

NORTH CAROLINA

# **MARITIME** Strategy

**NC Maritime Strategy  
Highway Infrastructure Assessment  
And Proposed Highway Infrastructure**

**Prepared for the  
North Carolina Department of Transportation**

**by**

**AECOM and URS**

**May 31, 2012**

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## ACKNOWLEDGEMENTS

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Initiated by the Governor's Logistics Task Force (GLTF), the *North Carolina Maritime Strategy* takes a fresh look at North Carolina's maritime assets and the needs for improvement to ensure that our State remains competitive in the future. A *Maritime Strategy* Executive Team has been formed to oversee this process, evaluate the results and provide an objective technical and economic analysis. The *Maritime Strategy* Executive Team includes: Lieutenant Governor Walter Dalton; the Governor's Senior Policy Advisor, Al Delia; Secretary of Transportation, Gene Conti; Secretary of Commerce, J. Keith Crisco; and Secretary of Environment and Natural Resources, Dee Freeman. The following North Carolina Department of Transportation (NCDOT) and North Carolina Department of Commerce (NCDOC) staff have provided day-to-day direction, guidance and support for study execution: NCDOT Director of Strategic Initiatives, Roberto Canales PE; NCDOT Project Manager, Virginia Mabry; NCDOT Liaison to the Lieutenant Governor, W. Seth Palmer; NCDOT/Commerce Liaison Joseph (Jed) McMillan; and Transportation Consultant to NCDOT and Global TransPark, Charles Diehl.

A Maritime Advisory Council, comprised of State officials and staff, along with industry representatives from ocean shipping, trucking, rail and manufacturing interests, as well as community-at-large representatives, has provided further guidance and support to the study team.



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## EXECUTIVE SUMMARY

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The *North Carolina Maritime Strategy* is being developed to connect maritime goods and economic development in North Carolina. This is accomplished through the following primary tasks:

- Facilitated collaboration of freight transportation, economic development and community interests as input to the statewide strategy,
- Definition of North Carolina's economic context and maritime market positioning strategies that would offer the greatest economic benefit to the State, and
- Identification of infrastructure investments and policies that would most significantly enhance North Carolina's economy through improved performance of the State's maritime gateways and related trade corridors.

The *North Carolina Maritime Strategy* has defined maritime market scenarios in which the State could realize economic and public benefit. The market scenarios that are being considered as a part of the *North Carolina Maritime Strategy* include grain, wood products, wood pellets, containers, cold storage, and Roll-on/Roll-off (Ro/Ro) and oversize cargo (with wind as a subset). Military cargo is also discussed, though it is not identified as a specific market scenario. The *North Carolina Maritime Strategy* will present the benefits and infrastructure costs of each scenario. For analysis purposes, each scenario is being defined and evaluated independently. In reality, a combination of scenarios may be pursued.

This technical memorandum summarizes the process on how highway projects were selected to be included in the cost estimates of each market scenario. However, detailed cost estimates are included in *Capital Costs by Market Scenario*.



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## LIST OF ABBREVIATIONS

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CSX	CSX Railroad
CU	Conceptual Upgrade
FAF	Freight Analysis Framework
FHWA	Federal Highway Administration
FL	Florida
FS	Feasibility Study
GA	Georgia
GIS	geographic information system
GLTF	Governor's Logistics Task Force
GPA	Georgia Ports Authority
GTP	Global TransPark
HSIP	Highway Safety Improvement Program
HTF	Highway Trust Fund
LRTP	Long-range Transportation Plan
MHC	Port of Morehead City, NC
MPO	Metropolitan Planning Organization
NA	not available or not applicable
NC	North Carolina
NCDOT	North Carolina Department of Transportation
NCIT	North Carolina International Terminal
NCSPA	North Carolina State Ports Authority
NHS	National Highway System
NHTSA	National Highway Traffic Safety Administration
NS	Norfolk Southern Railway
P3	public-private partnership
POW	Port of Wilmington, NC
PTIT	Piedmont Triad Inland Terminal

Ro/Ro	roll-on/ roll-off
ROW	right-of-way
SC	South Carolina
SCDOT	South Carolina Department of Transportation
SCSPA	South Carolina State Ports Authority
SHC	State Highway Corridor
STIP	State Transportation Improvement Program
STP	Surface Transportation Program
STRACNET	Strategic Rail Corridor Network
TEU	twenty-foot equivalent unit
TRANSCOM	US Military Transportation Command
US	United States
USACE	US Army Corps of Engineers
USDA	US Department of Agriculture
USGS	US Geologic Survey
VA	Virginia
VDOT	Virginia Department of Transportation
VIP	Virginia Inland Port
VIT	Virginia International Terminal, Inc.
VMT	vehicle-miles traveled
VPA	Virginia Port Authority

## **1 INTRODUCTION**

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### **1.1 Objectives of the Highway Infrastructure Assessment**

The objective of this highway infrastructure assessment is to identify existing and planned highway infrastructure projects that provide access to existing and proposed port sites within North Carolina and adjacent states for freight flows. In addition, this assessment identifies potential projects beyond those identified in the North Carolina Transportation Improvement Program that would enhance goods movements between ports and North Carolina markets. These additional projects generally consist of existing multi-lane divided facilities that need to be upgraded to full control of access and two-lane roadways that need to be upgraded to four-lane facilities. In some locations, bypasses and additional links are identified.

### **1.2 Assessment Approach**

The highway infrastructure assessment was a joint effort of AECOM and URS. The selection of projects for inclusion in capital cost estimates was done by AECOM using data and analysis results prepared by URS. URS identified existing and planned highway projects in North Carolina, South Carolina, and Virginia; they further analyzed Freight Analysis Framework data to calculate existing and future travel times between North Carolina markets and North Carolina, South Carolina, Georgia, and Virginia ports. AECOM used this information to evaluate North Carolina markets that could be captured by North Carolina ports with infrastructure investments and refined the lists of projects provided by URS to identify those highway projects that contribute to the potential capture of each alternative market scenario.



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## **2 CURRENT ACCESS TO NORTH CAROLINA PORTS**

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### **2.1 Port of Wilmington**

The Port of Wilmington (POW) is located in New Hanover County on the eastern bank of the Cape Fear River. Improvements to I-40, and I-140 (the Wilmington Bypass), have enhanced connectivity from the Port of Wilmington to the Raleigh-Durham area. POW is approximately 75 miles from Interstate I-95 and 200 miles from Interstate I-85. These two large interstates serve as the primary north-south transportation corridors in North Carolina; I-95 provides access to Raleigh-Durham while I-85 connects the largest population centers within the state (Charlotte, Greensboro and Raleigh/Durham). The construction of portions of I-73/74 has increased connectivity to Greensboro from the south; however there are many gaps in the highway connection between the port and the population centers in Greensboro and Charlotte.

The majority of freight arrives and leaves the port by truck. Accessing the Port of Wilmington from I-40 is typically accomplished using I-140 to US 421 to US 17/421 to US 117. This route includes a potential of 14 stops due to traffic signals, railroad crossings, and/or drawbridges. Some of these stops are within residential areas along Burnett Boulevard, Shipyard Boulevard, and College Road. Of the 14 potential stops, one is associated with the Cape Fear Memorial Lift Bridge, two with at-grade rail crossings, one with a stop sign, and ten with traffic signals. Access to the Port of Wilmington from Charlotte and I-95 near Lumberton is achieved using US 74 to US17 to US 421 to US 117. US 74 between US 17 and I-95 is primarily a limited control of access facility, but includes two signalized intersections. Traffic using US 74 to access the port would include many of the same potential stops in downtown Wilmington associated with access from I-40. Even with improvements identified in this technical memorandum, many of the potential stops associated with traversing downtown Wilmington would still remain. Improving downtown Wilmington streets to provide free flow conditions would be difficult due to direct, indirect, and cumulative effects.

### **2.2 Port of Morehead City**

The Port of Morehead City is located on US 70 in Carteret County. Access to the Port of Morehead City from I-40, I-95, and I-795 is accomplished using US 70, NC 24, and US 17. The most direct route is US 70, predominantly a median-divided facility. From I-95, access via US 70 includes a potential of 66 stops due to either traffic signals or railroad crossings. Of the 66 potential stops, four are associated with at-grade rail crossings and 62 with traffic signals. Improving accessibility to the Port of Morehead City is a concern because trucks must pass through the middle of Morehead City to reach the port. The port is served by Norfolk Southern (NS), which runs three trains per week into the port. Rail freight passes through the center of Morehead City with numerous at-grade crossings that slow train speeds and create numerous traffic bottlenecks throughout the day. Particularly during the summer months, tourist traffic increases delays on the six-mile stretch of US 70 between the port and NC 24.

## 2.3 Landside Access and Distribution

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

As compared to other regional ports, North Carolina ports are more reliant on truck freight than their peers. The two tables provided below summarize the mode of travel to North Carolina's ports and its peers for exports and imports. As truck freight is more readily divertible than rail freight, this supports efforts to retain North Carolina shipments and attract freight from other ports.

**Table 1: Mode of Travel by Weight, 2010**

Port	NC Exports Leaving from Port (A)			Goods Imported to NC Arriving at Port (B)		
	% Trucks Only	% Rail Only	% Other Modes including Multiple Modes	% Trucks Only	% Rail Only	% Other Modes including Multiple Modes
North Carolina	97.3	0.3	2.5	94.8	4.6	0.7
Norfolk	83.8	3.2	13.0	90.8	0.0	9.2
Charleston	83.2	3.3	13.5	70.8	14.2	15.0
Savannah	55.9	2.8	41.3	91.9	1.7	6.4

Source: FAF, 3.1

Note: Because of their spatial proximity, the North Carolina ports cannot be isolated in the FAF, 3.1 commodity data. (A) North Carolina exports shipped to the port by the mode indicated. (B) North Carolina imports shipped inland from the port by the mode indicated.

