

NC Maritime Study Goal & Outcome

Goal

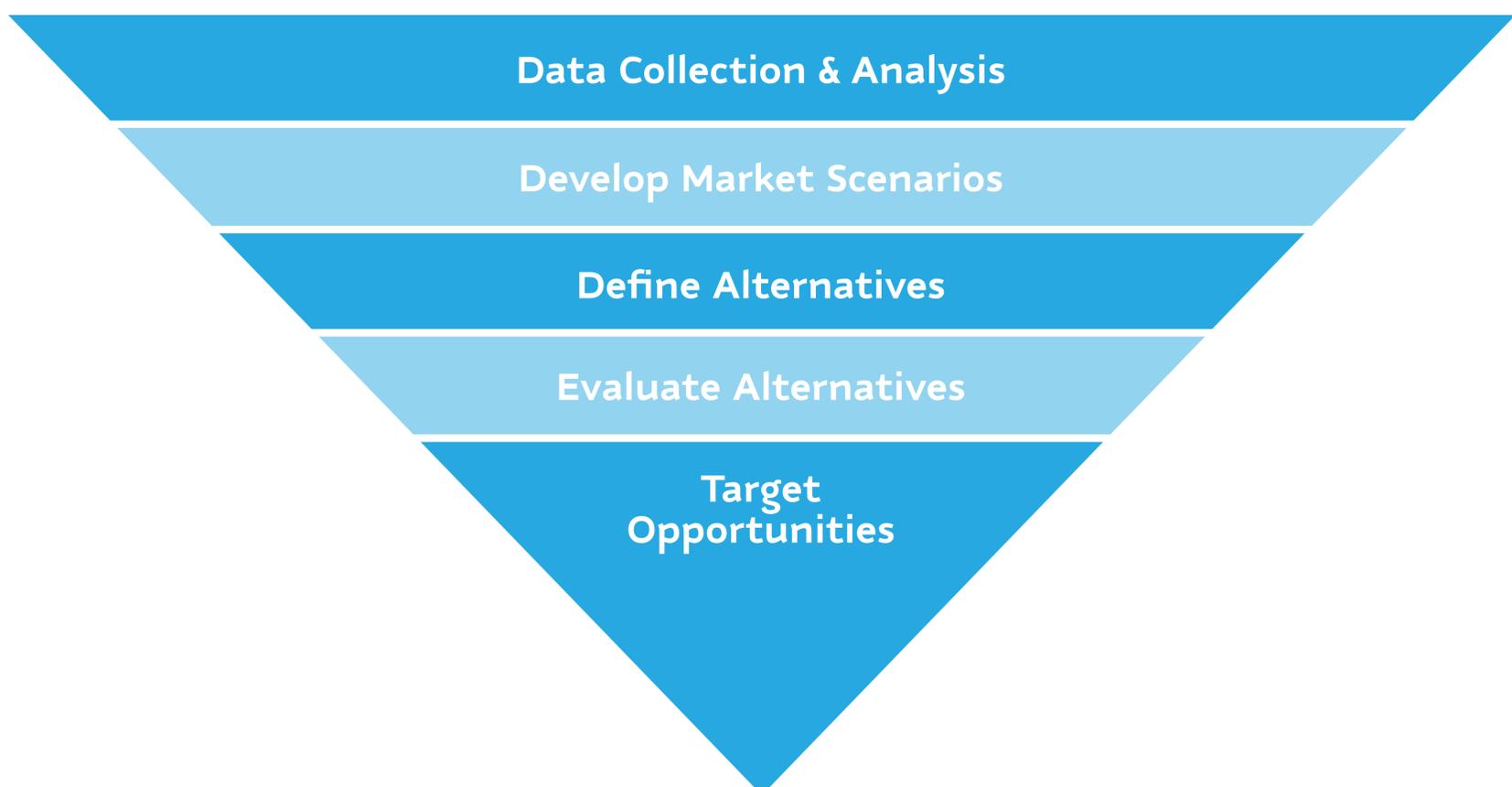
Analyze and investigate how ports can help with job creation and improve the economic situation for all of North Carolina.

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



Draft Report (February 2012)



Final Report (April 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 and online resources, 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

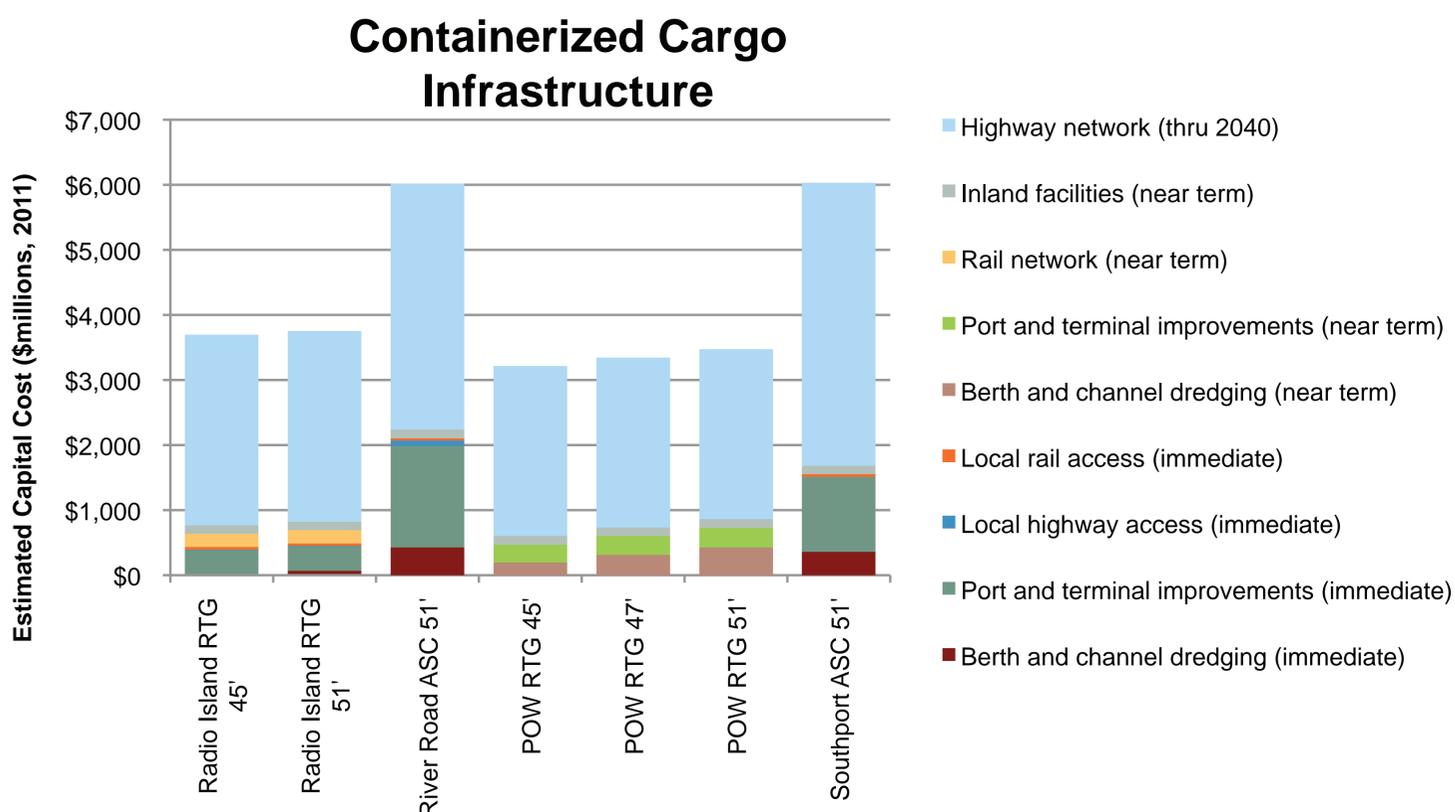
- > Reviewed more than 100 existing documents and reports to identify available and verifiable information that is applicable to the Maritime study.
- > Obtained updated import/export market forecasts for US Southeast region from IHS Global.
- > Performed independent analysis of infrastructure constraints.
 - 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
- > Integrated input from diverse industry stakeholders to assess market needs and opportunities.
- > Developed independent Delivered Cost Model to evaluate time-based benefits of infrastructure improvements.
- > Identified capital investments to support market opportunities.
- > Evaluated economic impacts of target market investments to identify jobs and payroll benefits through construction and operation, as well as indirect economic development.
- > Prepared benefit-cost analysis of alternatives.

Containerized Goods

The movement of containerized goods supports export and import activity across a large variety of industries — including goods destined to local retailers and increased export of North Carolina products.

Infrastructure Investments:

- > The Wilmington Container Terminal can handle about 500,000 20-ft equivalent units (TEU) per year, less than one-third of projected demand of North Carolina-based shippers in 2040.
- > Today’s Panamax container vessels can navigate the 42-ft-deep Cape Fear River to Wilmington. Larger “Post Panamax” or “Neo Panamax” ships expected to call on the US East Coast in the future would need a deeper — up to 51-ft deep to accommodate the largest expected ships — and wider channel.
- > Efficient truck access and intermodal rail connections are proposed from the marine terminal to inland terminals and distribution centers, along with a new intermodal terminal east of Charlotte.



Challenges:

- > Environmental impacts and technical feasibility of channel-deepening alternatives requires further study.

