



Jay Derr

GATEWAY TO THE WORLD:

A DIVE INTO NORTH CAROLINA'S PORTS

locke 

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**Gateway to the World:
A Dive into North Carolina's Ports**

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Executive Summary

Central to North Carolina's economic output is its position on the Eastern Seaboard and utilizing that geography to its advantage through its seaports. The Tar Heel State's two seaports stand out as gateways, through which American goods and commerce flow outward to the rest of the world. Given the projected growth of container- and bulk-shipping demand in the Ports of Wilmington and Morehead City, renewed scrutiny ought to be placed on existing policies that impact the competitiveness of these ports.

This policy report examines the roles that both ports play in North Carolina's economy, as well as how they are operated. Likewise, it delves into trade partners, the port's global rankings, containerized shipping volumes, and statutory impacts on the ports. Finally, it provides recommendations for the North Carolina General Assembly to consider pursuing to keep the Port of Wilmington and Port of Morehead City growing.

Here are some of the areas highlighted in this paper.

The Importance of North Carolina's Seaports

- ▶ The Port of Wilmington serves as a critical exporter for the Tar Heel State, but also for the United States at large. While the average U.S. port exports only 41% of the goods that go through it, the Port of Wilmington exports 52%, bringing American goods to foreign markets.
- ▶ The Port of Morehead City is critical to Norfolk Southern's inter-modal operability with a direct connection to the railway. Likewise, despite not having containerized cargo capacity, the port still fills an important niche for chemical products and bulk shipping.
- ▶ Together, North Carolina's ports generate \$16.1 billion in economic output for North Carolina.

Covid-19 Resilience

- ▶ Both the Port of Wilmington and the Port of Morehead City have continued to grow even through Covid-19's peak and look to continue growing.
- ▶ Both ports were able to accommodate waterborne traffic diverted away from congested West Coast ports.
- ▶ Both ports have shown signs of growth since then, showing that their Covid-19 resilience was not an outlier, but a trend.

Continued Need for Capacity Expansion

- ▶ Capacity at both ports is extremely limited, especially warehouse capacity. The North Carolina Ports Authority reported that 75% of warehouse capacity was being used. In Morehead City, it's closer to 100% capacity utilization.
- ▶ In the past, the current capacity for containerized cargo in the Port of Wilmington has been sufficient to promote growth; however,

vessel dwell times for container ships peaked in 2022 necessitating more capacity, especially in light of demand projections.

- ▶ Capacity expansion projects often require large amounts of capital up front. While the state legislature has provided this capital in the past through General Fund appropriations, it may be wise to find alternative sources to put less strain on taxpayers in North Carolina.

State and Federal Policies Impacting Continued Port Growth

- ▶ Dredging and navigational improvements to accommodate neo-Panamax vessels are an expensive ordeal due to federal restrictions on the nationalities of available dredges.
- ▶ Consistent influxes of federal dollars to supplement in-state funds provide a means to continue expansion and make capital projects more easily affordable. Likewise, the North Carolina legislature's annual appropriations may help, but there are alternative means of funding and financing available that do not leverage taxpayers' wallets.
- ▶ Management of both the Port of Wilmington and the Port of Morehead City under the North Carolina Ports Authority may help with resource distribution but can make port-by-port analysis harder.
- ▶ North Carolina law requires that the North Carolina Ports Authority develop containerized cargo shipping capability at both the Port of Wilmington and the Port of Morehead City, but only the former offers the service.

Solutions to Enable Continued Growth and Lower Costs

- ▶ Public-private partnerships (P3s) provide a new and innovative source of capital for needed capacity improvements, as well as a delivery method that does not punish taxpayers for missed deadlines and cost overruns.

- ▶ Federal-level policies have a drastic impact on the costs of dredging and should be brought to the attention of North Carolina's congressional delegation.
- ▶ Likewise, federal grant requirements' complexity may require waivers for new port assets, such as dock cranes. Learning to navigate these grant requirements can save the Tar Heel State time in the future, should the state seek alternate means of capital funding.
- ▶ Antiquated laws requiring the Port of Morehead City to develop containerized cargo capacity alongside the Port of Wilmington needlessly stretch Morehead City's capability and force the two ports (which are currently run as two assets of one government-owned business) into competition.
- ▶ Contracting out the existing services offered at ports can help lower the overhead costs of day-to-day operations for the North Carolina Ports Authority.

A photograph of a wooden boardwalk at dusk. The boardwalk is made of dark wood and has a metal railing with vertical posts. To the left, there are some outdoor seating areas with tables and chairs. In the background, a large bridge with two tall towers is visible across a body of water. The sky is a deep blue, and the water reflects the lights from the boardwalk and the bridge. The overall atmosphere is calm and scenic.

PART 1:

INTRODUCTION AND HISTORY

North Carolina's natural geography has played a pivotal role in the development of its ports, especially the ports of Morehead City and Wilmington. Coastal North Carolina offered a strategic location for trading and shipping, which helped attract settlers and merchants in the late 17th century.¹ Wilmington itself, situated along the Cape Fear River, became a bustling port town during the 18th century, fostering trade with the Caribbean, Europe, and other American colonies.² It was protected by the newly constructed Fort Johnston.³

Wilmington's growth was spurred largely by the arrival of railroads, specifically the Wilmington and Raleigh Railroad (later renamed the Wilmington & Weldon Railroad in 1855), which helped link the port to the interior regions of the United States.⁴ Meanwhile, further up the coast, the Port of Morehead City began to emerge as a competitor for coastal trade. The Atlantic and North Carolina Railroad filled a similar role to the Wilmington and Raleigh Railroad for Morehead City, serving as Morehead City's link inland.

The Civil War also had a profound impact on both Morehead City and Wilmington. The Port of Wilmington served as a major Confederate supply port and a high-priority target for Union blockades. Despite Union blockades of much of the rest of the Confederate eastern seaboard, the Port of Wilmington remained largely available until near the end of the war due to the natural barrier islands and shoals around the mouth of

the Cape Fear River.⁵ When Wilmington was finally successfully taken, it marked a major turning point in the war; much of the already beleaguered Confederacy's supplies were cut off entirely.

Post-war reconstruction efforts, including the Wilmington and Weldon Railroad's repair and expansion, aimed to restore the city's economic vitality.⁶ Those efforts to rebuild Southern infrastructure continued well into the early 20th century, when the two ports would be strained once again.