**Table 2: Mode of Travel by Value, 2010**

Port	NC Exports Leaving from Port (A)			Goods Imported to NC Arriving at Port (B)		
	% Trucks Only	% Rail Only	% Other Modes including Multiple Modes	% Trucks Only	% Rail Only	% Other Modes including Multiple Modes
North Carolina	77.0	0.0	23.0	94.7	2.4	2.9
Norfolk	70.2	1.4	28.4	81.6	0.0	18.4
Charleston	86.3	1.1	12.7	76.0	8.4	15.6
Savannah	84.1	0.5	15.4	90.2	2.0	7.8

Source: FAF 3.1

Note: Because of their spatial proximity, the North Carolina ports cannot be isolated in the FAF 3.1 commodity data. (A) North Carolina exports shipped to the port by the mode indicated. (B) North Carolina imports shipped inland from the port by the mode indicated.

### 3 EXISTING AND PLANNED INFRASTRUCTURE

Goods originating from or destined for use in North Carolina are transported primarily by truck. The state and regional network of interstate, state, and local highways is therefore an important component of maritime infrastructure.

Truck routes within North Carolina include Interstate Highways, United States Highways and State Highways, as well as four-lane divided roadways. North Carolina's Strategic Highway network, Statewide Logistics Plan, and Seven Portals Study each recognize important corridors within the state's highway network. Review of the state highway network serving in-state port facilities and providing access to ports in the neighboring states of Virginia, South Carolina, and Georgia identifies the following primary highway routes for waterborne truck freight within North Carolina:

- I-40 serving Port of Wilmington, the Triangle Region, and Greensboro from the east and west
- I-85 serving Charlotte, Greensboro, and the Triangle Region from the north and south
- I-95 serving Lumberton, Fayetteville, and Benson from the north and south
- I-26 providing access from Western North Carolina to the Ports of Savannah and Charleston
- I-73/1-74 providing access from Greensboro to the Ports of Wilmington and Charleston
- I-77 providing access from Charlotte and Western North Carolina to the Ports of Savannah and Charleston
- US 17 providing access along eastern North Carolina to the Port of Wilmington, Camp Lejeune, and Morehead City, as well as the Port of Charleston to the south and the Port of Norfolk to the north
- US 70 serving Morehead City, Kinston, and the southern Triangle Region
- US 74/US 76 serving Lumberton and Port of Wilmington
- NC 24 serving Fayetteville and Morehead City

Primary highways used by the military to access North Carolina's seaports include NC 24 and US 70 to Morehead City and I-40 to the Port of Wilmington.

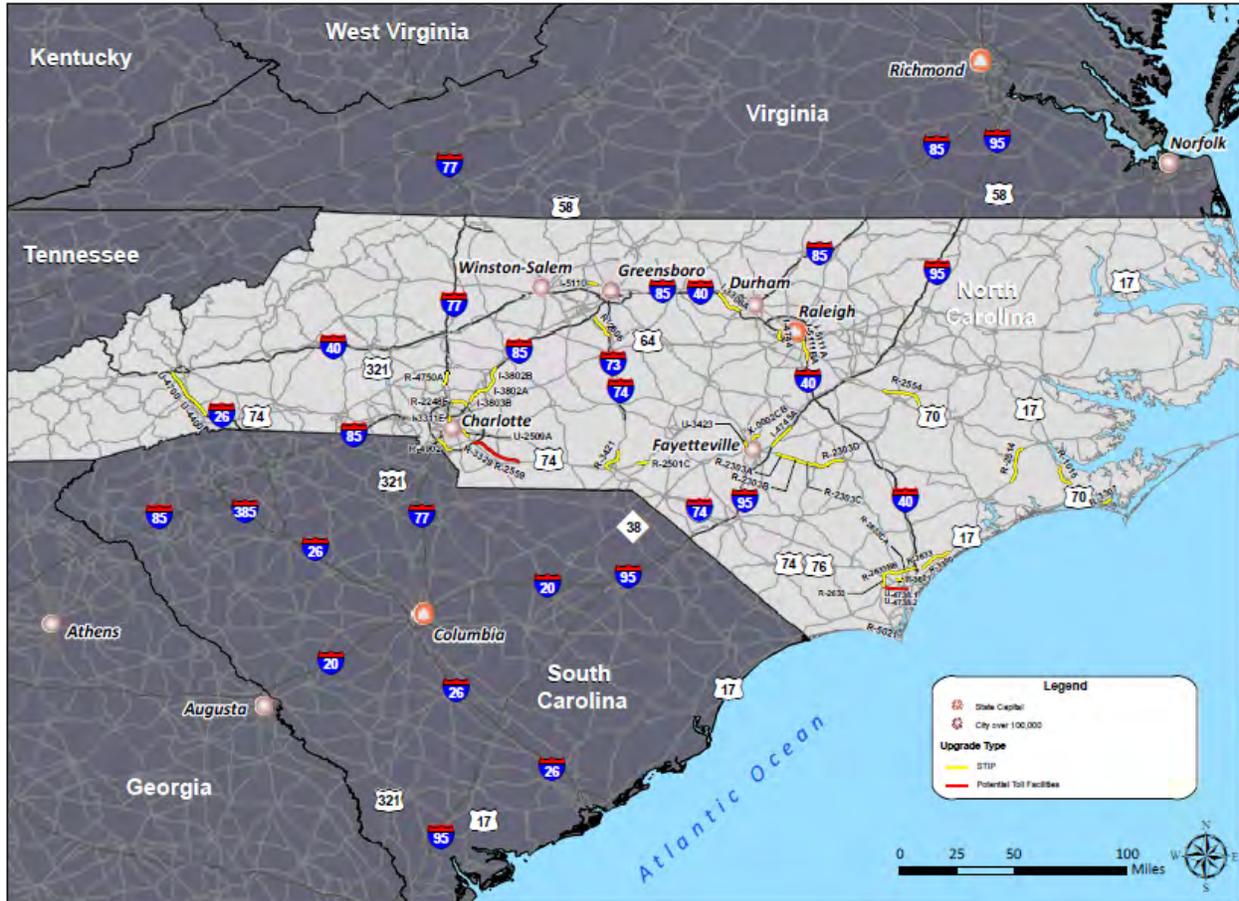
North Carolina's State Transportation Improvement Program (STIP) includes funded projects totaling \$11.5 billion (highway construction plus right-of-way acquisition) to be implemented over the next seven years. Key projects currently funded in the STIP that will improve overall freight mobility within the freight corridors identified above include:

- Widening of I-40 in Davie, Forsyth, Orange, Durham, Wake and Johnston Counties [I-4744 (under construction), I-5111A, I-5111BA, I-3306A]
- Widening of I-85 in Mecklenburg, Cabarrus, Rowan, and Davidson Counties, including the ongoing replacement of the Yadkin River Bridge [I-3802A, I-3802B, I-3803B]
- Construction of the final link in the I-485 Charlotte Outer Loop and widening of I-485 on the south side of Charlotte [R-2248E (under construction), R-4902 (2014)]
- Widening and upgrade of interchanges on I-95 from I-95 Business to I-40 in Cumberland, Harnett, and Johnston Counties [I-4745A]
- Construction of US 70 Gallants Channel Bridge in Carteret County [R-3307]

- Widening of US 258 in Onslow, Jones and Lenoir Counties [R-2235]
- Widening of I-26 from US 25 to I-40 in Henderson and Buncombe Counties [I-4400, I-4700]
- Construction of the US 74 Rockingham-Hamlet Bypass in Richmond County [R-3421]
- Additional upgrades to bring portions of I-73/74 to interstate standards between Rockingham and Greensboro [R-2606, I-5110]
- Widening of I-77 between Charlotte and Statesville in Mecklenburg and Iredell Counties [I-3311E, I-4750A]
- Construction of the US 17 Hampstead Bypass in New Hanover and Pender Counties [R-3300]
- Widening and bridge replacements on US 17/ US 74/ US 76 and replace bridges in Brunswick and New Hanover Counties [R-3601]
- Widening and upgrade of US 17 between Jacksonville and New Bern in Onslow and Craven Counties [R-2514B]
- Construction of the US 70 Bypass of Havelock in Craven County [R-1015]
- Construction of the US 70 Bypass of Goldsboro in Wayne County [R-2554]
- Construction of the Monroe Connector and Bypass (Toll Facility) in Mecklenburg and Union Counties [R-2559, R-3329]
- Additional capacity and safety enhancements on US 74 in Mecklenburg County [U-2509A]
- Construction of the Cape Fear Skyway (toll facility) and Wilmington Bypass Project [U-4738]
- Widening of NC 24 in Cumberland, Sampson, and Duplin Counties [R-2303A, R-2303B, R-2303C, R-2303D]

Figure 1 illustrates North Carolina's statewide highway network, highlighting funded STIP projects on major freight routes.

**Figure 1: North Carolina State Transportation Improvement Program, Major Corridors**



Source: AECOM/URS from ESRI, NCDOT, FAF 3.1, and USGS ThematicMapping world borders dataset



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## 4 HIGHWAY INFRASTRUCTURE ASSESSMENT METHODOLOGY

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### 4.1 Port and Landside Nodes Used in Highway Infrastructure Assessment

Port locations and landside nodes used in the highway infrastructure assessment are identified below. The assessment compared travel times to nodes within North Carolina to existing North Carolina ports, potential North Carolina port locations, and competitor ports in Georgia, South Carolina, and Virginia. Potential port locations were identified in the *North Carolina Maritime Strategy Site Assessment and Environmental Screening* technical report.