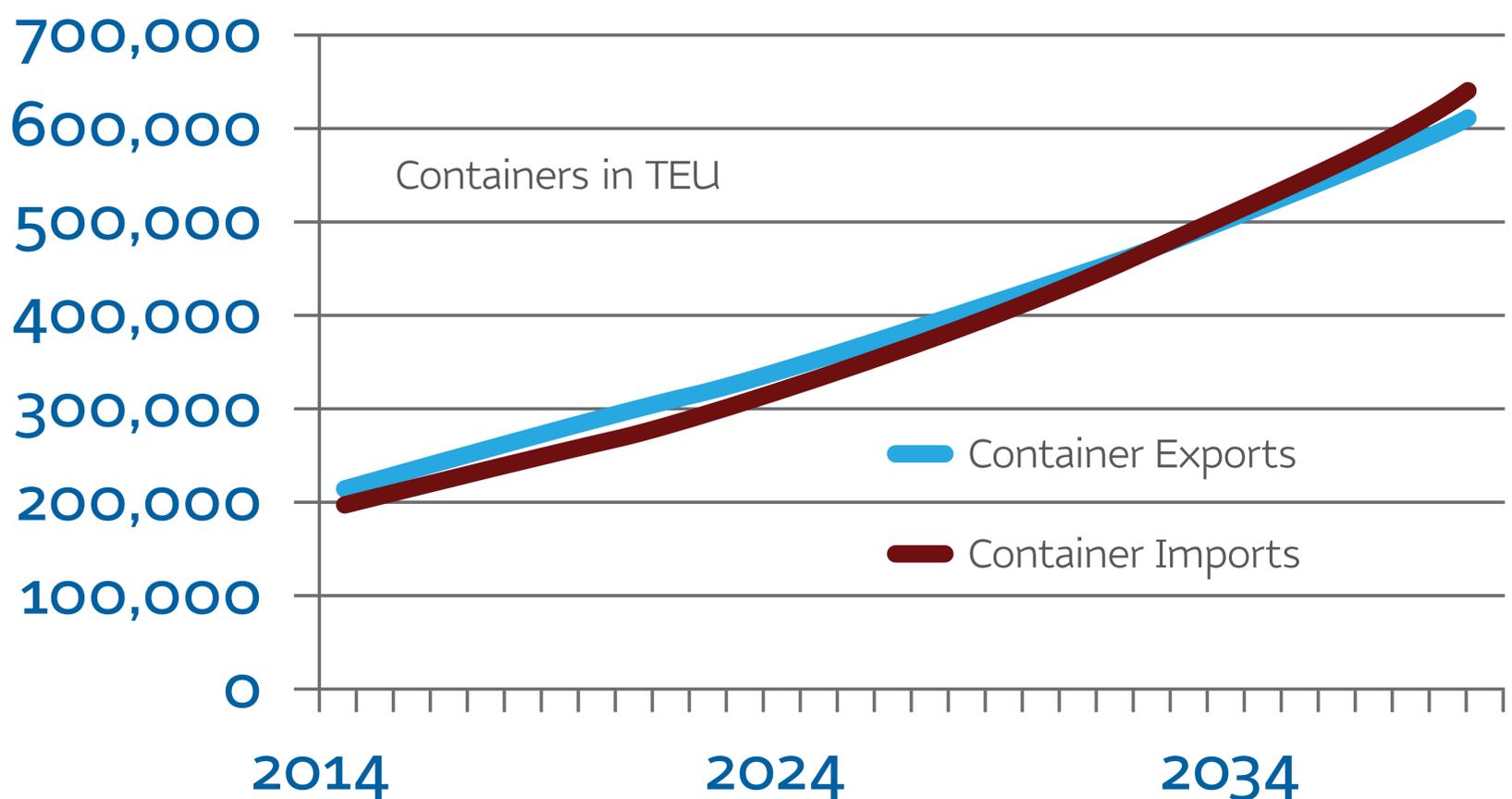
Containerized Goods (CONT.)

Economic Opportunities:

- > The ability to attract increased container service to North Carolina ports would result in more than \$1.1 billion savings to the State's shippers, who now truck their goods to remote ports.
- > Enhanced use of local ports would realize additional supply chain benefits of \$78 million.
- > Non-freight users would realize \$3.2 billion in travel time savings as a result of proposed highway network improvements.
- > Additional combined savings to State citizens through reduced accidents, emissions and highway maintenance exceeds \$253 million.
- > Investment would generate 24,000 construction jobs (in job-years*) and 2900 permanent jobs statewide.

* job-year = one job for one worker for one year

Annual Volume



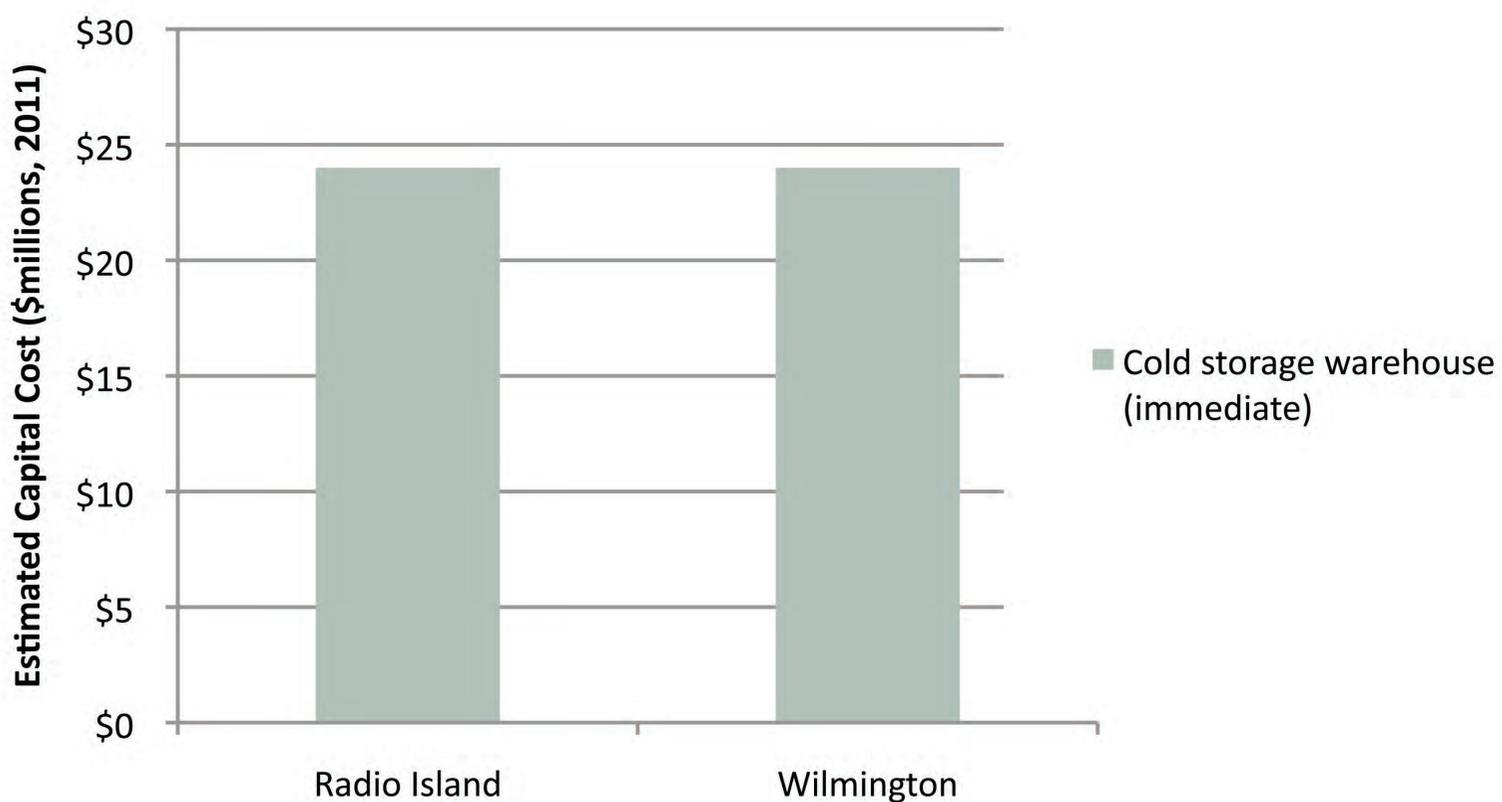
Total projected NC demand is combined volume of imports and exports.

Refrigerated Cargo

Infrastructure Investments:

- > Local refrigerated exports may be delivered to cold warehouse and distribution facilities at or near the port, prior to being stuffed into containers.
- > Existing and proposed container yards would include reefer plug-ins.
- > Additional combined savings to State citizens through reduced accidents, emissions and highway maintenance exceeds \$11 million.

