global services were available at North Carolina Ports.

The addressable market for bulk and breakbulk segments at North Carolina Ports includes more than 37 million tons of cargo that could be cost and service favorable to North Carolina. The region has stable and mature bulk industries with good hinterland connections.

Infrastructure Investment

U.S. seaports and their partners plan to invest a combined $46 billion over the next five years in wide-ranging capital improvements to their marine operations and other port properties in order to provide adequate navigation depth, in-port handling capacity, and fast, reliable rail and highway connections from production centers (for exports) and consumer markets (for imports). Adequate infrastructure and connections to the terminals, landside networks and water-side navigation channels will minimize bottlenecks that result in congestion, productivity losses and a global economic disadvantage for North Carolina and the nation.

Financial Sustainability

The Authority is run like a business and the more business and cargo volume the Authority generates at the terminals, the greater the revenue and profit. The Authority must be able to leverage its own funding for large capital outlays. Operating like a business, the Authority must plan for the funding requirements of expansion projects and future development opportunities with a comprehensive integrated funding strategy.

Collaboration

It is imperative that the Authority communicate with local, state and federal officials about the Authority’s goals and initiatives, as well as advocate for conditions favorable to advancing the Authority’s goals. Effective outreach and communication around the state and with host communities, coupled with an understanding of the expectations of those groups is required for consensus and successful outcomes. The Authority strives for strategic and on-point communications with its statewide public outreach, advocacy at the state General Assembly and federal Congressional level, as well as effective communication with its Board of Directors.

Partnerships and Outreach

Ports are just one component of a global supply chain that connects customers to the international marketplace. As a part of the larger network, state and local agencies and organizations play a critical role in promoting and sustaining industrial development projects that are port-dependant. The Authority partners with other agencies and organizations to deliver a complete supply chain solution across North Carolina. The Authority has a close collaborative relationship with the N.C. Department of Transportation, N.C. Department of Commerce, N.C. Department of Agriculture, Economic Development Partnership of N.C., local economic development groups and many others state and local organizations.

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1 American Association of Port Authorities report, 2012
Public-Private Partnerships

The Authority leverages public-private partnerships as a means to attract new business while minimizing risk. Public-private partnerships allow the Authority to construct and maintain projects previously unattainable due to resource constraints, thereby gaining the economic contributions to the local and statewide economy while minimizing the costs to the Authority.

Agriculture

North Carolina's agricultural industry, including food, fiber and forestry, contributes $78 billion to the state's economy and accounts for more than 17 percent of the state's income. North Carolina is one of the most diversified agriculture states in the nation and growth at the port is dependent on serving this segment of North Carolina's economy.

At the Port of Wilmington, more than 29,000 containers of agricultural goods, including animal feed, cotton, food, lumber and tobacco moved through the facility in fiscal year 2014; 96 percent was North Carolina exports. At the general terminals of Wilmington and Morehead City, more than one million tons of agricultural commodities were moved through the ports in fiscal year 2014 including forest products, logs, wood pulp, feeds, and fiber. Nearly one and half million more tons of fertilizer, most in support of agricultural business, was moved via vessel or barge at North Carolina's ports in 2014. Combined, agricultural goods and goods that support agricultural industries make up more than 66 percent of the total tonnage that moved over North Carolina's general terminal berths in 2014. The Authority is looking for more ways to best leverage port facilities to benefit North Carolina's growers.

While neighboring ports handle much of North Carolina's agriculture exports, infrastructure improvements to rail lines and roads, along with infrastructure upgrades at the terminals make North Carolina's ports more attractive for agricultural exports. Two planned new wood pellet projects, one in Wilmington and the other in Morehead City will significantly impact the economy of eastern North Carolina. Within five years, the two wood pellet facilities are expected to nearly double the total export tonnage moving through North Carolina's port facilities.

Cold Storage

North Carolina is a major hub for global exportation of refrigerated pork and poultry products and a major player in the protein production export business. A new 'at port' cold storage distribution center will provide global market benefits to North Carolina's agricultural industry sectors (exports) and food distribution sector (imports). In addition, a cold storage facility will potentially help generate increased container space each week on the container carriers calling at the Port of Wilmington. This will enhance the ability to market and recruit additional container and break-bulk carrier services that serve existing and new global trade lanes.