#### 4.1.1 Port and Potential Port Locations

Existing port and potential port locations used in the highway infrastructure assessment included the following:

- Port of Wilmington
- Port of Morehead City
- River Road Site
- Southport Site
- Norfolk APMT Terminal (VA)
- Charleston Wando Welch Terminal (SC)
- Savannah Garden City Terminal (GA)

#### 4.1.2 Landside Nodes

The highway infrastructure assessment concentrated on landside nodes within North Carolina. A goal of the North Carolina Maritime Strategy is to move goods to and from North Carolina markets. Landside nodes specific to individual market scenarios were identified using the methodology outlined in the *North Carolina Maritime Strategy Delivered Cost Model*. The locations of the nodes for each market scenario are presented below. It should be noted that these nodes are representative and are used in travel time analyses to help calculate delivered costs.

Market scenarios that require landside highway investments include Grain, Wood Products and Wood Pellets, Containerized Cargo, and Ro/Ro (Roll on/Roll off) and Oversize Cargo.

#### Grain

Grain markets are anticipated to primarily track farms that grow barley, corn, soybeans, wheat, and other grains. In North Carolina, there are two primary grains – corn and soybeans. The former is primarily used in domestic feeds for livestock. The latter is sold both domestically and internationally. Therefore, soybeans are the key export of interest in the grain market scenario. As a first step, soybean production was mapped by county with data from the USDA North Carolina Field Office, 2010. Soybeans are broadly grown across the state – seventy-three counties were itemized by the USDA, but the largest producers are concentrated in eastern NC. The highest production was found in Beaufort and Pasquotank counties. Geographical centroids

were calculated for soybeans – weighted by the level of production in each county. Table 3 presents the nodes used in the highway assessment for the grain market scenario.

**Table 3: Grain Market Scenario Node Locations**

County	Facility	Location	Town
Lenoir	Grain Elevator	GTP	Kinston
Robeson	Grain Elevator	I95	Lumberton
Iredell	Grain Elevator	I40/I77	Statesville

### Wood Products and Wood Pellets

A general geographic sampling of locations of active pulp and paper mills was used to determine appropriate nodes for analysis of the wood pellets and wood and paper market scenarios. This is not necessarily a complete listing, but shows the general distribution of facilities. Table 4 presents the locations of the mills used in this determination.

**Table 4: Active Pulp and Paper Mills**

County	Location	Town
Robeson	International Paper Co. / Lumberton Container Plant 820 Caton Road Hwy 72 West Lumberton	Lumberton
Robeson/Scotland	Paramount Paper Ltd. Maxton, NC	Maxton
Columbus	West Fraser Timber Co., Ltd. / Armour 361 Federal Rd. Riegelwood, NC 28456	Riegelwood
Halifax	KapStone Kraft Paper Corp. 100 Gaston Rd. Roanoke Rapids, NC	Roanoke Rapids
Greene	International Paper Co. / Snow Hill Chip Mill 335 Jesse Hill Road Snow Hill, NC	Snow Hill
Haywood	Blue Ridge Paper Products, Inc. 175 Main St. Canton, NC	Canton
Wilkes	Church & Church Lumber LLC 798 New Browns Ford Rd Wilkesboro, NC	Wilkesboro
Yadkin	Yadkin Lumber Co Inc 800 N State St Yadkinville, NC	Yadkinville

To represent the clusters of pulp and paper mills, the following geographic nodes were used in analyses for the wood products and pellets market scenario.

**Table 5: Wood Products and Pellets Market Scenario Node Locations**

County	Facility	Location	Town
Robeson	International Paper Co./Lumberton Container Plant	N 34°38'19.32" W 79°04'20.46" 820 Caton Road Hwy 72 West	Lumberton
Halifax	KapStone Kraft Paper Corp.	N 36°28'34.47" W 77°38'46.72" 100 Gaston Rd.	Roanoke Rapids
Haywood	Blue Ridge Paper Products, Inc.	N 35°32'12.12" W 82°50'12.45" 175 Main St.	Canton
Wilkes	Church & Church Lumber LLC	N 36°08'51.38" W 81°13'39.78" 798 New Browns Ford Rd.	Wilkesboro
Columbus	West Fraser Timber Co., Ltd./Armour	N 34°20'15.12" W 78°14'34.84" 361 Federal Rd.	Riegelwood

### Containerized Cargo

The following information was considered to help determine appropriate nodes for analysis of the container market scenario:

- Location of intermodal facilities
- Location of NCSPA-owned / operated inland ports
- Location of warehousing and storage facilities (NAICS 4931)
- Graphic of distribution centers currently served by the Port of Wilmington
- Location of major population centers in NC

Table 6 presents the land-side nodes used for the container market scenario in the highway infrastructure assessment.

**Table 6: Container Market Scenario Node Locations**

Region	Facility	Location	Town
Charlotte	CSX Intermodal Facility	N 35.273023° W 80.892768° Near Rozzelles Ferry Rd. and Hovis Rd.	Charlotte
Charlotte	NS Intermodal Facility	N 35.239842° W 80.823645° Near Parkwood Ave. and East 16th Street	Charlotte
Charlotte	Future NS – Charlotte Douglas Intermodal	N 35.2141° W 80.9612° (Near Little Rock Rd. and US 74)	Charlotte
Charlotte	Charlotte Inland Terminal	1301 Exchange Street	Charlotte
Charlotte	Warehouse Cluster Southwest of Town	I-485 and I-77 interchange, southwest of Charlotte	Near Pineville
Triangle	Warehouse Cluster – Downtown Raleigh	Near Intersection of Wade Avenue and Capital Boulevard	Raleigh
Triangle	Warehouse Cluster – RDU Airport	Near Intersection of Aviation Parkway and NC 54	Morrisville
Triangle	Warehouse cluster – East Durham	Near Intersection of US 70 and Miami Boulevard	Durham
Triad	NS Intermodal Facility	N 36.060834°W 79.831088° (Near West Lee St. and S. Chapman St.)	Greensboro
Triad	Piedmont Triad Inland Terminal	505 Chimney Rock Road	Greensboro
Triad	Warehouse Cluster Downtown Winston Salem	US 52 and I-40 Business	Winston Salem
Triad	Warehouse Cluster – High Point	I-85 Business (US 29) and US 311	High Point

## Ro/Ro and Oversize

Several representative nodes for the Ro/Ro and oversize market scenario have been identified using information available on the North Carolina Department of Commerce’s [www.thrivenc.com](http://www.thrivenc.com) website. The website includes information on automotive, truck, and heavy equipment companies in North Carolina, which serve as a good proxy to identify these types of cargos. Table 7 presents the nodes used for the Ro/Ro and oversize market scenario.

**Table 7: Ro/Ro and Oversize Market Scenario Node Locations**

Region	Company	Location	Town
East	Spirit Aerosystems	Global TransPark	Kinston
East	Camp LeJeune	US 17 / NC 24	Jacksonville
Southeast	Fort Bragg	NC 210 / NC 24	Fayetteville
Triad	Caterpillar	Intersection of Union Cross Road and Dell Blvd.	Winston Salem
Triad	Daimler Buses	6012-B High Point Road	Greensboro
Triad	Thomas Built Buses	1408 Courtesy Road	High Point
Triad	Honda	3601 S. Hwy 135	Haw River
Triad	Deere-Hitachi	1000 Deere-Hitachi Road	Kernersville
Triangle	GE Aviation	3701 S. Miami Blvd.	Durham
Triangle	John Deere	6501 NC 55 East	Fuquay Varina
Triangle	Caterpillar	5000 Womack Road	Sanford
Triangle	Caterpillar	954 NC 42 East	Clayton
Triangle	Caterpillar	1685 S. Brightleaf Boulevard	Smithfield
Charlotte	Daimler – Gastonia Components and Log.	1400 Tulip Drive	Gastonia
Charlotte	Daimler – Truck Plant	1800 N. Main Street	Mount Holly
Charlotte	Daimler - Cleveland Truck Plant	11550 Statesville Blvd.	Cleveland (NC)

## 4.2 Highway Travel Time Analyses

Highway travel time analyses were conducted to assess travel times between North Carolina markets, North Carolina ports, and competitor ports in the Southeast. These travel times were used to help identify potential land-side highway improvements to be included in the *North Carolina Maritime Strategy* and to help calculate delivered costs to North Carolina shippers.

### 4.2.1 ArcGIS Network Analyst

The travel time analyses were conducted using the Network Analyst application extension of ArcGIS (a geographic information system product of ESRI). The application was used to compare travel times on segments of the highway network to determine which routes had the lowest travel times. Data used in the analysis included Freight Analysis Framework-3 (refer to Section 4.2.2 below) and projects identified in State Transportation Improvement Programs and Long Range Transportation Plans for North Carolina, Virginia, South Carolina, and Georgia (refer to Section 4.2.3 below). Landside nodes, as described in Section 4.1.2 above, were also incorporated into the GIS model. Assumptions on how projects were used to change projected 2040 volume to capacity ratios and associated travel times are included on page 949 of Appendix VI to the *Capital Costs* technical memorandum.