Newer challenges, ranging from the Great Depression to the decline of the cotton industry, forced the ports to examine how they could continue to compete. Both ports undertook major efforts to modernize, including improved infrastructure, facilities, and transportation links.⁷

World War II brought renewed significance to the ports of North Carolina. Wilmington once again played a critical role as a military supply and deployment hub for U.S. forces throughout the war. Wilmington itself was known as "The Defense Capital of the State," largely due to the contributions of the North Carolina Shipbuilding Company constructing over 200 vessels during wartime.⁸ The war effort also led to an expansion of port capacity to help facilitate U.S. Merchant Marine movements.

After the war, the ports continued to grow as North Carolina's economy diversified, and policies encouraged international trade. The importance of the state's deepwater ports was recognized by the state legislature in 1945 with the creation of the North Carolina Ports Authority.⁹ The Ports Authority's main job was to keep North Carolina's two main ports competitive with its rival ports in South Carolina and Virginia through the sale of revenue bonds to help fund expansion as necessary. The completion of the Intracoastal Waterway in June of 1949 also helped increase accessibility to both ports.

In both the Port of Wilmington and the Port of Morehead City, two historical constants have remained: continued growth and the importance of the ports to the Tar Heel State.

An aerial photograph of a city waterfront. In the foreground, a wide, dark river or harbor flows from the left towards the right. The city skyline is visible in the background, featuring a mix of modern and older buildings. A prominent, light-colored, classical-style building with many columns is situated on the right side of the waterfront. The sky is blue with scattered white clouds.

PART 2:

Current State of North Carolina Ports and Harbors

Today, North Carolina's two ports contribute \$660 million in local and state tax revenue, pay out \$4.6 billion per year to employees, and support 88,200 jobs. Perhaps most critically, they generate \$16.1 billion in economic output for North Carolina.¹⁰ Because of these significant contributions, it's easy for policymakers to see investment in the ports as worth it — the return on investment is high. However, it's important that port funding is also cost-effective, especially when using taxpayer dollars.

The Ports of Wilmington and Morehead City, while geographically close as shown in Figure 1, serve different purposes. The Port of Wilmington is the larger of the two ports and is equipped to handle on- and off-load containerized cargo. Morehead City, on the other hand, only handles general cargo.

Figure 1: Map of North Carolina's Inland Transportation



SOURCE: "MAP OF INLAND TRANSPORTATION," NORTH CAROLINA PORTS AUTHORITY.

The Port of Wilmington's containerized cargo handling is valuable because its cargo is more valuable on average than roll-on/roll-off (ro-ro) cargo. Like all container ports, its performance is measured against other containerized seaports globally in the Container Port Performance Index (CCPI). Not only does the Port of Wilmington rank first in North America for container ports, but it's also the 44th overall ranked port in the world according to the World Bank.¹¹ When compared against other CPPI ports, the Port of Wilmington ranks 18th in the total number of twenty-foot equivalent units (TEUs, a measurement of volume in units of 20-foot-long cargo containers).¹²

Context is important, however. The Port of Savannah, Georgia, is a larger, more active container port than the Port of Wilmington. The CCPI's ranking is based on productivity, which is measured by how much time vessels spend in port. Savannah has been dealing with congestion issues post-Covid, and its performance has relatively decreased. While the Port of Wilmington is performing relatively well, it also didn't have the massive levels of traffic that the Port of Savannah has seen in the past to contend with during the worst of Covid-19.

The Port of Charleston, South Carolina, experienced a similar performance drop due to Covid-19's impact. It was ranked 187th in the 2021 CCPI, and dropped to 341 in 2022's due to rising container vessel wait times.¹³

The Port of Wilmington’s post-Covid recovery has been impressive. In Fiscal Year (FY) 2022 (ending June 30, 2022), the Port of Wilmington recorded 2.8 million tons of general cargo being moved, a 27% year-over-year increase.¹⁴ Container moves were 9% lower, however.¹⁵

With the opening of the Wilmington Midwest Express rail line and a new intermodal facility to accommodate more rail traffic in the port, Wilmington’s container capacity has increased significantly.¹⁶ Partially funded by the United States Department of Transportation (USDOT) through the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) program, the \$22 million rail investment looks to accommodate the North Carolina Ports Authority’s projections of increased rail movements in light of increased costs associated with trucking (notably fuel costs).¹⁷ Capacity expansion will likely still be necessary for the Port of Wilmington. While these increased rail connections help move cargo into and out of the port, priority improvements include waterborne capacity increases, which find ways to service more container ships at the same time.

Even with these additions, it may be wise to invest in further capacity expansions given the Ports Authority’s projections for cargo demand over the next few years as shown in Table 1.

Table 1: Demand Forecast for North Carolina Seaports

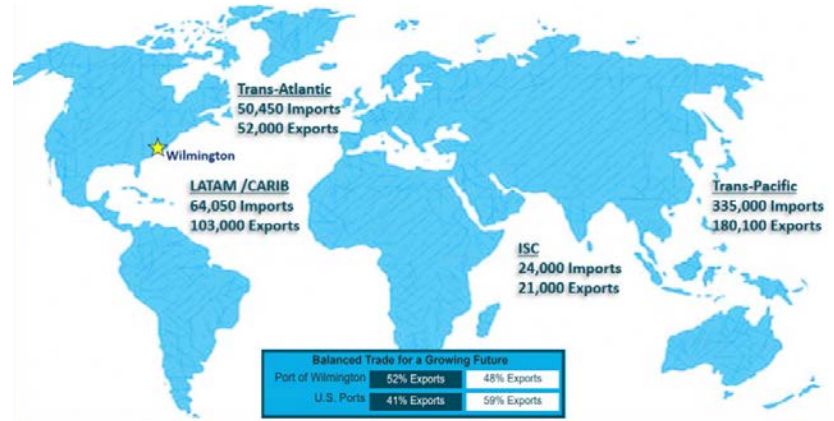
Activity	Metric	Location	FY22	FY23	FY24	FY25	FY26
Containers	TEUs	Wilmington	330,300	343,113	448,807	467,109	484,640
Industrial	Tons	Wilmington	162,000	272,000	332,000	392,000	452,000
Chemicals/ Fertilizer	Tons	Wilmington	641,500	697,500	722,500	722,500	722,500
Agriculture/ Forest Products	Tons	Wilmington	1,530,000	1,465,000	1,570,000	1,680,000	1,785,000
Subtotal			2,333,500	2,434,500	2,624,500	2,794,500	2,959,500
Industrial	Tons	Morehead City	605,500	686,200	714,900	728,600	742,500
Chemicals/ Fertilizer	Tons	Morehead City	240,000	250,000	250,000	250,000	250,000

Activity	Metric	Location	FY22	FY23	FY24	FY25	FY26
Agriculture/ Forest Products	Tons	Morehead City	320,000	385,000	470,000	495,000	495,000
Subtotal			1,165,500	1,321,200	1,434,900	1,473,600	1,487,500
Total Tons			3,499,000	3,755,700	4,059,400	4,268,100	4,447,000

SOURCE: NORTH CAROLINA PORTS AUTHORITY, 2021 STRATEGIC PLAN, P. 5.