Military

North Carolina is home to the third largest military population in the United States. A 2013 report conducted by the NC Department of Commerce found that the military accounts for 10 percent of the North Carolina's economic activity, making it North Carolina's second largest economic sector. Providing support to this community is critical to maintaining the nation's security as well as supporting North Carolina's economy. The North Carolina Ports are well positioned to meet the evolving Department of Defense requirements. Identified as two of the nation's Strategic Seaports, the North Carolina Ports are capable of simultaneously handling commercial and military requirements. Each Strategic Seaport is unique in its capabilities and provides the Department of Defense with operational flexibility/redundancy and port facilities and services that are critical in meeting a wide range of national security missions. North Carolina Ports are well positioned to provide significant support to commercial cargo and military deployment requirements during instances of rapid

1 http://www.nccagr.gov/stats/general/overview.htm
2 http://www.nmilitary.org/content/north-carolina-military-foundation
deployment or mission related cargo surges. The U.S. military has centralized the global transportation and logistics control to U.S. Transportation Command. The Authority's designation as Strategic Seaports provides a formal process for communicating with military leadership on the Authority’s capabilities to meet military requirements.

Automobiles

North Carolina continues to focus on a large automotive win and major manufacturing and assembly plant site-selection criteria require proximity to deepwater port facilities with global service coverage. Automotive plants generate thousands of jobs and lay a foundation for further economic growth, as third party auto processors operate near the auto processing plant to provide services to the vehicles prior to shipment. North Carolina’s ports are poised to support a new automotive assembly plant and the associated auto processors.

Offshore Energy

With the largest offshore wind resource on the U.S. East Coast, North Carolina has a unique and energetic microclimate for offshore-wind energy off the North Carolina coast⁴. These types of facilities require waterside maintenance facilities in support of the industry, offshore petroleum exploration and production also require use of waterside facilities.

⁴ http://www.energync.net/about-us/governors-panel-on-offshore-energy
CONTAINERS

Asia dominates the container trade; six of the world’s ten busiest container ports are in China. The busiest port, Shanghai, handles 29 million TEUs. In comparison, the combined Port of Los Angeles and Port of Long Beach handles 14 million TEUs. Along the U.S. East Coast, the Port of New York and New Jersey handles 5.4 million TEUs, the Port of Savannah 3.1 million TEUs, the Port of Norfolk 2.2 million TEUs, the Port of Charleston 1.6 million TEUs and the Port of Wilmington is expected to exceed 300,000 TEUs this year.

There are eight container services at the Port of Wilmington, four of which are part of the CKYH Alliance, as well as Maersk (Sealand), Independent Container Line (ICL), Bahri (National Shipping Corporation of Saudi Arabia), and Boke Trading. In fiscal year 2014, the Authority’s container business represented approximately 26 percent of the total operating revenue and more than 65 percent of the Authority’s economic output contribution to North Carolina. The CKYH Alliance provides two weekly sailings to Asian markets and represents 80 percent of the Ports’ container revenue.

The Authority’s greatest risk moving forward, as a result of the Panama Canal expansion in 2016, is the loss of Asian container services in large part or entirely, resulting from a lack of channel depth to accommodate larger class vessels. In order to remain profitable and competitive, all carriers will need to deploy large ships via the Panama Canal. The ships that will call the U.S. East Coast will be in the 6,500 to 12,500 TEU range; the Port of Wilmington currently has the capability to serve vessels up to the 6,500 TEU range. Larger ships provide an economy of scale that translates to significant slot costs savings to the carrier.

A harbor enhancement effort that provides efficiencies to the Cape Fear River including a deeper navigation channel and a wider turning basin is required to serve these larger vessels. Improvements to the inland infrastructure would also be required, including reliable and cost competitive intermodal service, to expand service beyond the truck market.

Containers Market & Forecast

Defining the total market and addressable market is important for an organization to make decisions on how to best utilize resources. Total market identifies the entire regional area in which the Authority operates and may include cargo that could never be competitive or captured by North Carolina’s ports. The addressable market identifies the portions of the total market where the Authority could potentially compete; addressable market is used to reference the available revenue opportunity. Identification of the addressable market helps to prioritize and target business marketing efforts.

The Journal of Commerce forecasts that U.S. containerized imports will grow at a compound annual growth rate of 6.7 percent through 2018. U.S. containerized exports are forecast to grow at a compound annual growth rate of 2.4 percent through 2018. Forecasts for container imports and exports year-over-year are displayed in Table 2. These container forecasts were used as growth assumptions for examining the Authority’s container market; extensive market data was gathered and evaluated in order to develop the total and addressable market and growth forecast.