Refrigerated Cargo Infrastructure

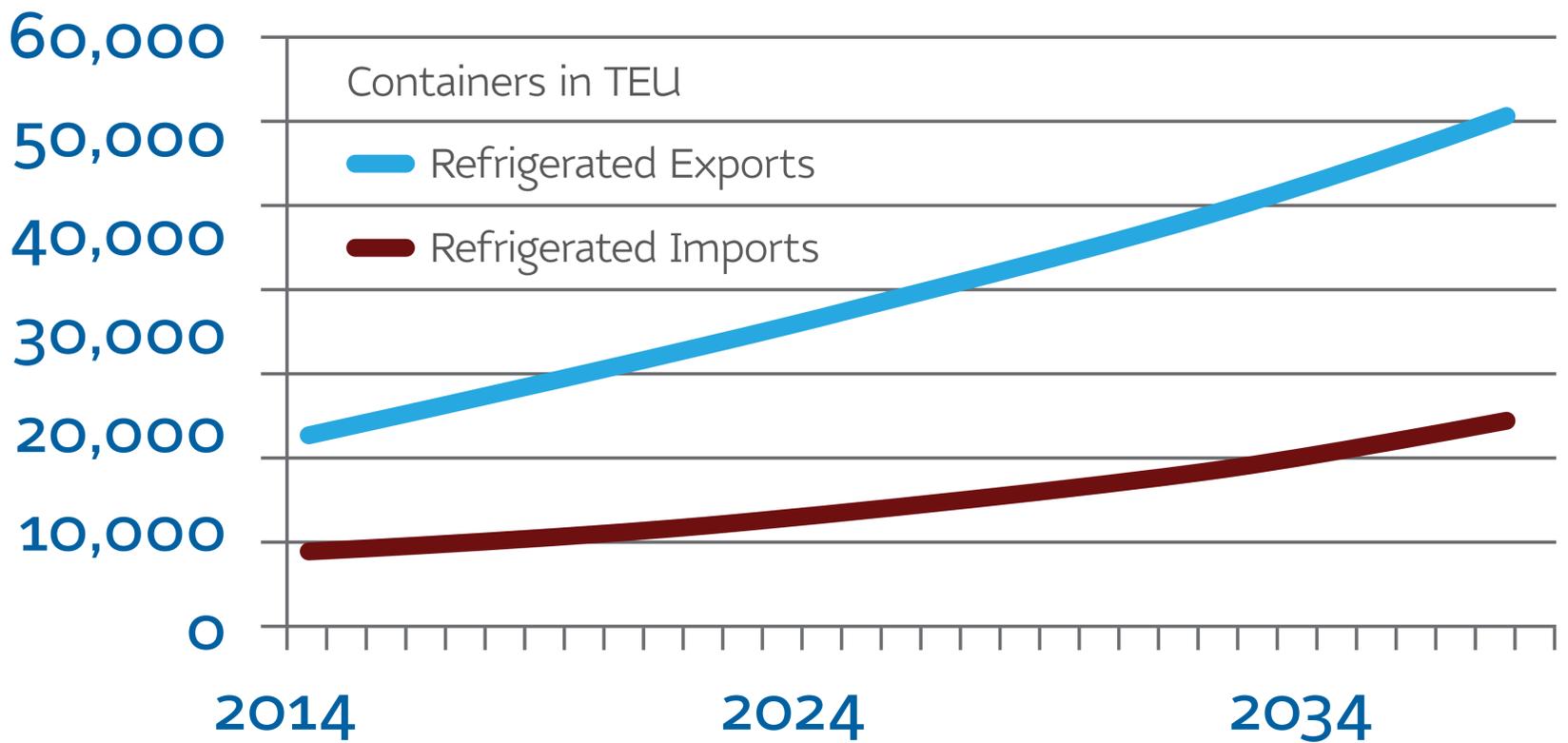


Refrigerated Cargo (CONT.)

Economic Opportunities:

- > Provision of cold storage facilities would allow North Carolina ports to meet local shippers' needs for refrigerated cargo exports, thereby realizing \$136 million in shipper savings and related supply chain benefits.
- > An immediate \$24 million investment in a cold storage facility is proposed to realize this market.
- > Investment would generate 1,000 permanent jobs statewide.

Annual Volume



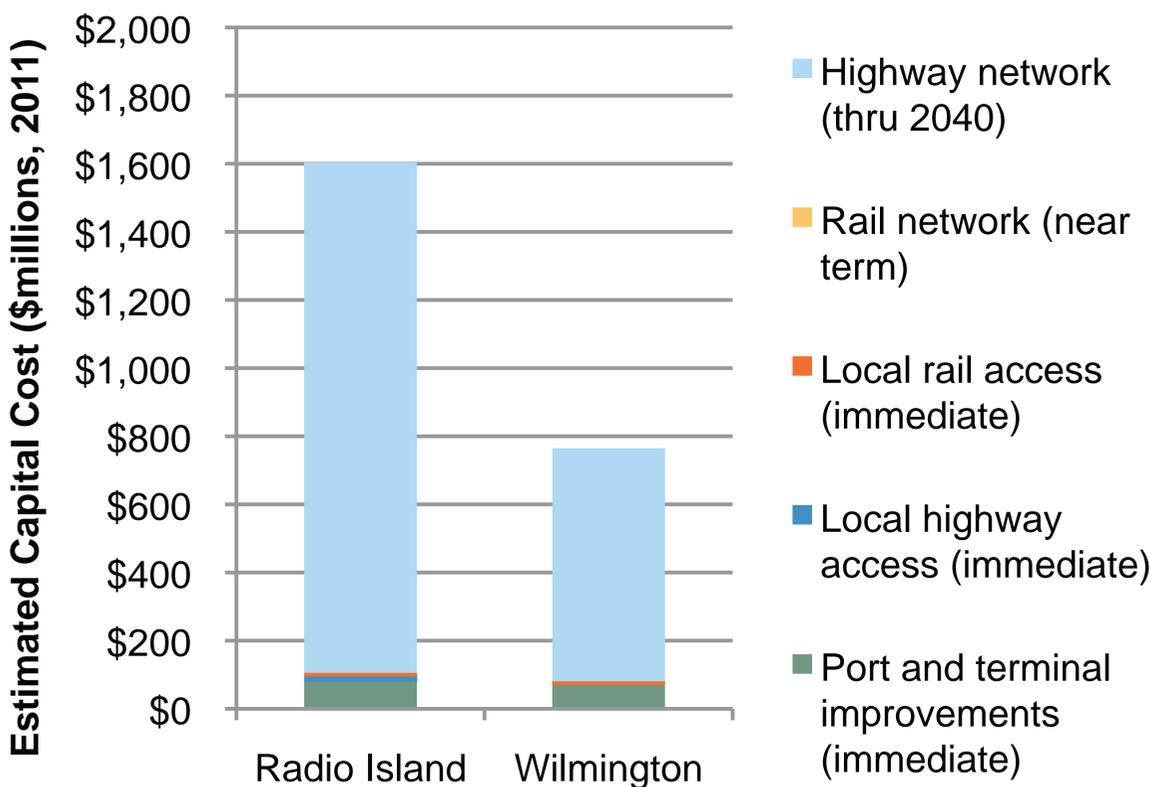
Grain & Soybean

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 Investments:

- > To realize export opportunities, new bulk grain terminal facilities are required, including grain silos, on-terminal truck and rail unloading facilities, and specialized vessel loaders.
- > Dry bulk vessels typically require no more than a 40-ft water depth, which can be handled at both of North Carolina’s existing ports.
- > Improved highway access to eastern North Carolina’s soybean regions would further benefit the State’s growers. Eastern growing areas could be reached via the existing rail network.

Grain Infrastructure



Challenges:

- > Development of Radio Island or north Wilmington property would require environmental permitting and USACE berth dredging permit.

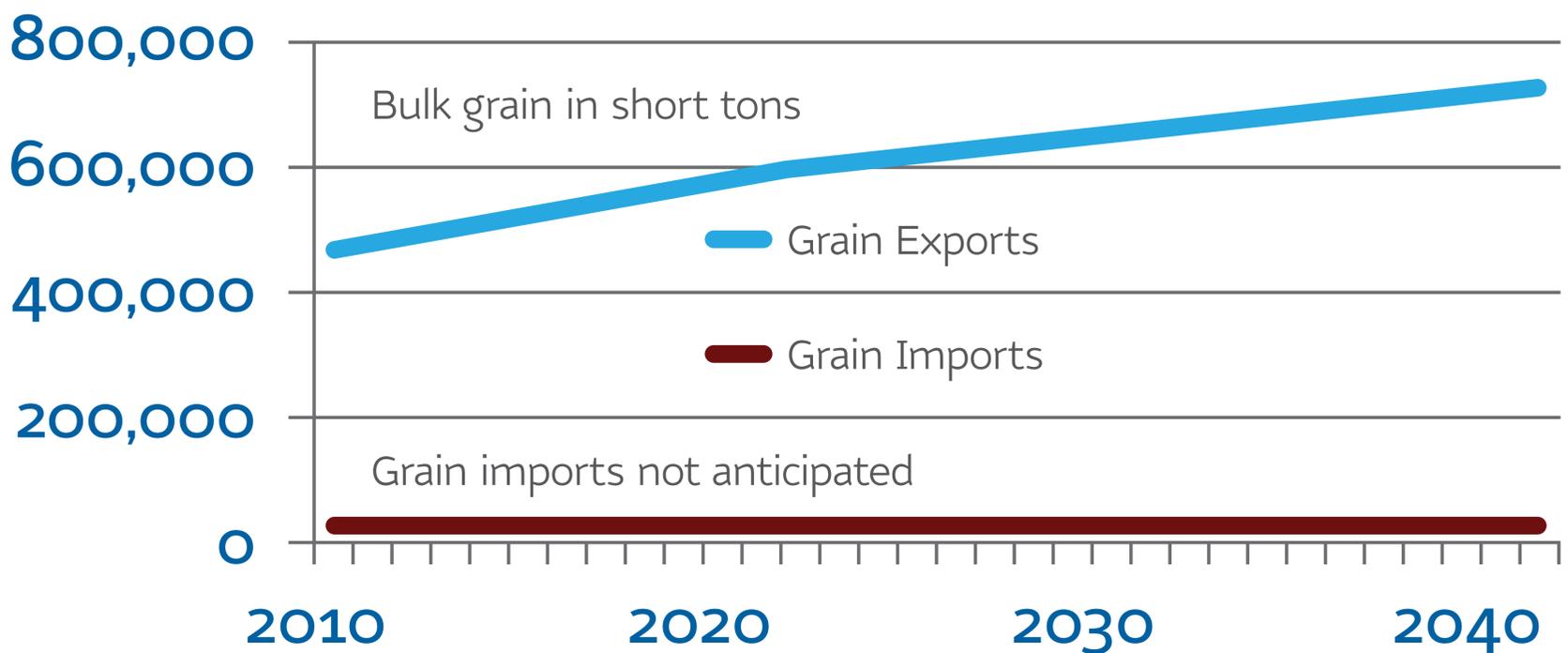
Grain & Soybean (CONT.)