The container market in Wilmington is forecasted to grow by 50% between FY22 to FY26, based on estimations by the NCDOT.¹⁸ These numbers are largely based on the Port of Wilmington’s status as one of the few ports specializing in moving furniture, forest products, pork and poultry, apparel, and textiles, per the NCDOT.¹⁹ While there is existing capacity in the Port of Wilmington (including more intermodal connectivity), a 50% increase will stress existing infrastructure. The Port of Wilmington’s status as a gateway port makes it essential to North Carolina’s economic prospects, as it opens U.S. markets to international trading partners. While the average U.S. port exports 41% of goods, the Port of Wilmington exports 52%.²⁰ If service is poor at the port due to congestion, carriers will divert and jeopardize that status.

Figure 2: Port of Wilmington Import/Exports by Region



SOURCE: NORTH CAROLINA PORTS AUTHORITY, 2021 STRATEGIC PLAN, P. 5.

But it's not all good news for the Port of Wilmington. Container and roll-on/roll-off vessel dwell times have been increasing year-over-year, and 2022's dwell time of 25 hours in June was the worst since 2018 for Wilmington.²¹

Dwell times represent the amount of time a vessel spends in port loading and unloading cargo. While this time is still lower than Savannah, Georgia's 37 dwell hours in June of 2022 and Charleston, South Carolina's 32 hours, it's still a peak worth noting in Wilmington.²² It's preferable to keep dwell times lower, as the longer a vessel's dwell time, the higher the costs for carriers.

An efficient stevedoring (defined as the process of loading or offloading cargo

to or from a ship) service can lower costs for carriers dramatically, and if this trend continues the Port of Wilmington may find itself less appealing despite major capital investments into the port's infrastructure.

The Port of Morehead City, when compared to the Port of Wilmington, has had mixed results over the past few years. The Covid-19 pandemic profoundly impacted every mode of transportation, and many modes suffered from a lapse in demand. This lapse never materialized in the Port of Morehead City. The Port of Morehead City reported that 1.1 million tons of bulk were moved through the port, a 2% year-over-year increase in general cargo moves over FY19.²³

The North Carolina Program Evaluation Division found that while ports in North Carolina as a whole performed efficiently, that efficiency owed almost entirely to the Port of Wilmington, not Morehead City.²⁴ Ship turnaround time grew worse over the five years from FY14 to FY19 in Morehead City.²⁵ Port call volume and crane hours decreased, signaling lower utilization.²⁶

"But it's not all good news for the Port of Wilmington. Container and roll-on/roll-off vessel dwell times have been increasing year-over-year, and 2022's dwell time of 25 hours in June was the worst since 2018 for Wilmington."

But results varied pre-Covid. In those same fiscal years, the value of claims per port call decreased in the Port of Morehead City, signaling better and safer cargo handling.²⁷

These differences are easily explained, however. The Port of Morehead City is far smaller and, as noted, lacks containerized cargo capabilities. Additionally, while the Port of Morehead City has rail access for both CSX and Norfolk Southern, the Port of Morehead City has a connection only to Norfolk Southern. This lessens competition in pricing for the railway and could make carriers divert to other ports (including Wilmington). Increased rail access in the Port of Morehead City may help alleviate this diversion and make the port more cost-competitive.

Despite these factors, the Port of Morehead City still generates enough operating revenue to offset its expenses by a large factor. In FY22 Morehead City reported \$10,886,590 in operating revenues and only \$9,701,486 in operating expenses.²⁸

Many federal and state policies impact the performance, competitiveness, and business practices of both ports. Both federal and state policies are worth examining, especially when considering the need to continue both Morehead City and Wilmington's growth.



PART 3:

State-Level Policies

Policies enacted at the state level are often some of the most crucial. From the establishment of a Ports Authority to stating goals for state-run seaport assets, they can have some of the biggest impact on any state's ports. North Carolina is no exception, and as such, these policies are worth evaluating for their impact on the two ports' effectiveness.

North Carolina Ports Authority

The most crucial state-level policy was the establishment of the North Carolina Ports Authority. The Ports Authority was created with a few key purposes in mind:

- ▶ Develop and improve harbors or seaports to improve handling of commerce to and from other places in North Carolina, other states, and foreign countries
- ▶ Acquire, construct, equip, maintain, develop, and improve port facilities and improve portions of waterways

- ▶ Foster and stimulate shipment of freight and commerce through ports, and investigate and handle matters pertaining to transportation rates and rate structures
- ▶ Cooperate with the U.S. federal government and any agency, department, corporation, or instrumentality in the maintenance, development, and improvement of harbors and seaports in connection with war operations and needs of the U.S.
- ▶ In general, do and perform any act or function that may help the development and improvement of harbors, seaports, and inland ports in North Carolina, and increase the movement of waterborne commerce, both foreign and domestic, through those harbors²⁹

"The North Carolina Ports Authority effectively owns and runs both the Port of Wilmington and the Port of Morehead City."

The North Carolina Ports Authority effectively owns and runs both the Port of Wilmington and the Port of Morehead City. These ports are classified as "operating ports," meaning the Port Authority is responsible for operating cranes, truck gates, and yards. Stevedoring is done through companies contracted by the ports

— a common practice among operating ports.

This structure for a state's port authority is not unique to North Carolina. Georgia's Ports Authority operates two ports with five total terminals, South Carolina's Ports Authority operates two ports with six total terminals, and Virginia's Port Authority operates one port with four total terminals.³⁰ While operating multiple terminals may seem inefficient and duplicative, a report by the North Carolina General Assembly's Program Evaluation Division examined the North Carolina Ports Authority and found that the types of goods handled at the various terminals in the state were diverse enough to qualify as efficient, not duplicative.³¹ These goods are shown by port in Table 2.

Table 2: Types of Cargo

Cargo Type	Port of Wilmington	Port of Morehead City
Container	Yes	No
Bulk and Break Bulk*	Yes	Yes
Types of Bulk Cargo Materials	Forest Products Metal Products Woodchips Grain Chemicals Fertilizer Wood Pellets	Forest Products Metal Products Woodchips Grain Phosphate Sulfur Scrap Metal Paper Asphalt Rubber Aircraft Parts

*BREAK BULK CARGO IS CARGO THAT IS STORED ONBOARD A SHIP IN INDIVIDUALLY COUNTED UNITS INSTEAD OF CONTAINERIZED CARGO; FOR EXAMPLE, 12 BARRELS OF CORN SYRUP AS OPPOSED TO A CONTAINER OF TEXTILES.