Table 2: Overview of the U.S. Containerized Trade Projections (Year-Over-Year Percent Change)

<table>
<thead>
<tr>
<th></th>
<th>Year 1 (FY 2016)</th>
<th>Year 2 (FY 2017)</th>
<th>Year 3 (FY 2018)</th>
<th>Year 4 (FY 2019)</th>
<th>Year 5 (FY 2020)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imports</td>
<td>6.8%</td>
<td>6.7%</td>
<td>6.9%</td>
<td>6.9%</td>
<td>6.9%</td>
</tr>
<tr>
<td>Exports</td>
<td>3.2%</td>
<td>3.3%</td>
<td>3.4%</td>
<td>3.4%</td>
<td>3.4%</td>
</tr>
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</table>

Source: JOC Five-Year Horizon, September 2014 (with assumptions by NCSPA for FY 2019 and FY 2020)
In fiscal year 2014, the Port of Wilmington handled 252,369 TEUs. Assuming organic growth commensurate with the Journal of Commerce's forecast in Table 1, the addressable market for containers via truck and the total U.S. South Atlantic container market are indicated in Table 3. The addressable market for containers via truck in North Carolina is defined as the TEUs within a favorable geographical area to the Port of Wilmington. Data related to U.S. container ports and TEU volumes was provided by the Port Rankings report released by the American Association of Port Authorities in June 2014.

Table 3. Truck-served TEUs at the Authority, Addressable Market for truck-served containers and total U.S. South Atlantic Market Now and in Year 5 (FY 2020)

<table>
<thead>
<tr>
<th></th>
<th>NC Ports TEUs</th>
<th>Addressable Market for Containers (via truck) TEUs</th>
<th>NC Ports Share of Addressable Market</th>
<th>Total US South Atlantic TEUs</th>
<th>NC Ports Share of Total U.S. South Atlantic Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>260,363</td>
<td>1,971,817</td>
<td>13.2%</td>
<td>8,952,684</td>
<td>2.9%</td>
</tr>
<tr>
<td>NC Ports TEU Goal in Year 5 (FY 2020)</td>
<td>538,357</td>
<td>2,534,481</td>
<td>21.2%</td>
<td>11,507,086</td>
<td>4.7%</td>
</tr>
</tbody>
</table>

Source: AAPA Container data, 2014 and NCSPA, 2014

Figure 1. Port of Wilmington Addressable and Total Truck Market

Source: NCSPA, 2014.

*Green dots in Figure 1 indicate market clusters of large accounts.
The ports of North Carolina, Virginia, South Carolina, Georgia, Port Everglades and Miami, Florida have some number of identified TEUs that are within this favorable geographical area. The addressable market was determined by identifying the percentage of the identified TEUs at a competing port within the favorable geographic range to the Port of Wilmington and applying that percentage to the total number of TEUs moving through that port (i.e., if 37 percent of the identified TEUs within the geographically favorable range are moving through the Port of Charleston, 37 percent is applied to all the TEUs moving through the Port of Charleston). In the case of south Florida ports, only the portion of the cargo that is identified with an origin or destination of the Caribbean and/or Central America is applied to the addressable market in order to account for the North Carolina textile market that is known to be moving through those ports.

The total U.S. South Atlantic market is defined as all TEUs moving through Virginia, South Carolina, Georgia, North Carolina and the TEUs that are identified with an origin or destination of Caribbean and Central America moving through Port Everglades and Miami, Florida.

In order to expand the addressable market and provide better service to existing and future container customers, the Authority must secure reliable and cost competitive intermodal service at the Port of Wilmington. Approximately 20 percent of U.S. South Atlantic port traffic is intermodal movements. Assuming that an additional 10 percent of U.S. South Atlantic port traffic could be addressable for the Authority (due to competing rail contracts and service by carriers), intermodal container service would increase the container addressable market by more than one million TEUs.