Economic Opportunities:

- > Improved export options out of North Carolina would realize \$100 million in shipper savings, including higher export pricing, and associated supply chain benefits.
- > Non-freight users would realize \$2.1 billion in travel time savings as a result of proposed highway network improvements.
- > Proposed highway network investments would further benefit the State through reduced accidents, emissions and highway maintenance totaling \$47 million.
- > Investment would generate 6800 construction jobs (in job-years*) and 140 permanent jobs. Primary benefit is profitability of grain production that is essential to retaining food processing industry within the State.

* job-year = one job for one worker for one year

Annual Tonnage



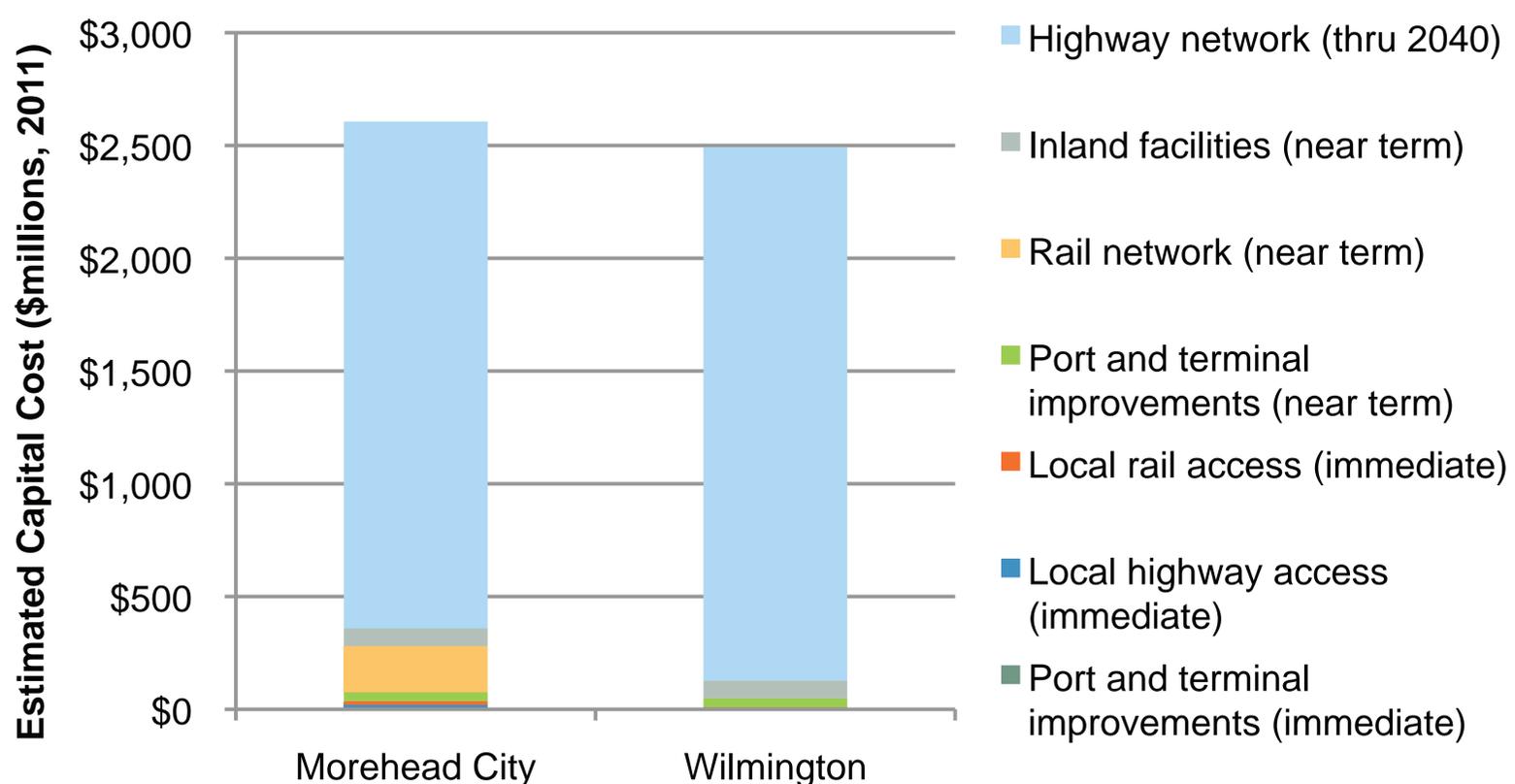
Roll-on/Roll-off (Ro/Ro) and Oversize Cargo

Producers of manufactured goods, especially those that make large bulky products such as Caterpillar and Spirit AeroSystems, rely on port access to receive parts and to deliver products to customers.

Infrastructure Investments:

- > To meet forecasted Ro/Ro and oversize demand in 2040, including wind power components for proposed offshore wind farms, a new Ro/Ro and Lo/Lo (lift-on/lift-off) terminal is proposed at either Radio Island or the Port of Wilmington's north property.
- > Large, bulky goods can be costly to move because of their weight and physical dimensions. Focused investments on oversize highway corridors would benefit manufacturers of this export cargo.
- > Rail is often the best means to handle heavy and oversize loads; direct rail connection from manufacturing sites to port would facilitate export of these goods.

Ro/Ro & Oversize Cargo Infrastructure



Challenge:

- > Development of Radio Island or north Wilmington property would require environmental permitting and USACE berth dredging permit.

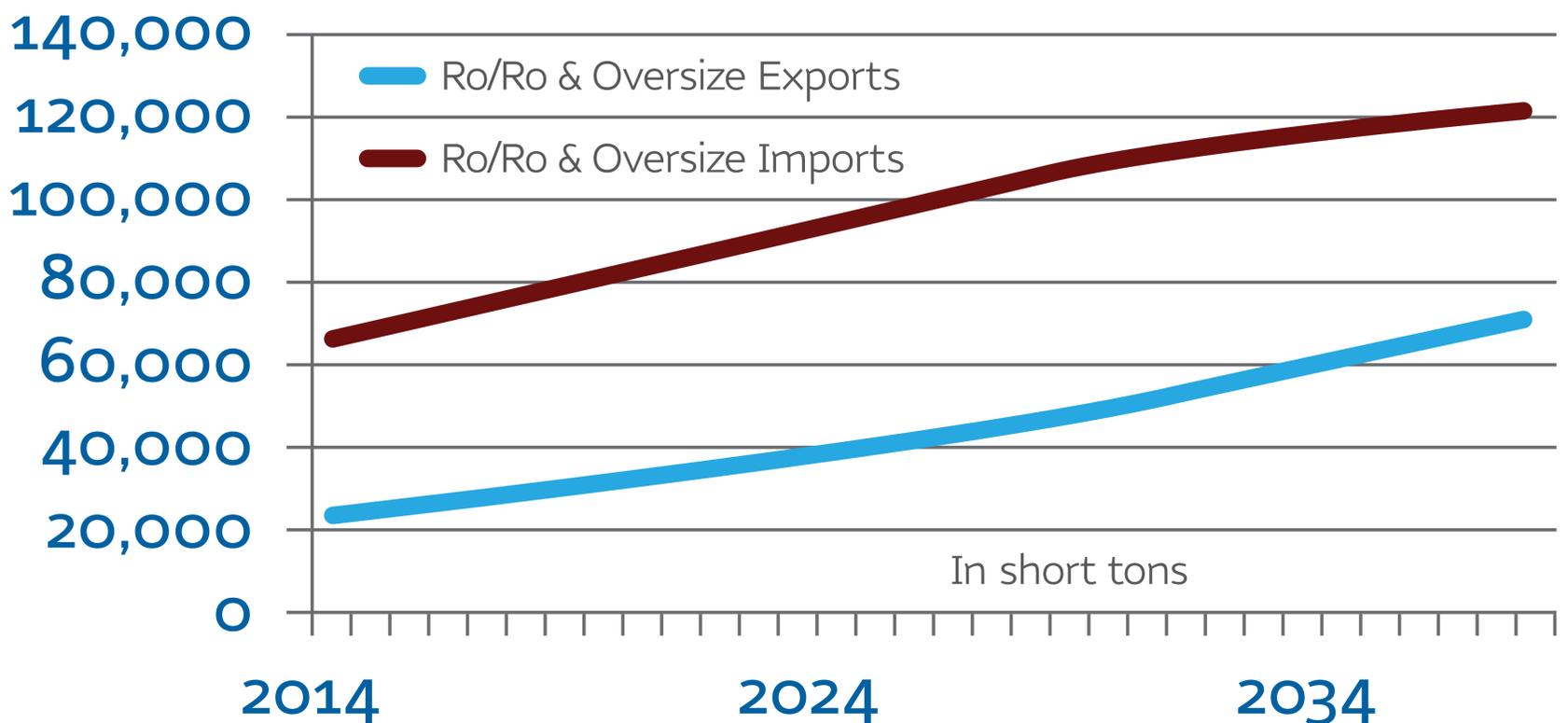
Roll-on/Roll-off (Ro/Ro) and Oversize Cargo (CONT.)