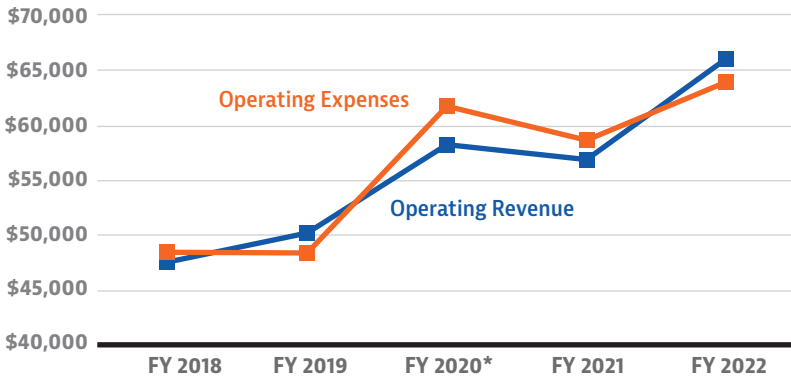
SOURCE: PROGRAM EVALUATION DIVISION OF THE GENERAL ASSEMBLY, *EVALUATION OF EFFICIENCY AND EFFECTIVENESS OF STATE PORTS AT WILMINGTON AND MOREHEAD CITY*, EXHIBIT 27, P. 30.

While there is some overlap, as shown in Table 2, the terminals still receive diverse enough traffic to specialize in different goods. Likewise, Morehead City’s location makes it ideal for handling industrial and manufactured goods, whereas Wilmington has terminals better equipped to handle chemicals.

The Ports Authority does report its annual financial status to the North Carolina Office of the State Auditor. In this audit, the Ports Authority and the State Auditor dig into the financial health of the Ports Authority as an organization (and not necessarily by the ports it manages).

Figure 3 shows the operating revenue versus operating expenses for the Ports Authority as a whole, per the State Auditor’s reports.

Figure 3: North Carolina Ports Authority Operating Revenues vs. Expenses By Fiscal Year



*FY 2020'S EXPENDITURES WERE MUCH HIGHER THAN THE NORMAL TREND IN PART DUE TO DREDGING CONTRACTS BEING ISSUED.³²

SOURCE: ADAPTED FROM THE OFFICE OF THE STATE AUDITOR, NORTH CAROLINA STATE PORTS AUTHORITY FINANCIAL STATEMENT AUDIT REPORTS FOR FISCAL YEARS 2018, 2019, 2020, 2021, AND 2022.

This information is useful to determine the overall business efficacy of the Ports Authority as a whole. The organization does break even most years but still has some financial issues to tackle with management, especially when 66% of the Ports Authority's budget is tied up in staff costs.³³

Statutory Containerized Cargo Handling

Technically, Morehead City has been in violation of North Carolina statutes for more than 40 years. North Carolina General Statutes (G.S.) § 136-260, which established the North Carolina Ports Authority, requires the Ports of Wilmington and Morehead City to provide:

*adequate equipment and facilities including container cranes at each port as needed, to maintain existing and future levels of containerized cargo shipping at both ports and provide and encourage growth in handling of containerized cargoes at both ports.*³⁴

As it stands, there is no plan to develop containerized shipping in the Port of Morehead City, at least not outlined in the most recent 2021 Strategic Plan.³⁵ It's also unlikely that Morehead City would be able to produce the capital necessary to construct the infrastructure necessary to handle containerized cargo.

In light of the specializations of both ports in North Carolina, this specific statute seems superfluous and outdated. Not every port needs to accommodate the same types of ships or cargo. The Port of Morehead City has its niches, and it has been performing admirably regardless of its lack of containerized port terminals. If the goal of the Ports Authority is to ensure that the Port of Wilmington and the Port of Morehead City do not compete for resources by ensuring their services are diverse enough to be efficient, this statutory requirement seems counterproductive. If this statute were followed to the letter, it would risk duplicating effort.

Plus, with the Port of Wilmington's new intermodal facility for rail, it seems the state's focus is on making the Port of Wilmington a top-tier medium container port, not on catching the Port of Morehead City up to speed.

"If the goal of the Ports Authority is to ensure that the Port of Wilmington and the Port of Morehead City do not compete for resources by ensuring their services are diverse enough to be efficient, this statutory requirement seems counterproductive."

An aerial photograph of a large port facility. In the center, a large cargo ship with a red hull and white superstructure is docked at a pier. Several blue gantry cranes are visible on the pier and in the background. To the right, there are industrial buildings, including two large white dome-shaped structures. The water is dark and calm, reflecting the sky. The sky is blue with scattered white clouds. The foreground shows a grassy area and a body of water.

PART 4:

Federal-Level Policies

Federal-level policies have the potential to reshape the way ports and harbors operate across the United States. As such, it's hard to think of a federal policy in this sector that doesn't impact the ports of Wilmington and Morehead City. Trade policy decisions, tariffs, and embargoes can limit or expand the openness of North Carolina's market. As such, for the scope of this paper, it's best to focus on policies that can have the most impact: specific, existing requirements and regulations that help or hinder North Carolina port competitiveness.

Dredging

Some legislation from over a century ago can still impact the way ports do business today. The best example of legislation with an ongoing negative impact is the Foreign Dredge Act of 1906. In the wake of an increasing push for ports with drafts less than 45 feet to dredge deeper to accommodate larger, neo-Panamax ships, U.S. dredging capacity has found itself strained. This problem is largely thanks to this law, which

restricts foreign-built, -flagged, or -crewed dredges from operating in U.S. waters and dredging or transporting dredged material.

"Effectively, the U.S. has established a protected industry, one that barely exists domestically."