Table 4. All TEUs at NC Ports, Addressable Market including Potential Intermodal Containers and Total U.S. South Atlantic Market Now and in Year 5 (FY 2020)

<table>
<thead>
<tr>
<th></th>
<th>Addressable Market for Containers (including intermodal) TEUs</th>
<th>NC Ports Share of Addressable Market</th>
<th>Total U.S. South Atlantic TEUs</th>
<th>NC Ports Share of Total U.S. South Atlantic Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>260,363</td>
<td>9.1%</td>
<td>8,952,684</td>
<td>2.9%</td>
</tr>
<tr>
<td>NC Ports TEU Goal in Year 5 (FY 2020)</td>
<td>538,048</td>
<td>14.6%</td>
<td>11,507,086</td>
<td>4.7%</td>
</tr>
</tbody>
</table>

*Broad assumptions were made to assess the intermodal market, full penetration of the intermodal addressable market may be more significant than shown.

To meet the stated goal of doubling the container throughput at the Port of Wilmington, the Authority will need to increase its share of the addressable market from 13.2 percent to 21.2 percent. Should intermodal service become available at the Port of Wilmington, the size of the addressable market will expand, necessitating a market share increase from 9.1 percent to 14.6 percent over the five year period, based on the forecasted container industry growth.

Container Market Summary

Extensive market analysis reveals an underserved market within the Authority’s addressable container market; reaching that market is achievable through intensified marketing and outreach. The Authority currently serves 13 percent of the 1.9 million TEUs that are within a couple hundred miles radius of Wilmington; 8 percent market share growth over five years would double the container business.
GENERAL TERMINAL

As the demand for container services continues to grow, so does the demand for port capacity and vessel space to accommodate breakbulk commodities and project cargo. Terminal operators face a growing dilemma of committing space for additional container throughput volumes versus accommodating breakbulk commodities that require greater acreage per ton handled and are not as profitable. With strong economies worldwide, sufficient volumes exist for both the container operators and the breakbulk project cargo vessel operators to co-exist. Ports with sufficient property available to provide continued support for both lines of business would be successful in leveraging breakbulk clients that are losing their facility options at other ports.

Breakbulk cargo operators are facing growing competition from container carriers as more commodities are transitioned to containers. Most commodities that could use containers to realize improved scheduling and lower transport costs have already made the shift of modes. Commodities such as semi-finished or finished aluminum and steel products, semi-bulk in large bags, and a great variety of project cargos continue to embrace the use of breakbulk transport, as vessel designs and improved cargo handling technologies evolve to provide more efficient stowage, better in-transit cargo protection, and improved stevedore productivity. However, wood pulp, finished paper and dimensional lumber are quickly shifting to containers driven by lower ocean freight rates offered by the container operators.

Most of North Carolina’s breakbulk segments are delivered or carried by liner carriers that have specific contracts or agreements with the shipper. The Authority exerts influence over the carriers via dockage rates based on volumes. The Authority normally enters into specific service agreements with the shipper based on reduced handling and wharfage charges dependent on volume.

Bulk cargoes have seen some upside especially in the segments of grain, dry reduced iron (DRI) and wood pellets, unlike breakbulk that has not seen as robust growth the last decade. Bulk cargoes are priced and operated differently at the two ports. In Morehead City, the Authority receives bulk cargoes for several shippers, handling from the ground to truck or railroad. Other bulk cargoes are handled by Authority employees and direct labor costs are billed to the shippers. A number of growth opportunities have been identified in the bulk segment. Two new wood pellet export facilities, one at each the Port of Wilmington and the Port of Morehead City, are expected to export more than 2 million tons of wood pellets annually within the next five years.

The Port of Morehead City cargo handling capabilities, especially in the breakbulk segment are very competitive as compared to neighboring ports. Availability of terminal space, warehouse availability and oversize cargo handling (out of gauge) experience makes the Port of Morehead City a great option for project related work. The Authority will focus on these segments to increase value through the Port of Morehead City.