Economic Opportunities:

- > Manufacturers of capital goods are attractive contributors to the State economy because they not only hire workers directly, but they also make large purchases of goods and services from the economy.
- > Proposed investments in Ro/Ro and oversize cargo would result in shipper savings and supply chain benefits of \$46 million.
- > Non-freight users would realize \$5.3 billion in travel time savings as a result of proposed highway network improvements.
- > The State would further benefit through reduced accidents, emissions and highway maintenance totaling \$11 million.
- > Investment would generate 10,000 construction jobs (in job-years*) and 1600 permanent jobs statewide.

* job-year = one job for one worker for one year

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.

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. Proposed investments in Ro/Ro and oversize cargo, as well as containerized cargo, will also support the needs of the Military.



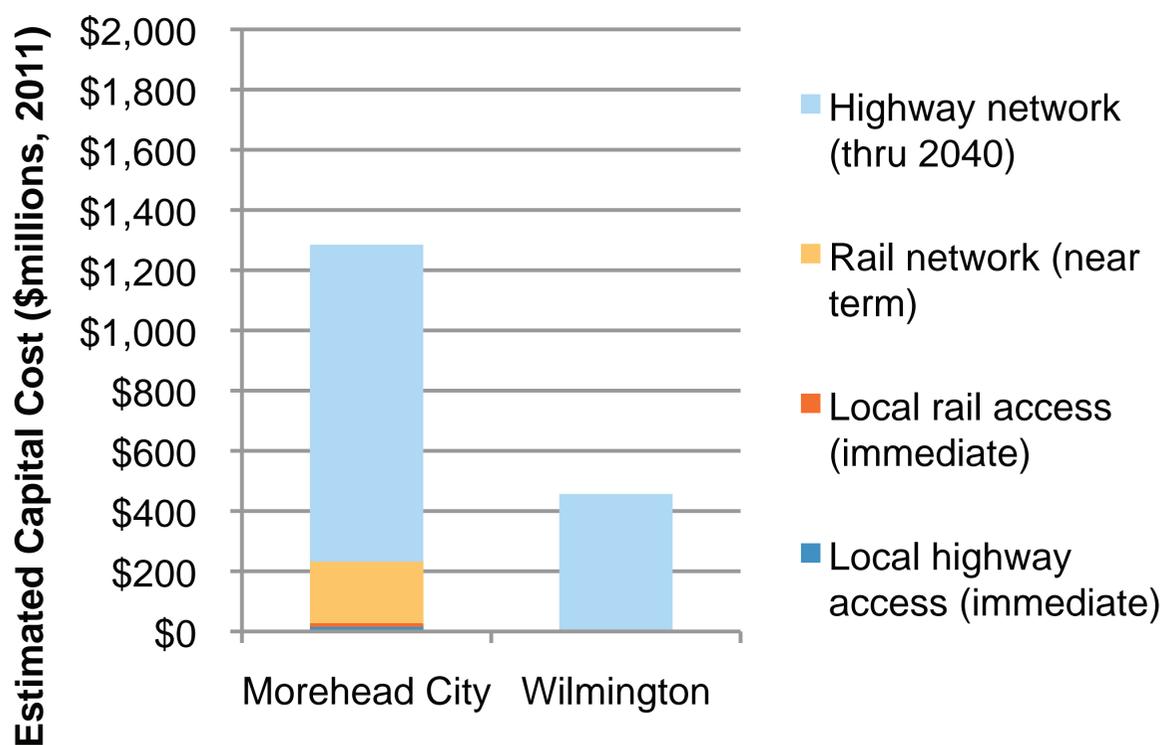
Other Wood Products

Increased export of wood products through North Carolina ports, including wood chips and wood pulp, would support an important existing industry in the State.

Infrastructure Investments:

- > Growth of North Carolina’s traditional wood products market can be accommodated within available NC Port terminal capacity.
- > The same highway and rail networks that support the wood pellet market would enhance North Carolina’s export of other wood products.
- > Wood chips and breakbulk wood products can be accommodated within available terminal capacity.
- > Highway improvements to enhance access to timber areas in southeastern NC.
- > Rail service to timber areas in western NC on existing rail network.

Other Wood Products Infrastructure



Other Wood Products (CONT.)

Economic Opportunities:

- > Proposed investments in wood pellet facilities and infrastructure would result in shipper savings and supply chain benefits of \$34 million.
- > Non-freight users would realize \$720 million in travel time savings as a result of proposed highway network improvements.
- > The State would further benefit through reduced accidents, emissions and highway maintenance totaling \$31 million.
- > Investment would generate 2300 construction jobs (in job-years*) and support jobs within existing wood industry.

* job-year = one job for one worker for one year

Annual Tonnage



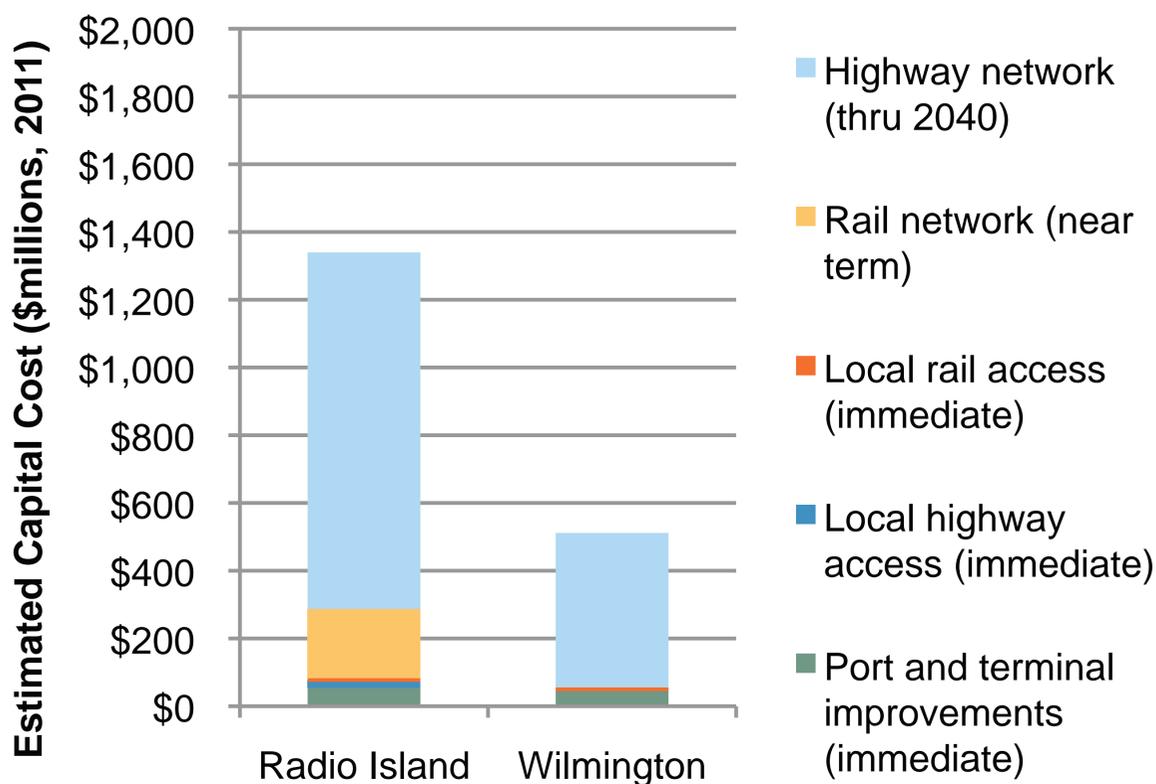
Wood Pellets

World demand for wood products, such as pellets as a source of replenishable energy, is expected to grow strongly in the next 10 years.

Infrastructure Investments:

- > To realize export opportunities, new wood pellet terminal facilities are required, including silos, on-terminal truck and rail unloading facilities, and specialized vessel loaders.
- > Dry bulk vessels typically require no more than a 40-ft water depth, which can be handled at both of North Carolina’s existing ports.
- > Highway network investments are proposed to improve delivery of wood pellets to port.
- > The most efficient means to transport wood pellets from western North Carolina timber areas would be by rail. Improved rail connections are proposed to the wood pellet export terminal.

Wood Pellet Infrastructure



Challenge:

- > Development of Radio Island or north Wilmington property would require environmental permitting and USACE berth dredging permit.