Effectively, the U.S. has established a protected industry, one that barely exists domestically. Existing capacity is woefully below that of the country's Western European counterparts. One of the largest dredges in the U.S. fleet, the *Ellis Island*,

would rank as only the 31st-largest in the European dredge fleet.³⁶ In the words of a report by the Tulane Institute for Water Resources, "the combined capacity of the U.S. [hopper dredge] fleet is less than a single EU dredging vessel."³⁷

This lack of dredging capacity is especially relevant for North Carolina, whose two main seaports are not naturally deep enough to sustain neo-Panamax traffic, or most deep-draft traffic in general. The need for maintenance dredging (where dredges come to keep the port at a certain depth) is relatively constant for both Morehead City and Wilmington. While new, neo-Panamax dredging is mostly relevant for Wilmington, which handles containerized cargo, Morehead City could still use a deeper draft to help accommodate larger break bulk cargo ships. Morehead City's port had a contract awarded to Marinex Construction, Inc. for the dredging of the port's inner ocean bar, with a price tag of \$16,456,566.³⁸

In effect, the limited U.S. dredging firms can keep their prices high due to being protected from cheaper foreign competitors. A study by the State of Louisiana from 2011 found that material dredged around the world had increased dramatically: by 1,400% in the Middle East, 260% in Australia, 170% in China, and 150% in Europe, all while lowering costs per unit.³⁹ In contrast, the U.S. experienced a rise in costs from \$2.51 per cubic yard of dredged material in 1970 to \$10.66 per cubic yard in 2020 (adjusted for inflation).⁴⁰

This dredging limitation hurts both North Carolina ports, whose needs for dredging are relatively constant. Both Wilmington and Morehead City's ports require dredging if the ports want to receive neo-Panamax traffic, as well as maintenance dredging to retain the necessary draft. The same is true of many ports on the Eastern Seaboard, which are naturally shallower than West Coast ports.

Federal Dollars and Build America, Buy America

Another major hurdle is the port's reliance on federal dollars. Most port and harbor projects are major investments, requiring lots of capital for project delivery. While federal funds tend to cover a percentage of costs and require a cost-sharing agreement with the local sponsor (i.e., the

North Carolina Ports Authority), the federal subsidy for these projects tends to be sizeable. However, the money is typically part of discretionary grant programs and is subject to federal requirements, including Build America, Buy America Act requirements.

"Another major hurdle is the port's reliance on federal dollars."

These requirements can lead to project delays, unseen complications with regulatory compliance, or both. For example, the Port of Portland in Maine received federal dollars through the FASTLANE discretionary grant program.⁴¹ The port had planned to use the grant money to purchase a mobile dock crane to help offload containerized cargo, but none of the necessary cranes are made in the United States. The only place the port could get the necessary crane from is Germany, but due to Build America, Buy America restrictions, the port required a waiver.⁴²

The waiver request went through the process. It took "several months working with [the Federal Highway Administration] and [The United States Maritime Administration] to develop a request for proposal (RF-P)."⁴³ Liebherr, the German company that produces the crane, explained that the Mobile Harbor Crane it produces in Rostock, Germany, *could* incorporate U.S.-made steel content, but it would "increase delivery time

by 18 months and the cost of the crane by at least 35 percent.”⁴⁴ The waiver was finally approved, and the port received its crane.

A federal-level streamlined waiver process would be helpful, but in lieu of one states must learn to navigate the complexities of federal grant programs and the myriad requirements to continue to fund necessary capital improvements.



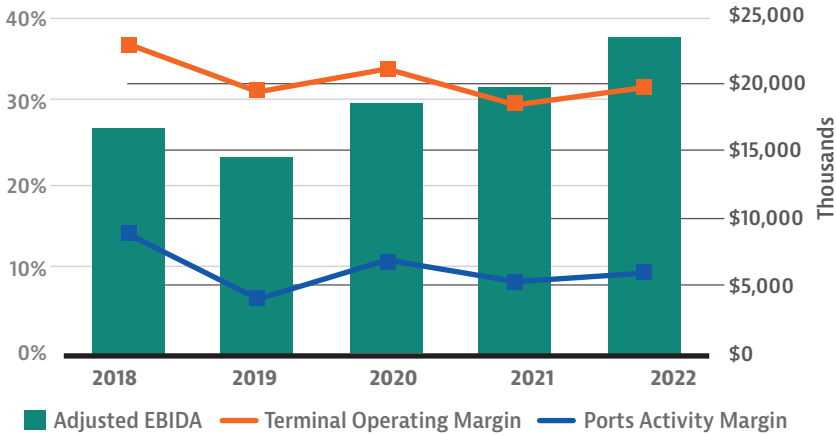
PART 5:

Exploring Public-Private Partnerships (P3s) in the Tar Heel State

While North Carolina's two-port system has served the state well throughout its history and has been a critical gateway for U.S.-made goods to enter the marketplace, there is always room for improvement. The question of sustainable funding mechanisms for ports has remained a perennial challenge. From the pressing need for infrastructure upgrades to the demands of increased capacity and global trade expectations, there is still much planning that has to be done for the future. This is especially true in the context of North Carolina Ports' projected growth as shown in Figure 4.

"From the pressing need for infrastructure upgrades to the demands of increased capacity and global trade expectations, there is still much planning that has to be done for the future."

Figure 4: Historical Margins and Adjusted Earnings Before Interest, Depreciation, and Amortization Analysis



SOURCE: OFFICE OF THE STATE AUDITOR, *NORTH CAROLINA PORTS AUTHORITY FINANCIAL STATEMENT AUDIT REPORT FOR THE YEAR ENDED JUNE 30, 2022*, P. 10.

The North Carolina State Auditor’s analysis found that the North Carolina Ports Authority’s current market share, position, and long-term growth expectations for general terminal activity and container volumes “are considered sustainable.”⁴⁵ Likewise, the analysis projected demand growth in the next years, notably because the last three years (FY20-FY22) were subject to negative market and natural forces, including Hurricanes Florence, Dorian, and Isaias plus Covid-19’s profound impact on demand across the transportation sector.⁴⁶ Either way, capacity expansions will be increasingly necessary, especially to accommodate newer, larger neo-Panamax ships coming through the Panama Canal.⁴⁷

So far, the expansions executed by the Ports Authority have had a significant impact. A 2019 report by the Program Evaluation Division found that improved performance at the Port of Wilmington is linked to early implementation of capital expansion projects.⁴⁸

Traditionally, the North Carolina legislature has allocated hundreds of millions of dollars to both the Port of Wilmington and the Port of

Morehead City as a means of ensuring continued competitiveness with neighboring ports and the rest of the Eastern Seaboard at large. But taxpayer subsidies may not be the best or even the easiest path forward. If a fully taxpayer-funded project is delayed or faces cost overruns, North Carolinians are the ones who have to foot the bill. Plus, there's no guarantee elected officials in the future will continue to support the ports with the same level of funding. General Fund money has to be juggled between competing priorities even in good years due to shifting state priorities. A sustainable and consistent source of funding is essential to port reliability.