#### 4.2.2 Freight Analysis Framework

In order to assess the mobility of goods movement across the highway network throughout the study region, the team employed the Freight Analysis Framework-3 (FAF) model<sup>1</sup> as developed by the Federal Highway Administration (FHWA). The FAF model is a national network of roads which was developed to estimate 2007 and 2040 forecasted FAF truck flows and to assess the system-wide congestion of the nation's highway system. FAF provides a common platform on which to evaluate the existing and future highway infrastructure networks across multiple states.

Various sources were utilized to identify primary truck routes within North Carolina and the adjacent states. Information for applicable routes was obtained from the FHWA, state maps, and truck maps provided by DOT websites. In general, long-range truck routes comprised Interstates, US Highways, State Highways, and major local arterials. Roadway inventory maps of North Carolina as well as the surrounding region can be found in Appendix VI to the *Capital Costs* technical memorandum.

#### 4.2.3 Identification of Existing and Future Planned Infrastructure Supporting Maritime Trade

To evaluate future conditions of the highway infrastructure, information regarding fiscally constrained projects and long-range transportation plans were obtained from various state and local transportation agencies for North Carolina, Virginia, South Carolina, and Georgia.

The following documents pertaining to North Carolina were obtained to identify future highway infrastructure conditions:

- NCDOT STIP
- NCDOT Projects Subject to Reprioritization Spreadsheet
- NCDOT SHC Needs Spreadsheet
- NCDOT SHC Map

The following documents were obtained for South Carolina to identify future highway conditions:

- South Carolina Department of Transportation (SCDOT) STIP
- South Carolina Region TIP documents (Charleston, Florence, Greenville, Spartanburg, Rock Hill-Fort Mill, Sumter, Columbia)
- SCDOT Strategic Corridor Plan
- SCDOT Interstate Corridor Plan
- South Carolina Region LRTP documents (Charleston, Florence, Greenville, Spartanburg, Rock Hill-Fort Mill, Sumter, Columbia)

The following documents were obtained for Virginia to identify future highway conditions:

- Virginia Department of Transportation (VDOT) Six-Year Plan

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<sup>1</sup> FAF integrates data from a variety of sources to create a comprehensive picture of freight movement among states and major metropolitan areas by all modes of transportation. With data from a USDOT-conducted 2007 Commodity Flow Survey and additional sources, FAF provides estimates for tonnage, value, and domestic ton-miles by region of origin and destination, commodity type, and mode for 2007 and forecasts through 2040. [http://www.ops.fhwa.dot.gov/freight/freight\\_analysis/faf/](http://www.ops.fhwa.dot.gov/freight/freight_analysis/faf/)

- Virginia Region LRTP Documents (Valley and Ridge, Blue Ridge, Piedmont, Eastern)

Evaluation of highways for Georgia was limited to the immediate Savannah area. A review of all pertinent transportation planning documents revealed no plans to upgrade any of the major roads that would be used to travel between Savannah and the South Carolina state line in transit to places in North Carolina.

Excerpts of these transportation plans are included in Appendix VI to the *Capital Costs* technical memorandum.

#### **4.2.4 Conditions Evaluated**

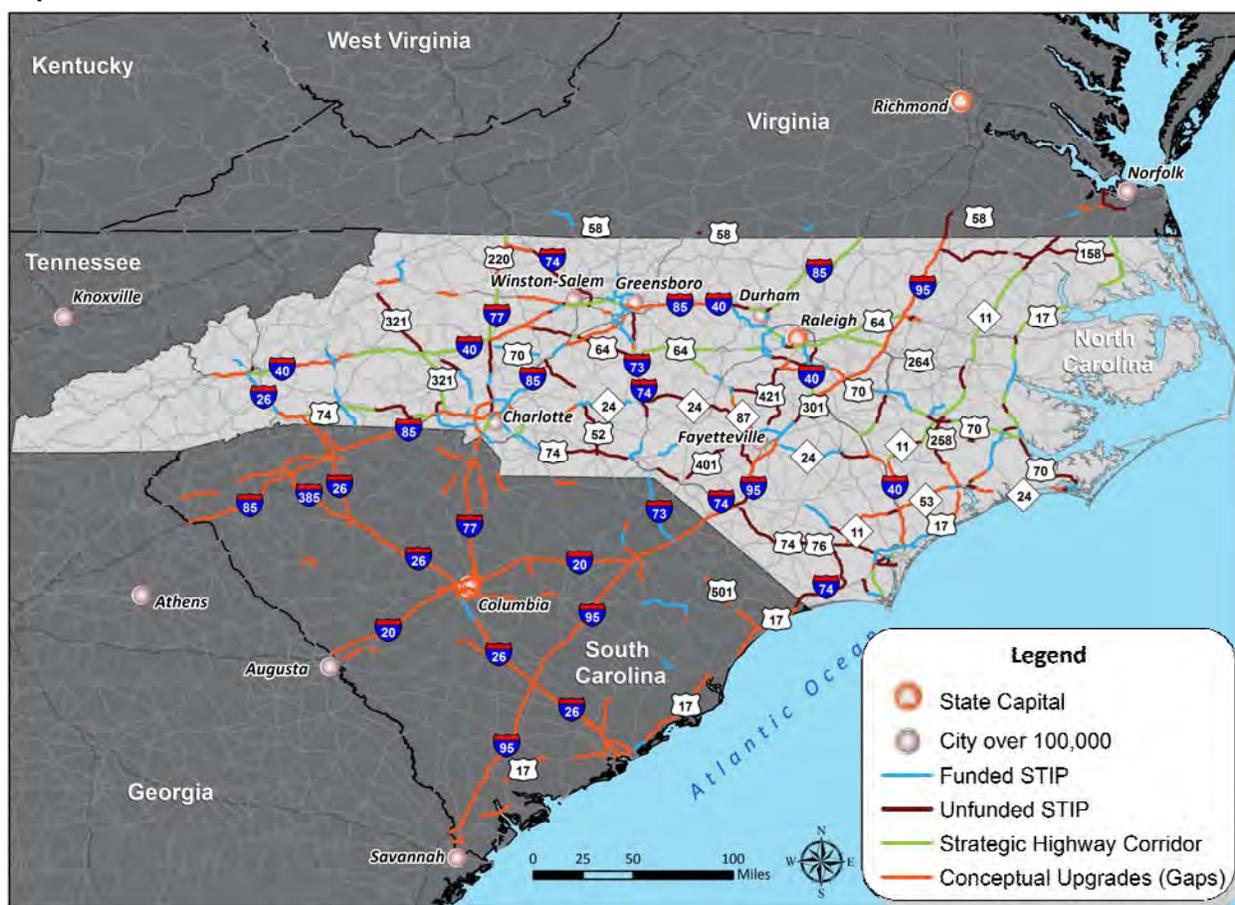
Highway travel time analyses were conducted to estimate travel times between landside and port nodes for each market scenario under existing, 2040 No Build conditions, and under two 2040 Build conditions. These model conditions are described below.

- **Existing Conditions:** The 2007 FAF Model was used without any modifications to represent current highway infrastructure conditions and estimate travel times.
- **2040 No Build:** The 2040 FAF Model was used without any modifications to represent future highway infrastructure conditions and estimate travel times without any transportation improvements implemented.
- **2040 STIP:** The 2040 FAF Model was supplemented with projects within the various State Transportation Improvement Programs (STIPs) to estimate future travel times under the 2040 STIP condition, assuming implementation of all highway projects are funded for construction through the forecast year. Since the STIP horizon extends out only seven years, projects funded for right-of-way acquisition by 2018 were assumed to be fully funded and completed before 2040.
- **2040 STIP Plus:** For this final condition, travel times were estimated with the addition of unfunded STIP projects and projects included in the long-range transportation plans, over and above the funded projects included in the 2040 STIP condition. Upon review of the resultant future infrastructure, conceptual highway improvements were also included to complete any remaining gaps in the highway infrastructure to create the 2040 STIP Plus condition.

## 5 HIGHWAY INFRASTRUCTURE ASSESSMENT

Existing roadway conditions, along with future conditions based on funded highway projects, long-range planning projects, and other projects under consideration were analyzed. Travel time, distance, and potential capital costs were identified for various highway investment alternatives for existing and proposed ports and inland freight nodes. Cost information is included in Appendix VI to the *Capital Costs* technical memorandum. In consideration of freight movement patterns within the South Atlantic region, evaluation of regional highway infrastructure included interstate and state highway networks in North Carolina as well as Virginia, South Carolina and Georgia. Appendix II provides additional information on projects included in the network analysis for each market scenario.

**Figure 2: STIP, Long Range Transportation Plans, and Potential Additional Highway Improvements**



Source: AECOM/URS from ESRI, NCDOT, FAF v3.1, and USGS ThematicMapping world datasets

The 2007 FAF model was used without modification to represent current highway infrastructure operational conditions. To evaluate 2040 conditions, projects included in the State Transportation Improvement Program (STIP) for subject states and funded through 2018 were incorporated into the 2040 FAF model. Unfunded STIP projects and projects included in long-range transportation plans were also incorporated. Additional potential highway improvements

were then added to complete remaining infrastructure gaps and identify associated travel time benefits that would be realized by North Carolina shippers.

## **5.1 Network Analyst Results**

Network Analyst was used to identify the routes with the shortest travel times between each port and market scenario node in the Existing, 2040 No Build, 2040 STIP, and 2040 STIP Plus conditions. Exhibits showing the routes and associated market scenario nodes for the container, grain, wood products and wood pellets, and Ro/Ro and oversize scenarios are included in Appendix I. Generally, the 2040 STIP Plus route shown in the exhibits was used to guide selection of projects for inclusion in cost estimates for each market scenario. However, in some cases, the NC Maritime Strategy Team designated projects that best take advantage of existing infrastructure rather than varying the route. For example, in order to reach markets in the Triad, although Network Analyst showed the shortest route along I-40, projects were identified along US 74 and I-73/74 (to build some redundancy into the highway system so the Triad region would not have to exclusively depend on I-40 which goes through the highly-populated Triangle region).