Bulk and Breakbulk Market and Forecast

The commodities that have been identified as addressable bulk and breakbulk markets for the ports of Wilmington and Morehead City are listed with the projected growth rate (forecasted year-over-year growth change for next five years) in Table 5.
Table 5. Addressable Bulk and Breakbulk Commodities for NC Ports and the Projected Growth Rate (Year-Over-Year Growth Change)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Projected Growth Rate (Year-Over-Year Growth Change)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal Coke/Other bulk</td>
<td>2%</td>
</tr>
<tr>
<td>Asphalt, Tar &amp; Pitch</td>
<td>2.5%</td>
</tr>
<tr>
<td>Fertilizers</td>
<td>2%</td>
</tr>
<tr>
<td>Chemicals and Related Products (including PCS &amp; Vopak)</td>
<td>2%</td>
</tr>
<tr>
<td>Rubber &amp; Gums</td>
<td>5%</td>
</tr>
<tr>
<td>Fuel Wood / Pellets</td>
<td>35%</td>
</tr>
<tr>
<td>Wood Chips</td>
<td>2%</td>
</tr>
<tr>
<td>Wood in the Rough / Logs</td>
<td>2%</td>
</tr>
<tr>
<td>Lumber / Dimensional</td>
<td>2%</td>
</tr>
<tr>
<td>Pulp &amp; Waste Paper</td>
<td>4%</td>
</tr>
<tr>
<td>Soil, Sand, Gravel, Rock and Stone/Aggregate</td>
<td>2%</td>
</tr>
<tr>
<td>Sulphur/Liquid PCS</td>
<td>0%</td>
</tr>
<tr>
<td>Cement &amp; Concrete</td>
<td>2.5%</td>
</tr>
<tr>
<td>Pig Iron/DRI</td>
<td>2%</td>
</tr>
<tr>
<td>Steel/Bridge Girders</td>
<td>2%</td>
</tr>
<tr>
<td>Grain</td>
<td>2.75%</td>
</tr>
<tr>
<td>Vehicles &amp; Parts</td>
<td>3.5%</td>
</tr>
<tr>
<td>Aircraft &amp; Parts</td>
<td>2%</td>
</tr>
<tr>
<td>Ships &amp; Boats</td>
<td>2%</td>
</tr>
<tr>
<td>Other</td>
<td>2%</td>
</tr>
</tbody>
</table>

Source: NCSPA, 2014

General terminal commodity data was extracted from the U.S. Army Corp of Engineers' Waterborne Commerce Statistics Center Report(s). The report collects all vessel trip and cargo data for public and private
terminals in all harbors in the U.S. It includes a compilation of U.S. Army Corp of Engineers data on domestic trade and U.S. Census foreign trade data. The total bulk and breakbulk market for the Authority was identified as cargo moving domestically and internationally through all ports on the Atlantic coast between Philadelphia and Key West, Florida. The bulk and breakbulk addressable portion of the total market was further refined using PIERs data, staff knowledge and other industry input to account for containerization, market factors like geographic location of particular industrial sites, contract agreements or other factors that would limit the Authority’s competitiveness.

Figure 2. General Terminal Addressable and Total Market

![Map of终端地址和总市场](image)

*Source: NCSPA, 2014*

Table 6 shows the forecasted growth of bulk and breakbulk at the Port of Wilmington over a period of five years, with and without the development of a new wood pellet facility. Overall forecasted growth for the Port of Wilmington in bulk and breakbulk is expected to exceed 131 percent with the forecasted commodity segments and the new wood pellet facility.
Table 6. Bulk and Breakbulk Tonnage at the Port of Wilmington and Addressable and Total Market for Identified Commodity Segments at the Port of Wilmington Now and in Year 5 (FY 2020)

<table>
<thead>
<tr>
<th></th>
<th>Port of Wilmington tonnage</th>
<th>Bulk/Breakbulk Addressable Market tonnage (for identified commodity segments)</th>
<th>Port of Wilmington Share of Bulk/Breakbulk Addressable Market</th>
<th>Total Bulk/Breakbulk Market tonnage (for identified commodity segments)</th>
<th>Port of Wilmington Share of Total Bulk/Breakbulk Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>2,084,293</td>
<td>36,158,641</td>
<td>5.76%</td>
<td>523,521,500</td>
<td>0.40%</td>
</tr>
<tr>
<td>Forecast through Year 5 (FY 2020)</td>
<td>4,818,000</td>
<td>45,945,806</td>
<td>10.49%</td>
<td>595,413,620</td>
<td>0.81%</td>
</tr>
<tr>
<td>Forecast through Year 5 (FY 2020) w/o the Wood Pellet Facility*</td>
<td>2,818,000</td>
<td>45,945,806</td>
<td>6.13%</td>
<td>595,413,620</td>
<td>0.47%</td>
</tr>
</tbody>
</table>

Source: NCSPA, 2015

*The market was examined without the wood pellet facility because the high volumes mask other growth opportunities.

Table 7 shows the forecasted growth of bulk and breakbulk at the Port of Morehead City over a period of five years, with and without the development of a new wood pellet facility. Overall forecasted growth for the Port of Morehead City in bulk and breakbulk is expected to exceed 81 percent with the forecasted commodity segments and the new wood pellet facility.