P3 Basics and Benefits

The fiscal constraints faced by public authorities and unnecessary risks incurred by taxpayers have created a need for innovative funding solutions that can harness the private sector's resources and expertise to deliver major infrastructure projects on time and on budget. Public-private partnerships (P3s) can help alleviate or solve outright many of the capital funding concerns with major, costly projects such as port and harbor infrastructure expansion.

A P3 is a contractual agreement between a government agency and one or more firms to carry out a project in a way typically conducted by a government. These contracts can take a few shapes and sizes. A design-build-operate-maintain (DBOM) contract, for instance, is one in which a company is paid annually by the governmental entity to design, build, operate, and maintain a new piece of infrastructure. Effectively, it's a P3 without a financing component. It could be in the form of a container terminal at the Port of Wilmington. A design-build-finance-operate-maintain (DBFOM) P3, on the other hand, is one in which the company does all of the above and provides the financing for the project. A DBFOM P3 can take many forms, but typically it falls between an availability payment (AP), wherein the private firm receives fixed payments from the government or governmental entity or has a form of dedicated revenue (similar to a toll on the highway).

If a firm contracted by the state in a P3 fails to deliver a project or otherwise breaches its contract, it is owed nothing by the state or its taxpayers. If a contract is breached, the issuing authority (in the hypothetical case of the ports, the North Carolina Ports Authority) retakes stewardship of the asset and can choose to offer a new contract to other companies or retain stewardship indefinitely.

Both an AP DBFOM P3 or a DBFOM P3 with a dedicated revenue source can be extremely useful financing tools in cases in which capital expenses are high. Private-sector financing can provide the means by which project delivery can be achieved. In the case of North Carolina's expenses and needs, it may be prudent to take some of the burden off taxpayers in the state as well.

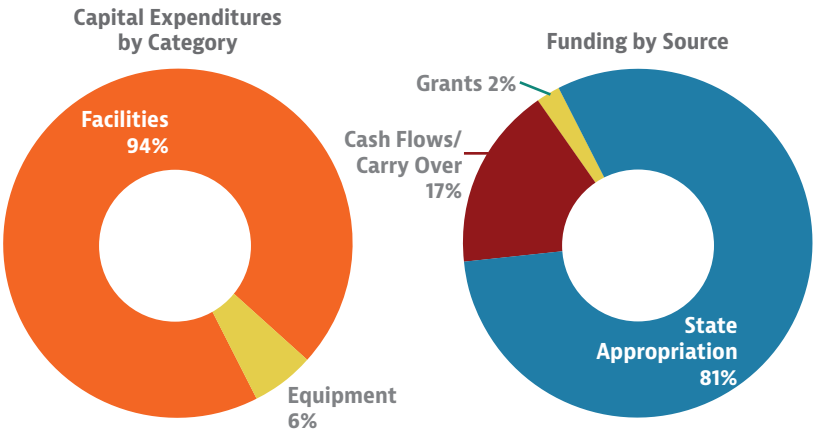
"A hypothetical P3 for the Port of Wilmington to address its capacity needs while also providing a break for taxpayers could look something like a toll concessionaire DBFOM P3 in the highway space."

A hypothetical P3 for the Port of Wilmington to address its capacity needs while also providing a break for taxpayers could look something like a toll concessionaire DBFOM P3 in the highway space. A company would finance the new infrastructure and generate revenue to offset its expenses by leveraging a user fee akin to a toll in the highway space. For a new container cargo terminal, it could take the form of a cargo charge the company collects.

The DBFOM P3-contracted firm would design, build, finance, operate, and maintain the new terminal for a set lease. If revenue fell below projections, there would be no taxpayer bailout — it was the private firm's capital to risk.

In North Carolina, the majority of capital expenditures are for new facilities. Facilities are long-term investments and require upkeep to be maintained during their lifespan. But where does North Carolina get the funds for the majority of its capital expenditures?

Figure 5: North Carolina Ports Authority 2022 Capital Expenditures and Funding By Source



SOURCE: OFFICE OF THE STATE AUDITOR, *NORTH CAROLINA PORTS AUTHORITY FINANCIAL STATEMENT AUDIT REPORT FOR THE YEAR ENDED JUNE 30, 2022*, P. 11.

As shown in Figure 5, 94% of the capital expenditures during FY22 were related to facilities — a perfect target for P3s.⁴⁹ Likewise, the current funding mechanism relies almost entirely on state appropriations to provide up to 81% of required capital funds.⁵⁰

Some of the main benefits of a P3 are:

- 1. Access to private capital:** Instead of relying on the politicized appropriations process within the North Carolina state legislature, the necessary capital to begin construction of necessary improvements can be fully funded from day one in the case of a DBFOM P3.
- 2. Delivery of needed infrastructure:** P3s offer a means of funding major transportation projects that cannot otherwise be funded. In a P3, the private sector takes on a major share (or the entirety) of responsibility for financing these projects. Likewise, through revenue-sharing agreements or upfront concession fees, the government can invest in the maintenance of existing roads.

3. **Risk transfer:** In the event of cost overruns or project delays, under a more traditional delivery system taxpayers have to foot the bill. What starts as a \$150 million investment from the General Fund can quickly turn into \$300 million over a delay lasting a year or two. In a P3, that risk is transferred to the private partner and serves as an incentive for delivery, on time and on budget.
4. **Long-term sustainability:** P3s can often help sustain projects and infrastructure improvements well past their completion. For example, if a cargo terminal is built and is leased out to a company for 30 or so years, that is 30 years of guaranteed operation and maintenance. The traditional delivery method (design-bid-build) simply looks at which firm offers the lowest price tag with little consideration for long-term operating costs.⁵¹ The company leasing the terminal also has a vested interest in the success and profitability of the project.
5. **Provide a more businesslike approach:** While the North Carolina Ports Authority is effectively run as a business, because of its reliance on state appropriations it can be slower to adopt cost-saving techniques and technologies since it will likely be funded at a certain level anyway. Private firms would be incentivized to be early adopters by their profit margins.
6. **Innovation:** Likewise, private firms would be encouraged to innovate and find better ways to operate in the port space. Incentivizing innovation has worked well in the tolling space. Value pricing was originally introduced by a private tolling company in California and spread across the United States.⁵² The same private toll was the first to be fully automated as well.⁵³

Likewise, NCDOT has already acknowledged the potential of P3s to address its needs in its 2021 Strategic Plan.⁵⁴

P3s Outside Of North Carolina

These types of P3s aren't all that uncommon globally, and there are even large examples of P3s here in the United States.