Table 8, Table 9, Table 10, and Table 11 present travel times between ports and landside nodes for the Existing, 2040 No Build, 2040 STIP, and 2040 STIP Plus conditions. All of the land-side nodes identified in 4.1.2 are approximated in the tables. In some cases, the routes used between two particular nodes may vary from condition to condition, so a direct comparison of travel times is possible, as long as it is noted that the routing may be different between conditions.

**Table 8: Highway Travel Times Ports to Landside Nodes – Existing**

Existing Travel Times  mode_TRUCK URS FAF Data Hours	Market Scenario	Norfolk	MHC Site	POW Site	Charleston - Wando Welch Terminal	Savannah Garden City Terminal	River Road Site	Southport Site
Camp LeJeune Jacksonville	Ro/Ro	4.55	1.07	1.15	4.68	5.92	1.47	2.17
Canton	Wood	8.05	8.17	6.62	5.42	5.60	6.42	6.82
CharlotteNS	Container	8.22	6.65	4.82	4.85	5.33	4.60	5.03
CharlotteCSX	Container	8.62	6.72	4.88	5.53	6.02	4.67	5.10
Clayton	Ro/Ro	4.38	2.85	2.87	6.42	5.03	3.12	4.18
Cleveland	Ro/Ro	6.53	6.32	5.43	6.15	8.45	5.22	5.67
Durham	Ro/Ro	5.10	3.97	3.43	7.75	5.45	3.68	4.75
Fort Bragg_Fayetteville	Ro/Ro	4.98	3.42	2.47	5.10	4.20	2.25	2.78
Fuquay_Varina	Ro/Ro	5.27	3.43	3.32	6.25	5.12	3.53	4.62
Gastonia	Ro/Ro	9.48	7.53	5.68	5.18	4.78	5.48	5.92
GreensboroBUS	Ro/Ro	5.28	5.17	4.33	5.65	5.45	4.13	4.67
GreensboroNS	Container	5.22	5.40	4.33	6.73	6.65	4.12	4.65
GreensboroPTIT	Container	5.37	5.03	4.37	5.67	6.67	4.13	4.68
Haw_River	Ro/Ro	4.77	4.75	5.50	6.15	5.87	4.72	6.82
High_Point	Ro/Ro	5.40	5.02	4.48	5.63	5.43	4.27	5.22
Kernersville	Ro/Ro	6.05	5.70	5.03	6.33	5.72	4.82	5.37
Kinston	Grain, Ro/Ro	3.78	1.72	2.33	6.37	5.77	2.65	3.33
Lumberton	Grain, Wood	4.28	3.63	1.87	3.25	3.43	1.65	2.08
Mount_Holly	Ro/Ro	8.92	7.07	5.23	4.67	5.15	5.02	5.45
Raleigh	Container	4.77	3.28	2.77	5.63	6.33	3.00	4.07
Riegelwood	Wood	4.92	2.58	0.65	3.60	4.53	0.43	0.93
Roanoke Rapids	Wood	1.93	3.57	3.03	5.80	5.98	3.35	3.88
Sanford	Ro/Ro	5.85	4.17	3.18	5.38	4.88	2.97	3.52
Smithfield	Ro/Ro	4.07	2.65	2.48	6.02	4.68	2.72	3.78
Statesville	Grain	5.92	6.03	5.03	5.68	5.87	5.08	5.52
Wilkesboro	Wood	6.30	6.43	5.43	6.37	6.57	5.67	6.10
Winston_Salem	Ro/Ro	5.68	5.43	4.75	5.87	5.67	4.53	5.47

**Table 9: Highway Travel Times Ports to Landside Nodes – 2040 No Build**

<b>2040 No Build Travel Times</b>	<b>Market Scenario</b>	<b>Norfolk</b>	<b>MHC Site</b>	<b>POW Site</b>	<b>Charleston - Wando Welch Terminal</b>	<b>Savannah Garden City Terminal</b>	<b>River Road Site</b>	<b>Southport Site</b>
<b>mode_TRUCK URS FAF Data Hours</b>								
Camp Lejeune Jacksonville	Ro/Ro	4.80	1.58	1.58	12.65	8.43	3.52	2.97
Canton	Wood	13.63	14.70	12.80	18.73	10.72	13.17	12.62
CharlotteNS	Container	10.23	8.98	7.10	13.48	7.32	7.48	6.92
CharlotteCSX	Container	11.07	9.75	7.87	14.00	7.63	8.23	7.68
Clayton	Ro/Ro	4.50	3.98	2.62	13.48	9.27	4.53	3.98
Cleveland	Ro/Ro	9.80	10.57	8.78	16.35	11.22	9.15	8.58
Durham	Ro/Ro	8.22	8.55	7.17	16.98	11.87	9.10	8.53
Fort Bragg_Fayetteville	Ro/Ro	6.60	4.82	3.08	12.38	7.67	3.77	3.20
Fuquay_Varina	Ro/Ro	5.67	3.98	2.60	13.47	9.27	4.53	3.98
Gastonia	Ro/Ro	11.20	9.63	7.75	13.65	7.20	8.13	7.57
GreensboroBUS	Ro/Ro	6.65	7.00	5.62	13.27	8.13	6.07	5.50
GreensboroNS	Container	6.62	7.03	5.63	13.23	8.18	6.08	5.53
GreensboroPTIT	Container	7.70	8.05	6.67	14.25	9.18	7.12	6.55
Haw_River	Ro/Ro	5.57	8.30	7.00	15.17	10.05	7.97	7.40
High_Point	Ro/Ro	6.57	7.33	5.67	13.23	8.10	6.03	5.48
Kernersville	Ro/Ro	6.58	7.72	6.10	13.67	8.55	6.47	5.92
Kinston	Grain, Ro/Ro	4.08	3.40	2.87	13.82	9.62	4.80	4.23
Lumberton	Grain, Wood	7.42	4.78	2.88	11.47	7.23	3.25	2.70
Mount_Holly	Ro/Ro	12.03	10.72	8.83	14.88	8.43	9.20	8.63
Raleigh	Container	5.77	7.38	6.03	16.83	12.42	7.97	7.40
Riegelwood	Wood	6.03	3.20	1.30	11.18	6.95	2.03	1.47
Roanoke Rapids	Wood	2.85	5.55	4.70	15.63	11.4	6.62	6.07
Sanford	Ro/Ro	6.37	5.42	4.03	13.27	8.27	5.52	4.97
Smithfield	Ro/Ro	4.35	3.57	2.20	13.07	8.25	4.13	3.57
Statesville	Grain	9.43	11.27	9.37	16.40	9.92	9.75	9.18
Wilkesboro	Wood	8.08	11.55	10.33	16.50	9.50	10.70	10.15
Winston_Salem	Ro/Ro	6.70	7.52	5.90	13.47	8.33	6.27	5.72

**Table 10: Highway Travel Times Ports to Landside Nodes – 2040 STIP**

2040 STIP Travel Times mode_TRUCK URS FAF Data Hours	Market Scenario	Norfolk	MHC Site	POW Site	Charleston - Wando Welch Terminal	Savannah Garden City Terminal	River Road Site	Southport Site
Camp LeJeune Jacksonville	Ro/Ro	4.80	1.58	1.58	11.87	8.35	2.48	2.73
Canton	Wood	13.42	13.67	11.48	17.23	9.85	12.27	11.87
CharlotteNS	Container	8.72	8.03	6.02	12.78	7.30	6.82	6.42
CharlotteCSX	Container	9.55	8.77	6.75	13.30	7.63	7.53	7.13
Clayton	Ro/Ro	4.48	4.00	2.62	12.70	9.20	3.52	3.77
Cleveland	Ro/Ro	8.07	8.60	6.57	13.62	8.90	7.35	6.97
Durham	Ro/Ro	6.75	6.68	5.25	13.98	10.02	6.15	6.45
Fort Bragg_Fayetteville	Ro/Ro	5.93	3.97	2.53	11.40	7.45	3.32	3.17
Fuquay_Varina	Ro/Ro	5.67	3.98	2.43	12.70	9.18	3.48	3.75
Gastonia	Ro/Ro	9.52	8.92	6.92	12.92	7.23	7.70	7.28
GreensboroBUS	Ro/Ro	6.32	6.93	4.92	11.95	7.95	5.68	5.30
GreensboroNS	Container	6.55	7.02	6.10	12.12	8.12	5.87	5.48
GreensboroPTIT	Container	7.58	8.03	5.08	13.10	9.13	6.88	6.50
Haw_River	Ro/Ro	5.50	8.22	6.82	14.00	10.00	7.72	7.37
High_Point	Ro/Ro	6.30	6.90	4.88	11.90	7.90	5.65	5.27
Kernersville	Ro/Ro	6.25	7.25	5.23	12.27	8.27	6.02	5.60
Kinston	Grain, Ro/Ro	3.95	3.40	2.87	12.87	9.37	3.77	4.02
Lumberton	Grain, Wood	7.27	4.58	2.27	10.68	7.17	3.05	2.67
Mount_Holly	Ro/Ro	10.13	9.57	7.53	13.92	8.25	8.32	7.93
Raleigh	Container	5.75	7.38	6.03	15.98	11.98	6.93	7.20
Riegelwood	Wood	6.00	2.93	0.62	10.40	6.87	1.42	1.43
Roanoke Rapids	Wood	2.70	5.50	4.50	14.70	11.17	5.40	5.48
Sanford	Ro/Ro	6.37	5.42	4.03	12.05	8.17	4.93	4.93
Smithfield	Ro/Ro	4.35	3.58	2.20	12.28	8.78	3.10	3.35
Statesville	Grain	9.28	10.12	8.08	15.15	9.62	8.87	8.48
Wilkesboro	Wood	7.95	11.30	9.27	15.37	9.03	10.05	9.67
Winston_Salem	Ro/Ro	6.43	7.12	5.08	12.13	8.12	5.87	5.48