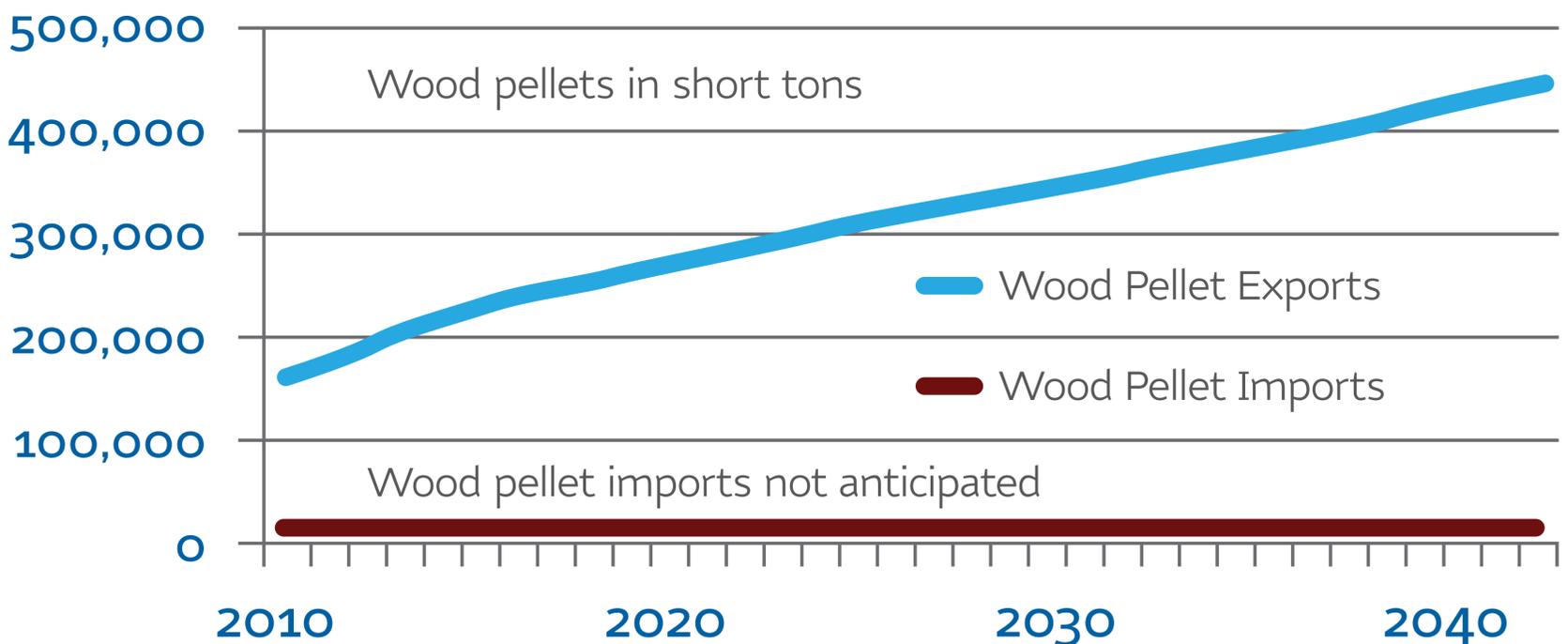
Wood Pellets (CONT.)

Economic Opportunities:

- > Proposed investments in wood pellet facilities and infrastructure would result in shipper savings and supply chain benefits of \$38 million.
- > Non-freight users would realize \$717 million in travel time savings as a result of proposed highway network improvements.
- > The State would further benefit through reduced accidents, emissions and highway maintenance totaling \$31 million.
- > Investment would generate 2300 construction jobs (in job-years*) and 175 permanent jobs.

* job-year = one job for one worker for one year

Annual Tonnage

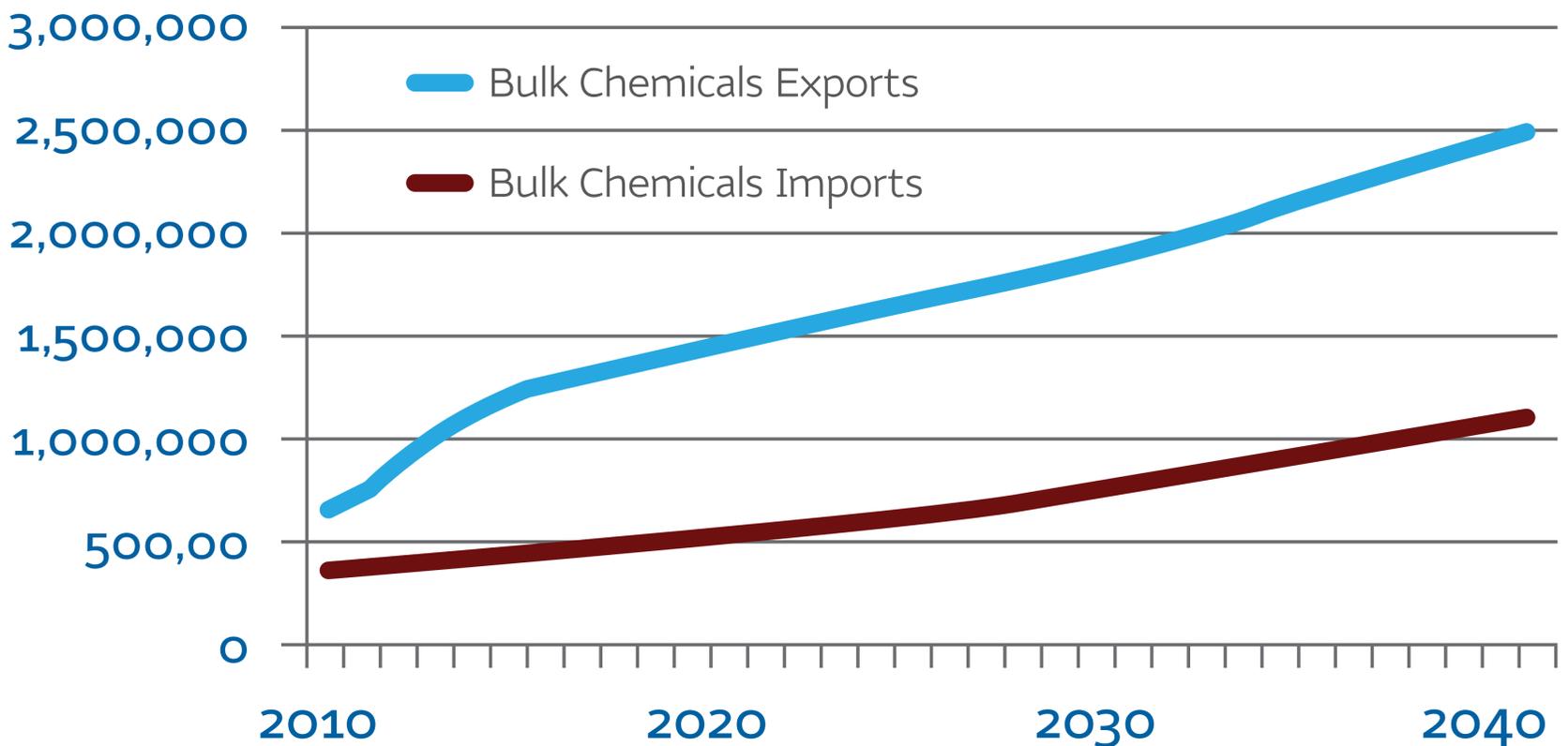


Chemicals and Phosphates

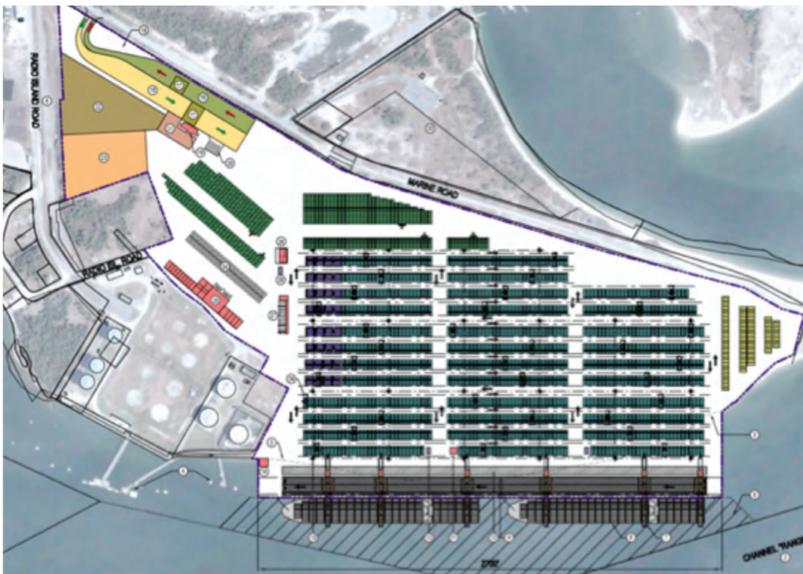
Chemicals, including industrial chemicals as well as fertilizer and animal feed components, are a comparative strength within the State economy and have solid export prospects into the future. These products comprise more than 80% of the total volume handled by the Port of Morehead City and support NC-based extraction and production in nearby Aurora.

Opportunity: Preservation of existing capacity and allowance for additional investments in privately-developed and operated bulk storage facilities at Morehead City will support a commodity that is important to North Carolina and that complements the State’s strong agriculture industry. It is anticipated that 2040 volumes will require an additional bulk phosphate storage area of 94,000 sq. ft.