The Port of Baltimore, Maryland, used a P3 to rehabilitate and expand berth structures in the port. The project itself cost nearly \$1.5 billion and called for:

1. Upgrading existing berths and wharf structures to accommodate deeper dredge depths
2. Dredging an existing berth from 45 feet to 50 feet to accommodate ultra large container vessels
3. Dredging the access channel leading up to the berth
4. Installing hardware to support large ship-to-shore cranes that service ultra large container vessels
5. Repairing existing wharf substructure, superstructure, and paving
6. Installing concrete runways in the container yard to allow for new cranes to provide additional capacity⁵⁵

The Port of Baltimore also partnered with Ports America. Ports America signed a 50-year lease with the Port of Baltimore for the operation of the Seagirt Terminal with no renewal option.⁵⁶ The agreement includes Ports America's obligation to build a new berth valued at \$129 million (in 2023 dollars).⁵⁷ In addition, Ports America must pay an annual rent of \$3.2 million, and there is a variable assessment of \$15 per container over 500,000.⁵⁸

Likewise, the Port of Montreal is still in the early stages of a design-build-finance-operate-maintain (DBFOM) P3 to construct a whole new terminal. The project is currently still in the request-for-qualifications stage, and three firms have been shortlisted for project delivery.⁵⁹ The Port of Miami also pursued P3s for new cruise ship terminals, though issues

persisted in Miami due to mismanagement of its P3 programs. Cancellations and policy changes encouraged P3 developers to go elsewhere.⁶⁰

Not all projects and P3s are as big (in scope and in cost) as the Port of Baltimore's berth P3, however. For example, a major North Carolina project for improvements to expand a berth for ship-to-shore cranes that simultaneously added capacity to service two neo-Panamax ships was only \$31,068,925.⁶¹ While that's still a significant amount, it's less than many larger-scale P3s.

"Finding ways to cut back on these costs and to rehabilitate depreciating assets is critical to the ports' continued financial health."

For the long-term health of port assets in North Carolina, the North Carolina Ports Authority ought to examine what assets need rehabilitation and which assets are depreciating and adding to their operating expenses. As the Ports Authority's 2022 Financial Statement disclosed, personnel costs and depreciation expenses account for approximately 66% of total operating expenses.⁶²

Finding ways to cut back on these costs and to rehabilitate depreciating assets is critical to the ports' continued financial health.

Current Laws Impacting P3s

Currently, North Carolina has a general P3 statute outlined in G.S. § 143-128.1C.⁶³ The law lets governmental entities (such as the North Carolina Department of Transportation or the Ports Authority) pursue P3 agreements for some projects without the consultation or express approval of the legislature, but if the project involved public funds, it would require legislative approval.⁶⁴ However, larger projects such as what would likely be required for port capacity development would have to get approval from the North Carolina Local Government Commission (NCLGC) if the lease features any of the following:

- ▶ Has a term of five or more years
- ▶ Obligates the government entity to pay sums of money to another (for example if the NCDOT had to pay money to the North Carolina Ports Authority)
- ▶ Puts any of the following obligations on the government unit:
 - » Obligates the governmental unit over the term of the agreement to extend at least \$500,000
 - » Obligates the governmental unit to levy taxes
 - » Involves the governmental entity incurring indebtedness or entering into a similar financing arrangement

In the earlier hypothetical involving a DBFOM P3 for a new terminal, the lease would likely have to be at least 25 years for the company to break even. As such, it would be subject to approval by the NCLGC. Beyond that, if cargo charges were issued as a form of user fee, it would require a public hearing under G.S. § 136-18(39a)(f)(3).

Current law also requires that the governmental entity express, in written form, that the P3 would answer a “critical need.”⁶⁵ The North Carolina Ports Authority is not expressly mentioned as one of the authorized entities to issue a transportation/infrastructure P3. Likewise, the general P3 statute does not provide for unsolicited P3 bids. In layman’s terms, a company cannot reach out unsolicited to the NCDOT or the North Carolina Ports Authority and offer a P3 development proposal; the governmental entity has to take the first step and solicit the proposals themselves.⁶⁶

Part 6: Recommendations

If the Ports of Wilmington and Morehead City are to continue to grow (in both scale and efficiency), a few issue areas need to be addressed.

Legislation expanding the use of P3s in the state and providing for a general process can help alleviate capital concerns when trying to fund new infrastructure. To lower overhead costs, the ports of North Carolina should continue contracting out services (be that as terminal operators or warehouse leases) wherever possible. Antiquated legislation requiring containerized cargo capacity in both the Ports of Wilmington and Morehead City ought to be changed.

Federally, rising dredging costs ought to be brought to the attention of North Carolina's congressional delegation, so they may lobby for changes to the Foreign Dredge Act of 1906. Additionally, federal grant requirements and Build America, Buy America Act requirements can make grant utilization needlessly complex. In lieu of a federal waiver process, the NCDOT ought to familiarize itself with various grants and requirements for eligibility.

P3 Recommendations For North Carolina

To encourage the use of P3s in the Tar Heel State, the North Carolina legislature could make a few changes.

The legislature should pass legislation to encourage and facilitate P3s as a means of funding new capacity expansion in ports. If such legislation is politically unfeasible, it is worth examining what portions of services offered at North Carolina ports could be further contracted out.

"The legislature should pass legislation to encourage and facilitate P3s as a means of funding new capacity expansion in ports."

The legislature may want to commission a dedicated P3 unit, akin to an Oversight Committee, to evaluate the needs of both the Port of Wilmington and the Port of Morehead City and proposed P3s and to establish a standardized procedure. The current general P3 statute isn't comprehensive enough. It doesn't provide for unsolicited bids, competing government bids, a bid review schedule, or reimbursement of losing bidder's costs, nor does it address whether an approved bidder can perform preliminary work prior to P3 approval.⁶⁷

This P3 unit could consist of officials from the legislature, private firms who operate in the waterborne shipping industry, officials from the NC-DOT, and officials from the North Carolina Ports Authority. This committee could also overview P3 proposals to evaluate the most competitive offers after firms had been shortlisted and could report to the legislature annually.

The legislature should ensure competitive bidding by allowing for unsolicited proposals in addition to requested ones. As it stands, only firms requested by the governmental entity can submit proposals. By opening this process up to more firms, user fees and project costs remain competitive. Additionally, to avoid boondoggles like the Port of Miami's

P3s, the procurement process should be outlined and followed. If a P3 solicitation begins and the process isn't even completed before lawmakers pull the plug, developers will go elsewhere.