**Table 11: Highway Travel Times Ports to Landside Nodes – 2040 STIP Plus**

2040 STIP Plus Travel Times  mode_TRUCK URS FAF Data Hours	Market Scenario	Norfolk	MHC Site	POW Site	Charleston - Wando Welch Terminal	Savannah Garden City Terminal	River Road Site	Southport Site
Camp LeJeune Jacksonville	Ro/Ro	3.28	1.23	1.07	7.42	5.78	1.17	1.67
Canton	Wood	7.12	7.60	6.17	7.03	5.05	5.90	6.18
CharlotteNS	Container	5.67	6.07	4.63	6.27	4.28	4.38	4.68
CharlotteCSX	Container	5.62	6.00	4.60	6.32	4.33	4.33	4.73
Clayton	Ro/Ro	3.12	2.97	2.00	7.73	5.73	2.08	2.57
Cleveland	Ro/Ro	5.53	5.97	4.93	7.47	5.47	5.02	5.50
Durham	Ro/Ro	3.62	3.35	2.35	7.80	5.82	2.43	2.92
Fort Bragg_Fayetteville	Ro/Ro	3.82	3.27	2.23	6.90	4.90	2.05	2.53
Fuquay_Varina	Ro/Ro	3.67	3.10	2.08	7.53	5.53	2.17	2.67
Gastonia	Ro/Ro	6.07	6.42	5.02	6.60	4.60	4.75	5.07
GreensboroBUS	Ro/Ro	4.07	4.53	3.47	7.35	5.33	3.55	4.03
GreensboroNS	Container	4.00	4.43	3.40	7.40	5.42	3.48	3.97
GreensboroPTIT	Container	4.02	4.47	3.42	7.33	5.33	3.50	4.00
Haw_River	Ro/Ro	4.03	4.45	3.43	8.20	6.20	3.52	4.00
High_Point	Ro/Ro	4.27	4.72	3.67	7.52	5.52	3.75	4.25
Kernersville	Ro/Ro	4.30	4.77	3.70	7.62	5.62	3.78	4.27
Kinston	Grain, Ro/Ro	2.87	2.00	2.00	8.37	6.53	2.12	2.60
Lumberton	Grain, Wood	4.62	3.47	1.65	5.78	3.78	1.38	1.70
Mount_Holly	Ro/Ro	6.60	6.98	5.58	7.35	5.35	5.32	5.63
Raleigh	Container	4.18	3.93	2.88	8.35	6.35	2.97	3.45
Riegelwood	Wood	4.42	2.43	0.60	5.72	4.68	0.33	0.82
Roanoke Rapids	Wood	1.85	3.98	3.38	8.90	6.90	3.63	3.97
Sanford	Ro/Ro	4.33	3.87	2.83	7.37	5.37	2.70	3.18
Smithfield	Ro/Ro	3.03	3.03	2.20	7.43	5.43	2.28	2.80
Statesville	Grain	4.97	5.43	4.37	6.80	4.80	4.45	4.88
Wilkesboro	Wood	5.77	6.23	5.17	8.43	6.45	5.25	5.73
Winston_Salem	Ro/Ro	4.18	4.90	3.83	7.70	5.70	3.92	4.40

Projects included in the Network Analyst evaluation are listed in Appendix II. Network Analyst was used as a tool to identify potential projects for the NC Maritime Strategy. However, as noted previously, in some cases, it was determined that investment should be made in existing or planned routes not necessarily identified as the shortest route in the analysis (i.e. US 74 and I-73/74 between Port of Wilmington and the Triad, US 70 between Goldsboro and Raleigh). The selection of projects identified for each market scenario is described in Section 6.1.3 below.

## 6 INFRASTRUCTURE INVESTMENT NEEDS

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### 6.1 Investments to Improve Overall Transportation Network

Many of the proposed investments in North Carolina's maritime infrastructure have the potential to improve the overall efficiency of goods movement within the state, serving to enhance the cargo under multiple market scenarios. In particular, improvements to inland highway networks will improve freight access across the state. Near the state's port facilities, enhanced road connections will serve all users of the port.

#### 6.1.1 Highway Corridors

Freight mobility through North Carolina's highway network will rely on improvements that provide direct and timely access for trucks to port facilities from inland freight nodes and facilities, including rail intermodal terminals, manufacturing, agricultural production, warehousing and distribution centers.

Based on the maritime market opportunities identified for North Carolina, investment in the US 70, I-73/I-74, and I-40 highway corridors will have the greatest effect in reducing trucking travel times within the state. Focused investments along these targeted freight corridors is also consistent with the 2008 Statewide Logistics Study recommendations for highway improvements, including creation of a multimodal corridor between Charlotte and Wilmington and enhancing the primary highways of the National Truck Network in North Carolina. The Statewide Logistics Study also recommended improvements to I-95 to support pass-through traffic; while there are many benefits to the enhancement of this vital corridor, improvements to I-95 were not demonstrated to support the specific market scenarios evaluated under this study.

#### US 70

The US 70 Corridor Commission, which was established to advance the needs of US 70, has identified this highway as a vital transportation corridor in North Carolina<sup>2</sup>. This 135-mile strategic highway corridor is a vital farm-to-market road serving North Carolina's Eastern region and a travel route that supports the State's three major military bases. Enhancements to US 70 will more effectively move agricultural producers to end markets, will support efficient movement of US military troops, will logistically connect Global TransPark to the state's transportation network and port facilities, and will provide a safe and efficient roadway for visitors of North Carolina's coastal communities.

US 70 provides primary access to the Port of Morehead City and eastern North Carolina. While portions of US 70 have already been improved to freeway or expressway standards, other segments need to be upgraded to enhance access from the interstate system and Raleigh-Durham region to places such as Global TransPark, military facilities, and the Port of Morehead City in eastern North Carolina. Projects such as the currently funded US 70 Havelock Bypass, the replacement of the Gallant's Channel Bridge, and currently unfunded projects such as the

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<sup>2</sup> From remarks made by US 70 Corridor Commission executive director, Durwood Stephenson, to the GLTF and Seven Portals Study team.

US 70 Kinston Bypass and upgrades in the vicinity of James City would enhance access. Additionally, the North Carteret Bypass would enhance access for freight movement to the Port of Morehead City.

### **I-73/74 (US 74)**

US 74 connects the City of Charlotte with the Port of Wilmington. A CSX rail line also runs parallel to the corridor. Investments on US 74 enhance access to industries in the State's largest metropolitan area. Investments between Rockingham and Wilmington will also help complete I-73/74, enhancing access to the Triad. With upgrades to US 74 and the completion of I-73/74, industrial parks and mega-sites along this corridor could have access to both the rail and interstate systems.

Completion of this interstate will enhance access from Wilmington to the Triad area. The interstate will give motorists traveling to the Triad and other portions of the Central Piedmont an alternative to I-40 and I-85 in Raleigh, Durham, and Greensboro. In addition, improvements to US 74, west of Rockingham will enhance intrastate travel between Charlotte and the coast. Also, this highway is paralleled by the CSX rail line for much of its alignment, providing both modes of access to existing and potential industries.

### **I-40**

The Interstate 40 corridor is the backbone of the state's internal transportation network, running the length of the state and connecting to I-26, I-77, I-85, I-73 / 74, and I-95. The corridor serves as an important connection to the Triad and Triangle regions. I-40 and I-140 will enhance access from these regions to the Port of Wilmington.

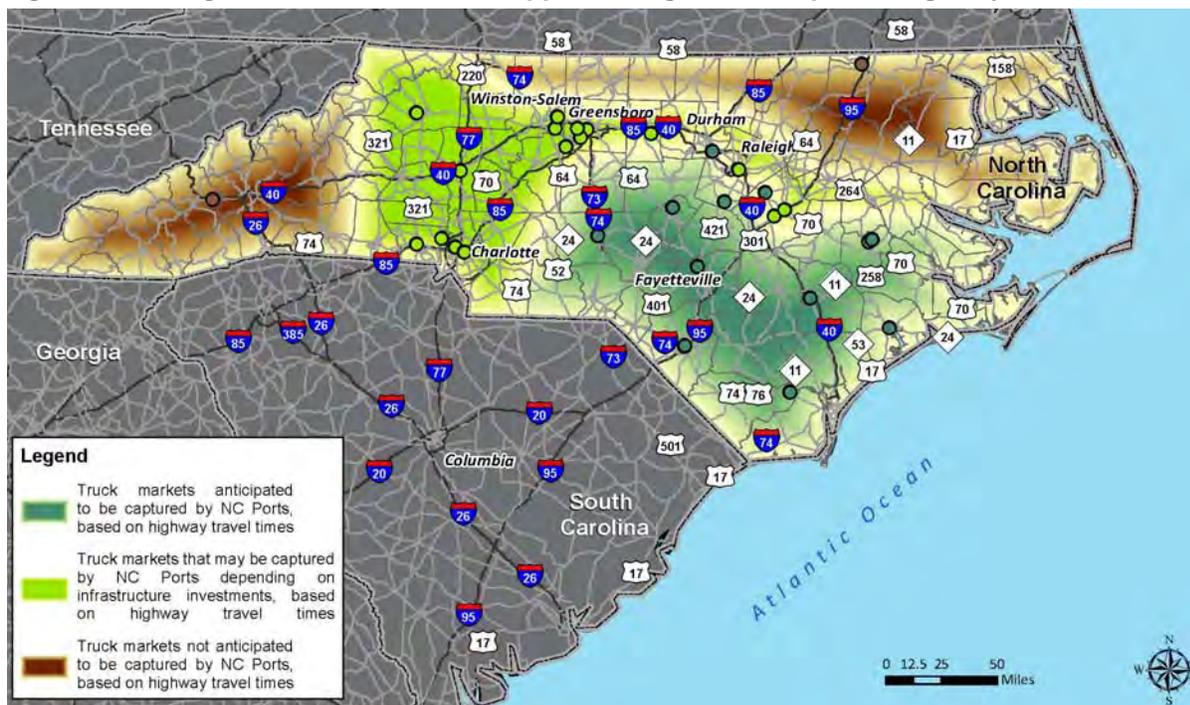
## **6.1.2 Potential Trucking Market Area for North Carolina Ports**