Annual Tonnage



Possible Port Uses — Morehead City and Radio Island

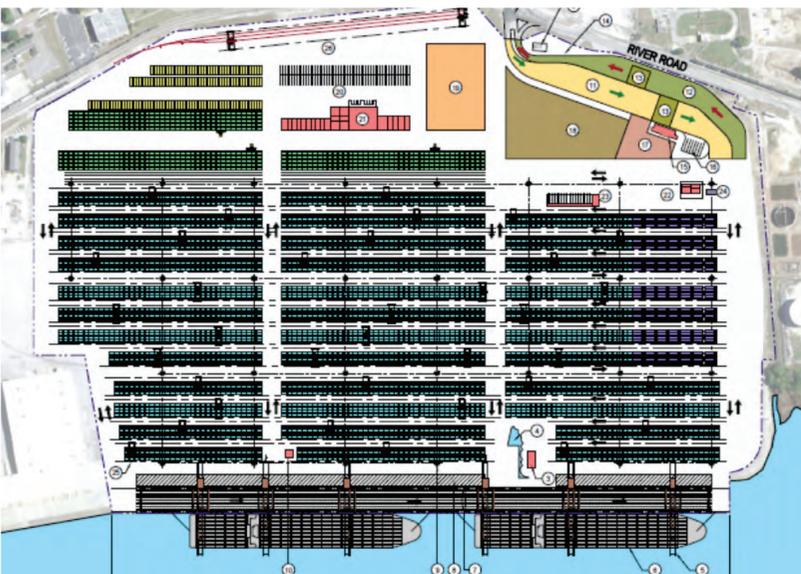


Container Terminal



**Ro/Ro and Oversize with
Export Grain / Wood
Pellet Terminal**

Possible Port Uses — Wilmington



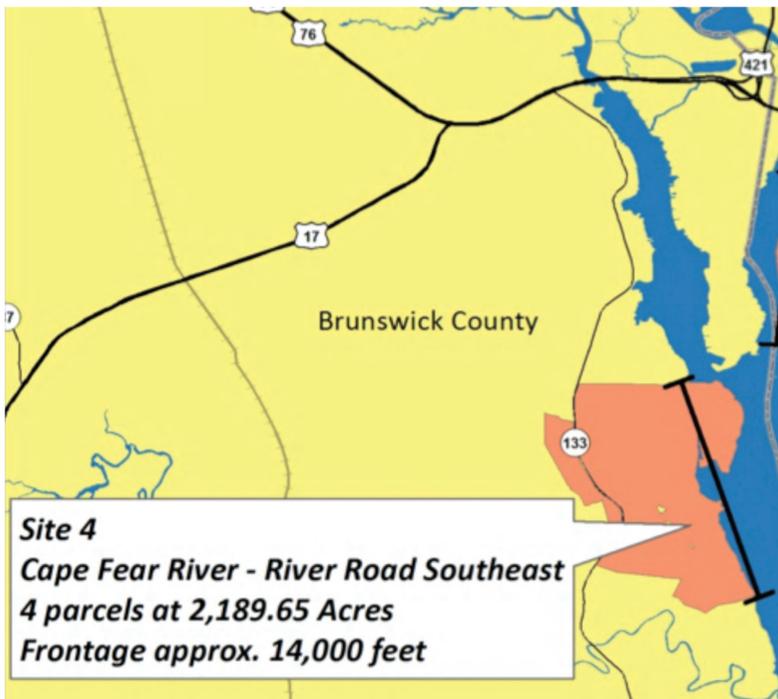
Expanded Container Terminal



Ro/Ro and Oversize with Export Grain / Wood Pellet Terminal

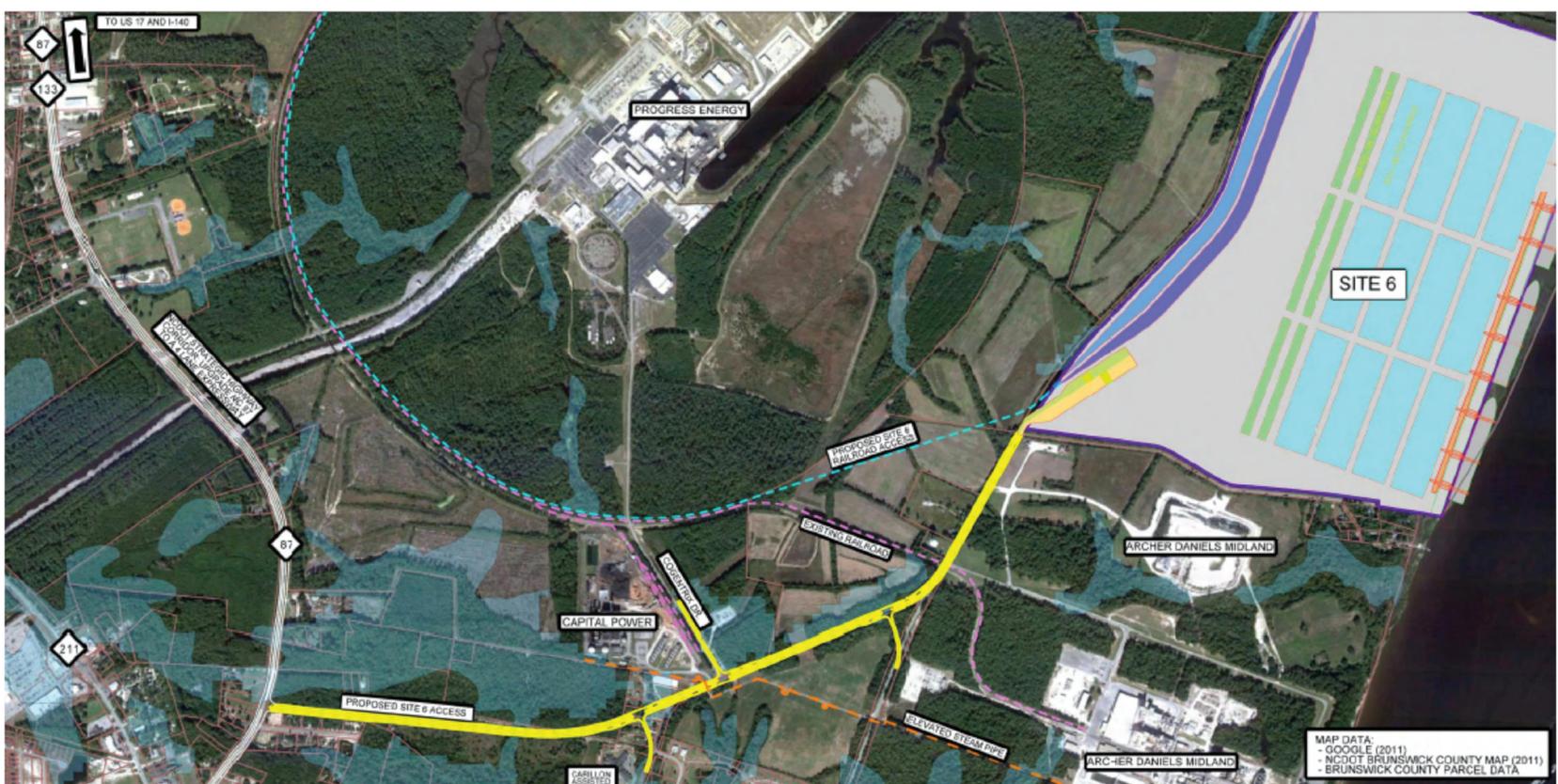
Possible Port Uses — River Road

Container Terminal

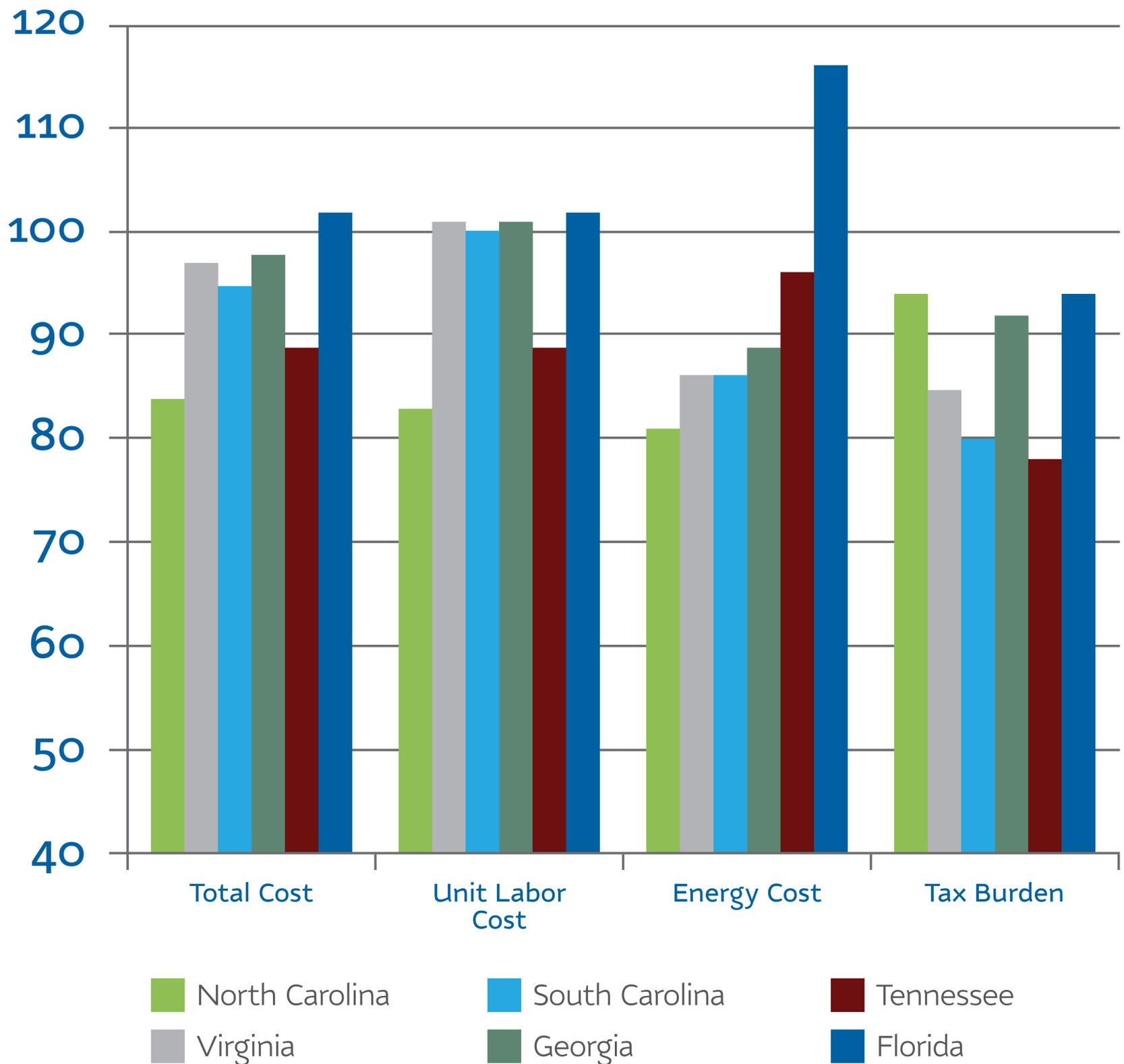


Possible Port Uses — Southport

Container Terminal



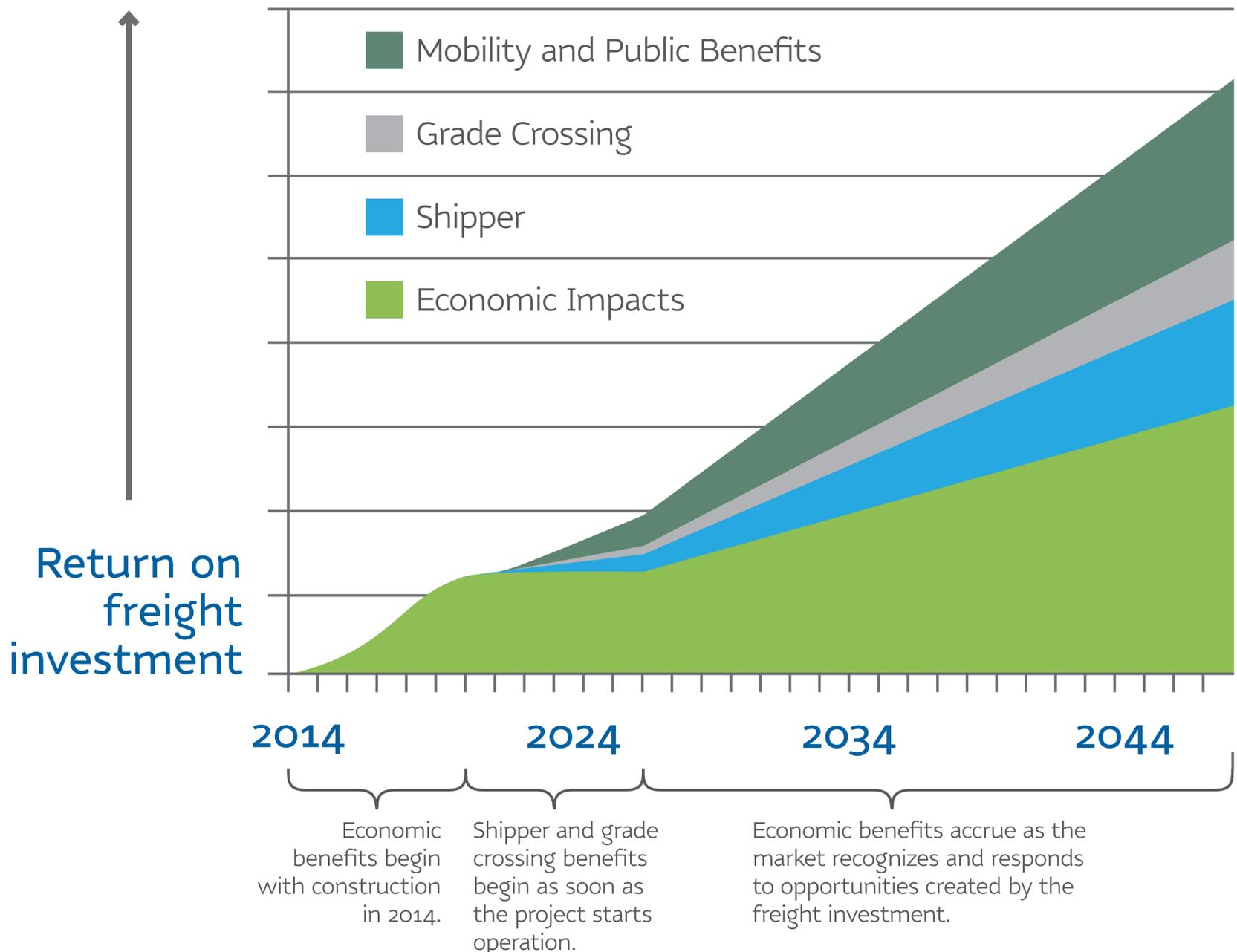
North Carolina Business Costs



100 = Indexed US Average

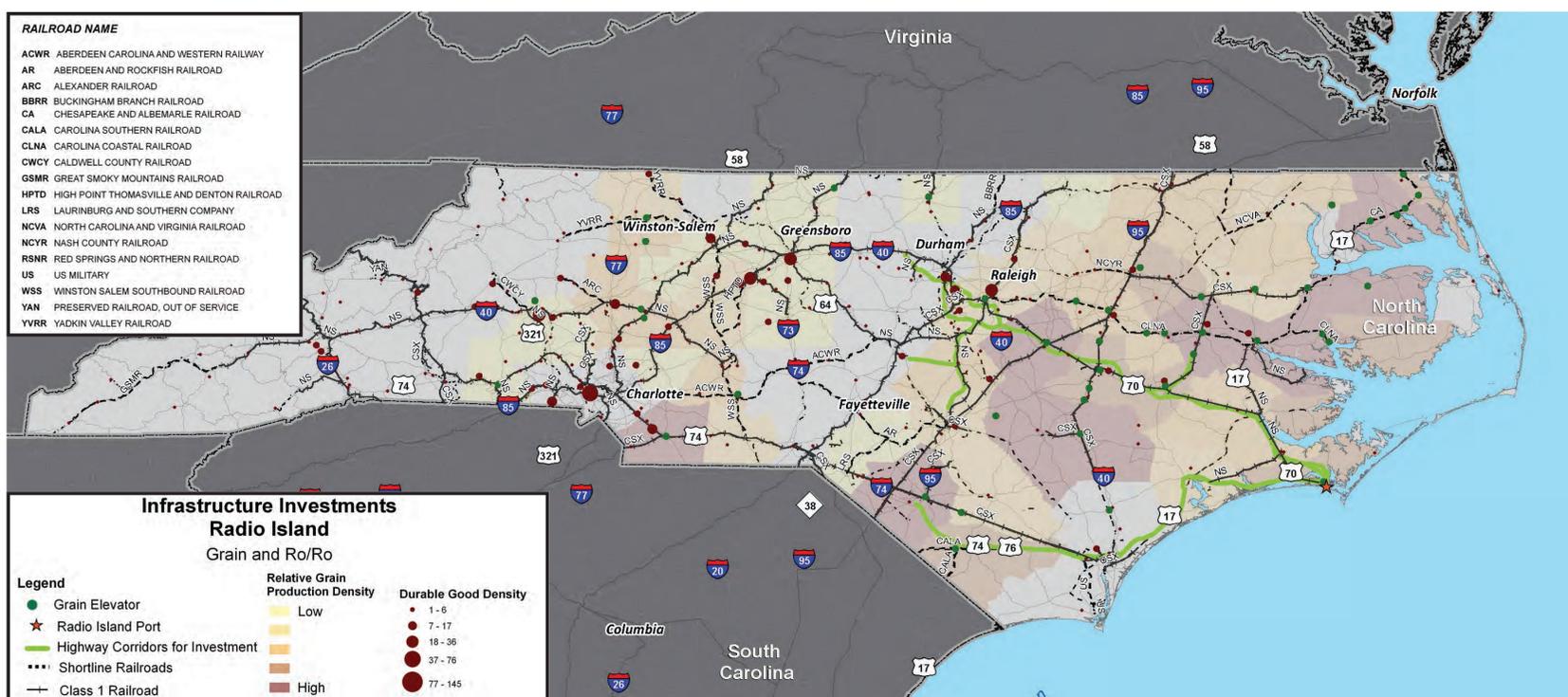
- > North Carolina has favorable cost of doing business as compared to other states in the region.
- > The cost structure of the landside economy surrounding the port influences economic development outcomes.
- > North Carolina's business costs are low relative to its coastal competitors, providing a competitive advantage.
- > Advantages in labor and energy costs drive the State's cost advantage.

Cumulative Economic Benefits



- > The economic development return-on-investment is a cumulative process.
- > Short-term job and earnings impacts begin with construction.
- > Safety and shipper savings begin once the investment comes into use and grow with the economy.
- > Long-term economic development benefits begin as the market responds to the new facility (firms that locate in the state to be close to the port and producers that can expand the range of their production to include new products).