Table 7. Bulk and Breakbulk Tonnage at the Port of Morehead City and Addressable and Total Market for Identified Commodity Segments at the Port of Morehead City Now and in Year 5 (FY 2020)

<table>
<thead>
<tr>
<th></th>
<th>Port of Morehead City tonnage</th>
<th>Bulk/Breakbulk Addressable Market tonnage (for identified commodity segments)</th>
<th>Port of Morehead City Share of Bulk/Breakbulk Addressable Market</th>
<th>Total Bulk/Breakbulk Market tonnage (for identified commodity segments)</th>
<th>Port of Morehead City Share of Total Bulk/Breakbulk Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>1,770,857</td>
<td>29,977,729</td>
<td>5.91%</td>
<td>327,375,000</td>
<td>0.54%</td>
</tr>
<tr>
<td>Forecast through Year 5 (FY 2020)</td>
<td>3,215,360</td>
<td>38,817,501</td>
<td>8.28%</td>
<td>369,473,045</td>
<td>0.87%</td>
</tr>
<tr>
<td>Forecast through Year 5 (FY 2020) w/o the Wood Pellet Facility*</td>
<td>2,815,360</td>
<td>38,817,501</td>
<td>7.25%</td>
<td>369,473,045</td>
<td>0.76%</td>
</tr>
</tbody>
</table>

Source: NCSPA, 2015

*The market was examined without the wood pellet facility because the high volumes mask other growth opportunities.
Table 8. Bulk and Breakbulk Tonnage at NC Ports and Addressable and Total Market for Identified Commodity Segments at both NC Ports Now and in Year 5 (FY 2020)

<table>
<thead>
<tr>
<th></th>
<th>NC Ports tonnage</th>
<th>Bulk/Breakbulk Addressable Market tonnage (for identified commodity segments)</th>
<th>NC Ports Share of Bulk/Breakbulk Addressable Market</th>
<th>Total Bulk/Breakbulk Market tonnage (for identified commodity segments)</th>
<th>NC Ports Share of Total Bulk/Breakbulk Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>3,855,150</td>
<td>37,358,582</td>
<td>10.32%</td>
<td>546,653,500</td>
<td>0.71%</td>
</tr>
<tr>
<td>Forecast through Year 5 (FY 2020)</td>
<td>8,033,360</td>
<td>47,329,576</td>
<td>16.97%</td>
<td>621,201,483</td>
<td>1.29%</td>
</tr>
<tr>
<td>Forecast through Year 5 (FY 2020) w/o the Wood Pellet Facility*</td>
<td>5,633,360</td>
<td>47,329,576</td>
<td>11.90%</td>
<td>621,201,483</td>
<td>0.91%</td>
</tr>
</tbody>
</table>

*Source: NCSPA, 2015

*The market was examined without the wood pellet facility because the high volumes mask other growth opportunities.

Breakbulk and Bulk Market Summary

Secured agreements with wood pellets facilities at both facilities will generate 2.4 million tons of pellets over the five year period. An additional 1.7 million tons of other general cargo is forecast for the two facilities, growing the combined general terminal volumes by 108 percent over the next five years. With increased growth comes better access to the global marketplace providing North Carolina’s businesses economic advantages but also providing the state with more economic development prospects.
INFRASTRUCTURE INVESTMENT NEEDS

In order to ensure that the Authority can adequately accommodate the planned container, bulk and breakbulk growth, capital planning and investment is required. Maintaining and improving efficiency at the terminals through more modern facilities and equipment is essential to meeting the Authority’s mandate to enhance the economy of North Carolina. Failure to adequately plan for capital needs virtually assures that scarce resources will be consumed in reacting to emergencies and that critical facilities, infrastructure, and equipment will continue to deteriorate. The framework for assessing facilities capital investment needs includes the harbor maintenance and landside interfaces for truck and rail.

North Carolina’s transportation infrastructure plays a critical role in attracting and retaining business. In 2014, Governor McCrory published a 25-year transportation vision to map the future and determine how to best leverage the North Carolina’s infrastructure to catalyze economic growth. Infrastructure improvements to transform North Carolina ports and benefit freight, military and logistic hubs are highlighted. Specific recommendations include studies to deepen and widen navigation channels to support movements of the newest generation of shipping vessels as well as improving highways, developing intermodal service, and enhancing freight movements at inland ports and other freight generators across North Carolina to improve the overall supply chain and grow international commerce.