Proposed highway improvements within North Carolina were evaluated for potential travel time savings and their ability to realize lower delivered costs for North Carolina shippers. In some cases, alternative regional ports (competitor ports) remained a lower cost alternative to NC-based importers or exporters of waterborne goods. Analysis of FAF data indicates that, in 2040, based on projects in the regional STIPs, waterborne goods moving from the westernmost reaches of North Carolina will be best served by the Port of Savannah, while waterborne goods originating in the state's northeastern counties will be best served by the port facilities in Norfolk VA. For those areas, continued focus on regional mobility along interstate routes such as I-26, I-40, I-95 and I-85 will be important to allow North Carolina shippers to cost-effectively deliver goods to market. Other highways including NC 11 and US 17 in the northeast region of the state will also be critical routes for delivery of goods to port facilities to the north.

Figure 3 shows regions that are likely to be served by alternative regional ports in brown. Areas that can be best served by either existing or potential North Carolina port sites are shown in either dark or light green. Figure 3 was developed using the travel time data presented in Section 5. The figure was subsequently used to help identify highway projects to be included in each market scenario. The figure and supporting highway travel times were used to determine whether or not North Carolina ports could potentially capture markets associated with the land-side market scenario nodes. If highway infrastructure improvements helped gain North Carolina ports or potential port sites the lowest travel times to or from a land-side node, they were included in capital cost estimates for the market scenario. If, even with all of the initial projects

used in the network analysis, and listed in Appendix II, travel times were still lowest to a competing port, highway projects along that portion of the corridor were not included. In effect, the highway travel times were used to truncate or focus the investments along the important highway corridors.

**Figure 3: NC Regions that will Realize Shipper Savings from Proposed Highway Investments**



Source: AECOM/URS from ESRI, NCDOT, USDOT Freight Analysis Framework v3.1, USGS ThematicMapping world borders dataset with proposed *Maritime Strategy* highway project improvements.

### 6.1.3 Highway Investment Needs by Market Scenario

Using the projects fueling the Network Analyst model and the resultant highway travel times, projects beyond those identified in the North Carolina Transportation Improvement Program that would enhance goods movements between ports and North Carolina markets were identified. These highway projects are described by market scenario. Summary level cost data are also mentioned.

#### Grain

The majority of soy-producing counties are located in either eastern or southeastern North Carolina, including areas surrounding Lumberton and Kinston. Grain improvements will also include local truck access to the terminal. Based on 2040 grain volume projections, approximately 130 trucks per day would deliver soybeans to on-dock silos.

#### Radio Island

Local truck access to Radio Island will be achieved through construction of a new access road and tight, modified diamond interchange on US 70 (see Figure 4). This access is based on information included in a letter of interest document prepared by Moffatt and Nichol for the North Carolina State Ports Authority (See Appendix VII to the *Capital Costs* technical memorandum).

The recommended roadway improvements in that study included a proposed access roadway to US 70, with improvements also affecting Radio Island Road (SR 1175), Old Causeway Road (SR 1205), and Morgan Street. According to the study, the “Opinion of Probable Cost” associated with the proposed access road is approximately \$2.1 million. Longer-term recommended roadway improvements included a compressed diamond interchange at US 70, which also assumes that US 70 would be widened to a four-lane facility west of Radio Island (NCDOT STIP Project FS-1002A) and that STIP Project R-3307 will be in-place which widens US 70 to a multi-lane facility from Radio Island to US 70 north of Beaufort. Construction cost of the compressed diamond interchange was not included in that study. An additional \$15.5 million was added to account for a tight diamond interchange based on coordination with the North Carolina Department of Transportation’s Preliminary Estimates Squad. Total construction cost for local access to Radio Island is estimated to be \$17.6 million. With the addition of 29 percent to account for potential right-of-way costs, local highway access is anticipated to cost \$23 million.

**Figure 4: Enhanced Roadway Access to Radio Island**



Source: Long-term recommended roadway improvements as prepared for NCSPA by Moffatt & Nichol (2007) and included in the request for letters of interest for development of Radio Island.

For the Radio Island site, key highway corridors for grain include US 70, NC 24 to US 17, and US 74/76. Proposed highway network improvements include the construction of the US 70 North Carteret Bypass, the funded Havelock Bypass, improvements in James City, and improvements to NC 24 in Onslow County. These projects are listed in and are illustrated in Figure 5.

Construction and right-of-way costs of the highway corridor projects identified below are estimated as \$1.092 billion and \$317 million, respectively (for a total of \$1.408 billion).

Combined with local access costs, total highway infrastructure costs for the grain market scenario at Radio Island are approximately \$1.431 billion.

**Table 12: Detail of Highway Projects to Support Grain Access to Radio Island**

ID Number	Route	Description	County
SHC 344	NC 11	new location from US 70 to SR 1732	Lenoir
SHC 345	NC 11	upgrade expressway to freeway from SR 1744 to SR 1835	Lenoir
SHC 346	NC 11	upgrade expressway to freeway from SR 1835 to SR 1110	Lenoir, Pitt
SHC 347	NC 11	upgrade expressway to freeway from SR 1110 to R-2250	Pitt
CU1 24	NC 24	widening from Atlantic Beach Causeway to NC 24	Carteret
CU2 24	NC 24	widening from NC 58 to White Oak River	Carteret
CU3 24	NC 24	widening lanes from NC 172 to FS-1103A	Onslow
FS-1103A	NC 24	access management and drainage improvements from NC 24 to SR 1459	Onslow
R-4431	New Route	new location (Havelock Bypass) to Beaufort	Carteret
CU1 17	US 17	upgrade to freeway from US 17 Bypass in Jacksonville to Maysville	Onslow
FS-1002A	US 70	widening from Morehead City to Beaufort Causeway	Carteret
FS-0802B	US 70	access improvements from James City to proposed Havelock Bypass	Craven
SHC 336	US 70	upgrade to interstate standards from SR 1200 to Kinston Bypass	Craven, Jones
SHC 341	US 70	upgrade to interstate standards from east of La Grange to Goldsboro Bypass	Lenoir
FS-1106B	US 74	upgrade to interstate standards from NC 41 in Lumberton to SR 1585 (Union Valley Road) in Columbus County	Robeson, Columbus
R-4462	US 74/US 76	upgrade to interstate standards from Whiteville to the proposed US 17 Wilmington Bypass	Columbus, Brunswick

Source: AECOM/URS from FAF 3.1 and AECOM Delivered Cost Model

Project ID numbers explained: Please note that although some projects may have STIP numbers (i.e. numbers that start with I, U, R, or X) they are not currently included in the funded STIP. Instead they are projects that have been identified previously or are scheduled for potential reprioritization. Projects whose identification numbers begin with an FS are projects for which feasibility studies have been conducted or are currently being conducted. Projects with identification numbers that start with SHC are projects that have been identified as potential future projects in the North Carolina Department of Transportation's *Strategic Highway Corridor Plan*. Identification numbers that begin with CU are conceptual upgrade projects that the Maritime Strategy team has identified as potential needs that have not been identified to date in any NCDOT programs or plans. These projects help fill gaps or address anticipated future capacity deficiencies (based on a review of Freight Analysis Framework data) in the landside highway network.

### Port of Wilmington

Local truck access to the Port of Wilmington will be enhanced by the completion of the Wilmington Bypass and anticipated construction of the Cape Fear Skyway toll facility. According to the STIP, the Cape Fear Skyway is described as a new route from US 17 in Brunswick County to Independence Boulevard-Carolina Beach Road intersection including a bridge over the Cape Fear River. According to the project's website,<sup>3</sup> several potential purposes of the project are identified, one of which is providing alternative access to the Port of Wilmington. Although the Cape Fear Skyway is not programmed in the current STIP, it is anticipated to be paid for by toll revenues and was thus not included in capital cost estimates associated with the *North Carolina Maritime Strategy*.

US 74/76 and NC 24 and US 258 provide access to Port of Wilmington from major soy-producing counties. Key highway improvements include completion of I-140, improvements to US 74/76 between the port and I-95, completion of I-795 south of Goldsboro, and improvements to US 17 and US 258 between Jacksonville and Kinston. Capacity additions to these corridors will be required to maintain competitive travel times. Improvements to US 74/76

<sup>3</sup> <http://www.ncdot.gov/projects/capefearskyway/>

to upgrade it to interstate standards, bypassing segments of existing US 17 between Wilmington and Jacksonville, and widening the two-lane portions of US 258 between Jacksonville and Kinston are needed. These proposed projects are detailed in Table 13 and shown in Figure 5.