Landside Infrastructure Investments – Morehead City and Radio Island



Port Access Improvements

- > Radio Island Access Road and Interchange with US 70
- > Radio Island Terminal Rail Connection

Rail System Improvements

- > Havelock to Morehead City Railroad Relocation (Unfunded)
- > Pembroke Turn Improvements (Funded)
- > Fayetteville Rail Improvements (Funded)

Highway System Improvements

- > Important Funded Projects include
 - Gallant’s Channel Bridge (R-3307)
 - US 70 Havelock Bypass (R-1015)
- > Proposed Local Highway Access Improvements
 - US 70 North Carteret Bypass
- > Proposed Additional Highway Network Improvements
 - US 70 Kinston Bypass (R-2553)
 - Other upgrades to US 70, I-40, US 401, US 421, NC 11, NC 24 and NC 42

Inland Facilities

- > Rail Ramps at Targeted Industrial / Manufacturing Locations

For Wilmington

- > Inland Intermodal Terminal East of Charlotte

Next Steps

By the study team

- > Receive public comments on draft report.
- > Incorporate State and public comment into final Maritime Strategy.

By the State of North Carolina

- > Align strategies with other North Carolina initiatives.
- > Integrate goals of the Maritime Strategy into statewide long-range transportation planning.
- > Consider findings of the Maritime Strategy in updated strategic plan and near-term investment strategy for NC Ports.
- > Align proposed maritime investments with related State economic and environmental policies and objectives.
- > Advance one or more market opportunities in consideration of available funding and statewide priorities.