Continued Contracting Out of Services

More limited forms of contracting out can help reduce the North Carolina Ports Authority's manpower costs as well or help to shore it up if the Ports of Morehead City and Wilmington expand capacity as planned. Beyond the initial construction phase, the whole of terminal operations could be contracted out to third parties.

Both the Port of Wilmington and the Port of Morehead City already actively contract out services, just in a more limited way. Stevedoring services at both ports are contracted through firms and not the ports themselves. While operation of port infrastructure (like cranes, for example) is still managed by the North Carolina Ports Authority's staff, other stevedoring activities are done by third parties.

Contracting out services is a good practice, and one that is found around the U.S. and across the globe. The Port of Philadelphia (under the Philadelphia Regional Port Authority) leased out the operation of a terminal space to Penn Warehousing and Distribution, guaranteeing five port calls a year.⁶⁸ The Port of Tampa signed a contract with Tampa Bay International Terminals, contracting out the operations of its general marine cargo terminals.⁶⁹ The Port of Miami likewise has an agreement with a joint LLC to operate one of its marine terminals.⁷⁰

North Carolina Ports Authority has pursued similar projects in the past and ought to continue to examine other opportunities that come its way. The most recent example is a partnership between Duke Energy-Progress and the North Carolina Ports Authority, pairing together to raise Duke power lines over the Cape Fear River.⁷¹

If the North Carolina legislature does not pursue P3s for large-scale projects and improvements such as expanded warehouse capacity

(refrigerated and nonrefrigerated), contracting out through traditional delivery methods remains a viable alternative. The challenges mostly lie in finding the capital for the ports in the state's budget to pay for these improvements outright. But in the case of a medium-scale project (a new warehouse at the Port of Wilmington, for example), a traditional delivery method could still be pursued with the Ports Authority contracting a private firm for construction, then being overseen and operated by the Ports Authority. However, this method would do little to lower long-run costs.

Dredging and Other Federal Issues

Dredging is a critical part of port upkeep but can also be necessary for accommodating larger vessels like ultra large container vessels (ULCVs). While the latter is more relevant to the Port of Wilmington due to its containerized cargo capacity, the Port of Morehead City still requires consistent maintenance dredging to retain its current draft.

Regrettably, the policies that constrain competition and protect the market are all federal. States do not have a means of circumventing the Foreign Dredge Act. While other antiquated maritime laws with a negative impact (such as the Jones Act, which restricts cabotage in the country to only U.S.-flagged, -built, and -owned vessels) have a waiver process, the Foreign Dredge Act does not.

Lawmakers in North Carolina should take steps to communicate the impact of the Foreign Dredge Act on dredging prices to the state's congressional delegation. Instead of a permanent repeal of the act, it may be worth requesting a bill be brought forward to allow for a waiver process to be implemented. A waiver process could provide for waivers issued to a state with dredging needs if all existing U.S. capacity is already in use or if there's an established backlog exceeding a certain dollar amount nationwide.

Some bills have been brought forward in the last few years to repeal the Foreign Dredge Act. For example, Sen. Mike Lee (R-UT) introduced S.

3367 before the 117th Congress in 2021 to repeal the Foreign Dredge Act, but the bill never reached a vote.⁷²

Statutory Container Port Capacity

As explored, North Carolina's existing statutes provide for the Ports of Wilmington and Morehead City to develop container port services. While this requirement may sound good on paper, it would only pit the ports against each other even while they operate under the same "owner": the North Carolina Ports Authority. If the intent of the statewide Port Authority was to prevent the two seaports from competing for resources, mandating they develop identical capabilities seems counterproductive.

Not all ports need to accommodate container cargo. Given existing growth projections for roll-on/roll-off cargo in the port, as shown in Table 1, it seems that the port is already projected to grow plenty without it. Morehead City ought to focus on making what it already does more efficient, not expanding needlessly for an outdated statutory requirement.

The General Assembly ought to pass legislation changing G.S. § 136-260 to remove that statutory requirement, at least from the Port of Morehead City.

Summary of Recommendations

In summary, North Carolina's General Assembly ought to take a few key steps:

- ▶ Prioritize P3s as a means of capital funding for new projects and streamline the P3 process in the state.
- ▶ Continue to look for opportunities to contract services at both the Port of Wilmington and the Port of Morehead City out where possible.
- ▶ Lobby North Carolina's congressional delegation for change to the Foreign Dredge Act, be that a waiver process or outright repeal.

- ▶ Pass legislation changing G.S. § 136-260 to no longer require container port capacity development in the Port of Morehead City.

Part 7: Conclusion

North Carolina's two ports have a longstanding track record of improvement over the ports' long history. Likewise, today the ports retain their significance as a critical gateway for U.S. goods to enter the global market. The North Carolina Ports Authority has managed its seaport assets well overall and has continued to accommodate increased trade flows going both into the country and out to the world. Nevertheless, given the projected demand, it's clear capacity expansions will be necessary.

Traditional delivery of some of these projects may be feasible, but the Ports Authority would run the risk of putting North Carolina's taxpayers on the hook for any project delays or cost overruns. Maritime infrastructure like wharves and new terminals are important to sustain increased commercial traffic and neo-Panamax ships, but they're also easily delayed by environmental factors, including the myriad hurricanes that have impacted the Tar Heel State in the last three years alone.

Accordingly, policymakers ought to look to mitigate some of that risk. The answer to how to fund the necessary expansions lies in innovative

delivery via P3s or more limited contracting out of services to lower relatively static overhead costs spent on staff by the Ports Authority. Making North Carolina's ports less reliant on capital funds appropriated from the North Carolina General Fund is laudable not just due to risk transfer, but also because it ensures that the users who benefit from the system would be paying into it, especially in the case of new cargo terminals built via P3s and funded by cargo charges.

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About the Author



Jay Derr is a transportation policy associate at the Reason Foundation.

A Louisiana native, Derr attended Louisiana State University where he received his undergraduate degree with a major in Political Science and a minor in History.

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The John Locke Foundation was created in 1990 as an independent, nonprofit think tank that would work “for truth, for freedom, for the future of North Carolina.” The Foundation is named for John Locke (1632-1704), an English philosopher whose writings inspired Thomas Jefferson and the other Founders. The John Locke Foundation is a 501(c)(3) research institute and is funded by thousands of individuals, foundations and corporations. The Foundation does not accept government funds or contributions to influence its work or the outcomes of its research.

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The John Locke Foundation envisions a North Carolina in which liberty and limited, constitutional government are the cornerstones of society so that individuals, families, and institutions can freely shape their own destinies.

Our Mission

The John Locke Foundation's mission is to be North Carolina's most influential force driving public policy so North Carolinians flourish in a free and prosperous society.



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