Terminal Infrastructure

Capital needs for the terminal are categorized by infrastructure asset groups (i.e., cranes, dock/berth complexes, open storage areas, warehouses, gates, other/infrastructure) on the terminal. Infrastructure investment will be required to provide the needed equipment and facilities to support the projected growth; $113 million in the first five years, with $75 million for the continuation of a container berth expansion and modernization project that includes additional cranes. In the subsequent five years, an additional $135 million will be required to maintain existing facilities and support planned growth.

Channel Enhancement

The navigation channels that lead to the ports in Morehead City and Wilmington are federally funded and maintained by the U.S. Army Corps of Engineers. The U.S. Army Corp of Engineers prioritizes future channel projects in part on usage and growing volumes will support the need for a channel upgrade. A feasibility study with the U.S. Army Corps of Engineers for enhancing the Cape Fear River channel must commence in 2015. After successful completion of that study, with specific harbor depths identified and an approval from the Wilmington District Corps of Engineers, a joint state and federal funded project will be required.

Federal funds for routine operations and maintenance projects continue to decline. At the same time, the Morehead City Harbor continues to shoal rapidly and the need for extensive maintenance dredging continues to increase. Recognizing the need for stable funding for maintenance dredging, the Authority, in cooperation with the State of North Carolina, is seeking to enter into a Memorandum of Agreement with the U.S. Army Corps of Engineers to provide contributed funds for Operations and Maintenance dredging of the Morehead City Harbor to supplement existing and appropriated Operations and Maintenance funds.

On behalf of the State, in fiscal year 2015 the Authority intends to provide up to $4.8 million in supplemental dredging funds. In providing these funds, it is the intention of the Authority that the additional funds would be used to supplement an additional dredging cycle in the Morehead City Harbor, should additional U.S. Army Corps of Engineers Work Plan money be made available in any amount. In return for providing these funds, the Authority anticipates the U.S. Army Corps of Engineers will consult with the Authority as to the particulars of the contract prior to solicitation.

Truck Mobility

Goods originating from or destined for use in North Carolina are transported primarily by truck. The state’s producers report that landside costs – getting to and from the port gate – comprise 50 percent or more of total
overseas delivery cost. As a result, proposed freight transportation system investments put a heavy emphasis on highway projects\(^5\).

Measured in terms of distance to the nearest interstate, both of North Carolina’s ports are at a disadvantage relative to their peers, although in the case of the Port of Wilmington, the margin of difference is small. The Port of Morehead City, however, is at a significant disadvantage to its peers in terms of landside highway access.

Through 2040, freight mobility through North Carolina’s highway network will rely on additional improvements that provide direct and timely truck access between inland freight nodes and facilities, including intermodal rail yards, manufacturing centers, agricultural areas, warehousing and distribution centers. While there is need for near term investment in specific “last mile” freight connections, highway improvements are driven by increased congestion resulting from the state’s anticipated population growth. Improvements to the state’s primary truck corridors, therefore, would be needed over time to provide for continued truck mobility through the next 30 years.

Interstate grade highway access is a critical infrastructure component for ports. Targeted investments along US 70, I-40, I-73/74 and US 74/76 would have the greatest effect in reducing trucking travel times within the state.

**Figure 3. Truck Distance from NC Ports**

![Map showing truck distance from North Carolina ports](image)

*Source: NCSPA, 2014*

Rail Competition

While North Carolina is served by an extensive rail network, freight rail service to and from North Carolina Ports is limited and each port site is served by a single rail carrier. CSX provides rail service to the Port of Wilmington while Norfolk Southern (NS) operates at the Port of Morehead City. Low historical rail freight volumes to both Wilmington and Morehead City have resulted in high per-unit rail costs, making rail transport less competitive as compared to truck transport within the state.

Intermodal Rail

The current addressable market for containers is limited by the lack of a reliable and cost competitive intermodal container service; the addressable container market is essentially limited to the state with the northernmost and southernmost borders and some of the larger urban areas oftentimes being better served by competitive ports. If there are no improvements to intermodal rail access from the Port of Wilmington, the Port will continue to see cargo that it could compete to attract move through other facilities in the Mid and South Atlantic region.

The surrounding business base, measured by employment in close proximity to the ports (within 300 miles), is the smallest for the North Carolina ports; each of the regional peer ports has a greater density of economic activity to generate trade. The ranking changes, however, at a broader 500-mile radius. Both the Port of Morehead City and the Port of Wilmington have larger markets compared to the Port of Savannah and the Port of Charleston. Only the Port of Norfolk’s market density exceeds that of North Carolina Ports at a 500-mile radius. This is important because container movement is optimized by rail movement when the distance traveled is greater than the distance a truck can travel in one day; North Carolina Ports would have a large market density if reliable and cost competitive intermodal service was available.

Without rail competition, there has never been an incentive for CSX to re-position equipment from other ports and re-deploy resources for container boxes to move via intermodal service to and from the Port of Wilmington. This lack of intermodal rail is not due to physical deficiencies, the CSX rail line in North Carolina is fully capable of moving double-stacked high cubed container boxes from the port in Wilmington to destinations on the CSX rail line. Customers have repositioned their intermodal cargo through other ports because reliable and cost competitive intermodal service is not available in North Carolina.
ECONOMIC IMPACTS

The Authority commissioned the Institute for Transportation Research and Education (ITRE) at N.C. State University to assess the Authority's economic contribution of the state's ocean ports. The project examined the current economic contribution of port services for the Port of Wilmington and the Port of Morehead City, both on a statewide and economic development region level.

The study findings reveal there is approximately $14 billion in annual economic contribution to the state's economy constituted by goods moving through North Carolina Ports ($12.9 billion attributed to the Port of Wilmington and $1.1 billion attributed to the Port of Morehead City). The Ports directly and indirectly support more than 76,700 jobs across North Carolina; thus, deepwater port shipping is clearly a substantial economic factor for the state. The availability of the Port of Wilmington and the Port of Morehead City plays an important role in the supply chain decisions of companies with operations in North Carolina and companies considering locating manufacturing and distribution operations in North Carolina. The study documents the economic contribution of the existing deep water ports in North Carolina which foster economic development across the state. Further, the study examines a variety of the key components of economic contribution, including direct, indirect, and induced contributions to output or gross revenue, employee compensation, jobs, and tax collections. The direct contributions featured in the report were derived from commodity data, while IMPLAN® multipliers were used to generate estimates of the indirect and induced contributions of activity at the ports, as well as the analysis of tax contributions. IMPLAN® is a widely used software model for economic contribution studies of ports and other transportation assets.

Table 9. Overall Economic Contributions to the North Carolina Economy

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>$14B</td>
</tr>
<tr>
<td>Jobs</td>
<td>76,700</td>
</tr>
<tr>
<td>Income</td>
<td>$4.3B</td>
</tr>
<tr>
<td>Tax Collections</td>
<td>$707M</td>
</tr>
</tbody>
</table>

Source: ITRE Economic Contribution Study, 2014

In the study period, June 1, 2013 to May 31, 2014, (the latest full-year dataset available), the Authority supported $4.3 billion in employee compensation for North Carolina workers. Taxes generated by economic activity through the Authority provide additional contributions to local communities and the state of North Carolina. An estimate of approximately $707 million in sales, property, corporate, and personal taxes was received by state and local governments due to activity supported by the Authority. The Port of Wilmington supported the collection of $226 million in county property taxes, while the Port of Morehead City supported $13 million. Together, the Authority resulted in the accumulation $355 million in sales tax collections across the state. Additionally, state corporate and personal taxes of over $113 million were collected due to activity supported by the Port of Wilmington and the Port of Morehead City.
In the global marketplace, business access to foreign markets and materials is critical for success. The future global strength of North Carolina firms will correlate with strategic infrastructure investments in transportation systems, including highways, rail, and shipping channels. The Ports of Wilmington and Morehead City are a critical link in the supply chain which can be a tool for economic growth and job creation throughout the state.

The results of this plan will be monumental. Implementation will more than double the number of containers and grow general terminal volumes by 114 percent in the first five years. This level of activity will provide more than $31 billion in annual economic contribution to the state’s economy by fiscal year 2020 and provide more than $39 billion in annual economic contribution to the state’s economy by fiscal year 2025. In addition to the level of activity projected in output contribution, the Authority’s Strategic Plan would provide significant benefit to North Carolina customers by providing gateways to global markets and enhancing the economy of North Carolina by supporting and improving the state’s logistics network.