**Table 13: Detail of Highway Projects to Support Grain Access to Port of Wilmington**

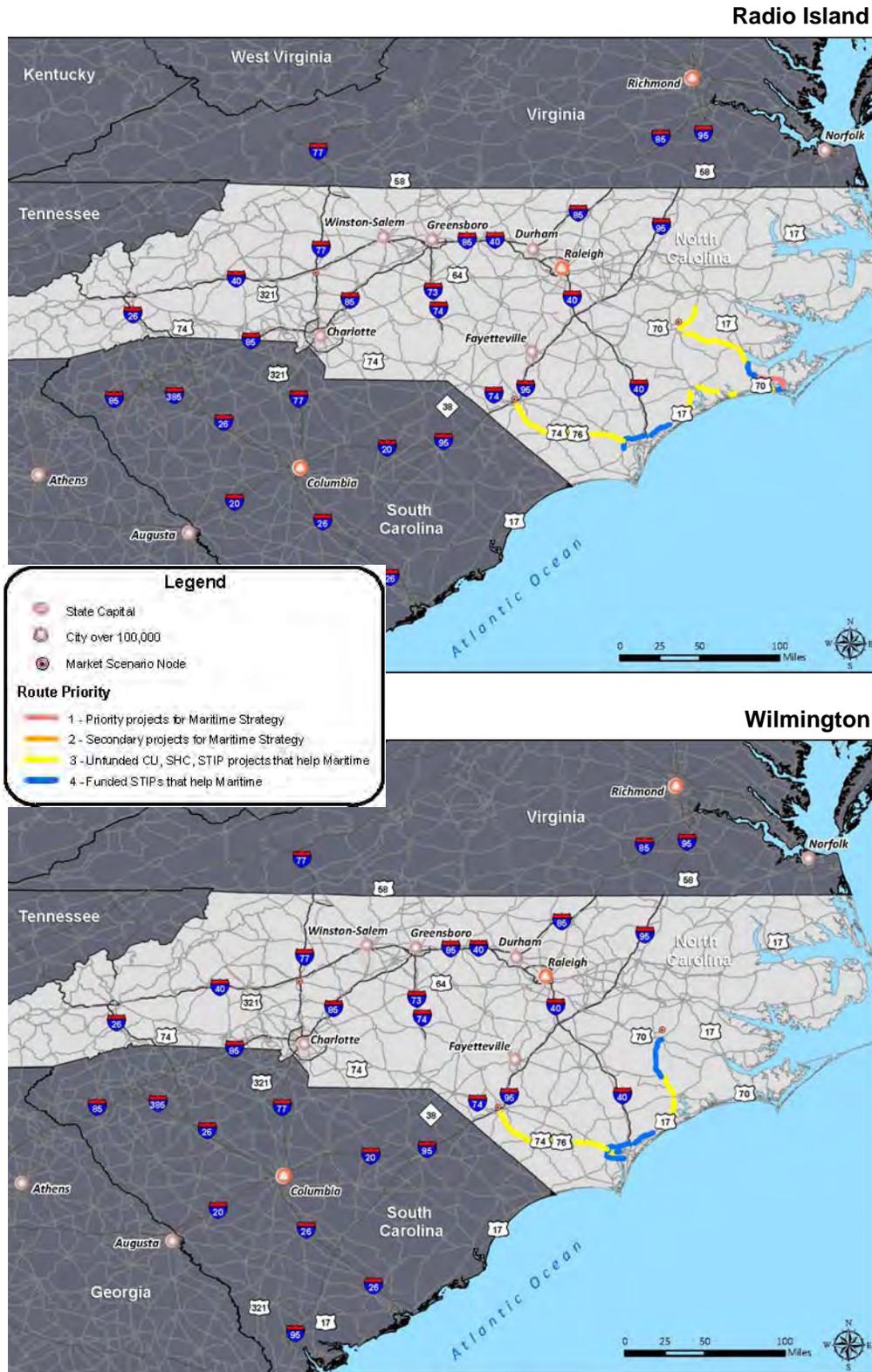
ID Number	Route	Description	County
CU4 24	NC 24	widening from NC 24 Business to NC 111	Onslow
FS-0803A	US 17	widening from proposed I-140 to NC 133 (Village Road)	Brunswick
CU1 17	US 17	upgrade to freeway from US 17 Bypass in Jacksonville to Maysville	Onslow
CU2 258	US 17/US 258	widening from NC 24 Business to NC 111	Onslow
FS-1106B	US 74	upgrade to interstate standards from NC 41 in Lumberton to SR 1585 (Union Valley Road) in Columbus County	Robeson, Columbus
R-4462	US 74/US 76	upgrade to interstate standards from Whiteville to the proposed US 17 Wilmington Bypass	Columbus, Brunswick

Source: AECOM/URS from FAF 3.1 and AECOM Delivered Cost Model

Note: CU = Conceptual Upgrade; SHC = Strategic Highway Corridor; FS = Feasibility Study. For more information, please refer to the “Project ID numbers explained” text below Table 12.

Construction and right-of-way costs of the highway corridor projects identified above are estimated as \$448 million and \$130 million, respectively. Total highway infrastructure costs associated with the grain market scenario at the Port of Wilmington are estimated at \$578 million.

**Figure 5: Highway Network Improvements to Support Grain Market**



Source: AECOM/URS from ESRI, NCDOT, FAF v3.1, USGS ThematicMapping world borders dataset

### Wood Pellets and Other Wood Products

In 2040, wood pellet export volumes are anticipated to reach 450,000 tons. Volumes of other wood products are anticipated to increase to 990,000 tons for bulk items and 320,000 tons for break bulk. Trucks are expected to be the primary mode of delivery for wood products to port from Lumberton, Riegelwood, and other timber production areas east of I-95.

#### Radio Island

Local truck access to Radio Island will be achieved through construction of a new access road and tight, modified diamond interchange on US 70. These improvements are illustrated in Figure 4. Local access to Radio Island is estimated to cost \$23 million (\$18 million for construction and \$5 million for right-of-way).

NC 24, US 17, I-140, and US 74/76 are the primary corridors that provide access from southeastern North Carolina to Radio Island. Highway network improvements to support wood transport include upgrades to NC 24, US 17, and US 74/76. These projects are listed in Table 14.

**Table 14: Detail of Highway Projects to Support Wood Access to Radio Island**

ID Number	Route Description	County
I-3806	I-95 widening from US 74 to US 301	Robeson
CU1 24	NC 24 widening from Atlantic Beach Causeway to NC 24	Carteret
CU2 24	NC 24 widening from NC 58 to White Oak River	Carteret
CU3 24	NC 24 widening lanes from NC 172 to FS-1103A	Onslow
FS-1103A	NC 24 access management and drainage improvements from NC 24 to SR 1459	Onslow
CU1 17	US 17 upgrade to freeway from US 17 Bypass in Jacksonville to Maysville	Onslow
R-4462	US 74/US 76 upgrade to interstate standards from Whiteville to the proposed US 17 Wilmington Bypass	Columbus, Brunswick
FS-1002A	US 70 widening from Morehead City to Beaufort Causeway	Carteret
SHC 341	US 70 upgrade to interstate standards from east of La Grange to Goldsboro Bypass	Lenoir
FS-1106B	US 74 upgrade to interstate standards from NC 41 in Lumberton to SR 1585 (Union Valley Road) in Columbus County	Robeson, Columbus

Source: AECOM/URS from FAF 3.1 and AECOM Delivered Cost Model

Note: CU = Conceptual Upgrade; SHC = Strategic Highway Corridor; FS = Feasibility Study. For more information, please refer to the "Project ID numbers explained" text below Table 12.

Construction and right-of-way costs of the highway corridor projects identified above are estimated as \$585 million and \$169 million, respectively. The total cost for highway network improvements for the wood pellets and other wood products scenario is \$754 million.

Combined with local access costs, total highway infrastructure costs for the wood pellet market scenario at Radio Island are estimated to be \$777 million.

Port of Wilmington

Local truck access to the Port of Wilmington will be enhanced by the completion of the Wilmington Bypass and anticipated construction of the Cape Fear Skyway toll facility. Although the Cape Fear Skyway is not programmed in the current STIP, it is anticipated to be paid for by toll revenues and was thus not included in capital cost estimates associated with the *North Carolina Maritime Strategy*.

For the Port of Wilmington site, I-140 and US 74/76 are the primary corridors that provide access from timber production areas in southeastern North Carolina. Highway improvements to US 74/76 are proposed to provide efficient highway connections to the port. These projects are listed below.

**Table 15: Detail of Highway Projects to Support Wood Access to Port of Wilmington**

<b>ID Number</b>	<b>Route</b>	<b>Description</b>	<b>County</b>
<b>FS-0803A</b>	US 17	US 17; widening from proposed I-140 to NC 133 (Village Road)	Brunswick
<b>FS-1106B</b>	US 74	US 74; upgrade to interstate standards from NC 41 in Lumberton to SR 1585 (Union Valley Road) in Columbus County	Robeson, Columbus
<b>R-4462</b>	US 74/US 76	US 74/US 76; upgrade to interstate standards from Whiteville to the proposed US 17 Wilmington Bypass	Columbus, Brunswick

Source: AECOM/URS from FAF 3.1 and AECOM Delivered Cost Model

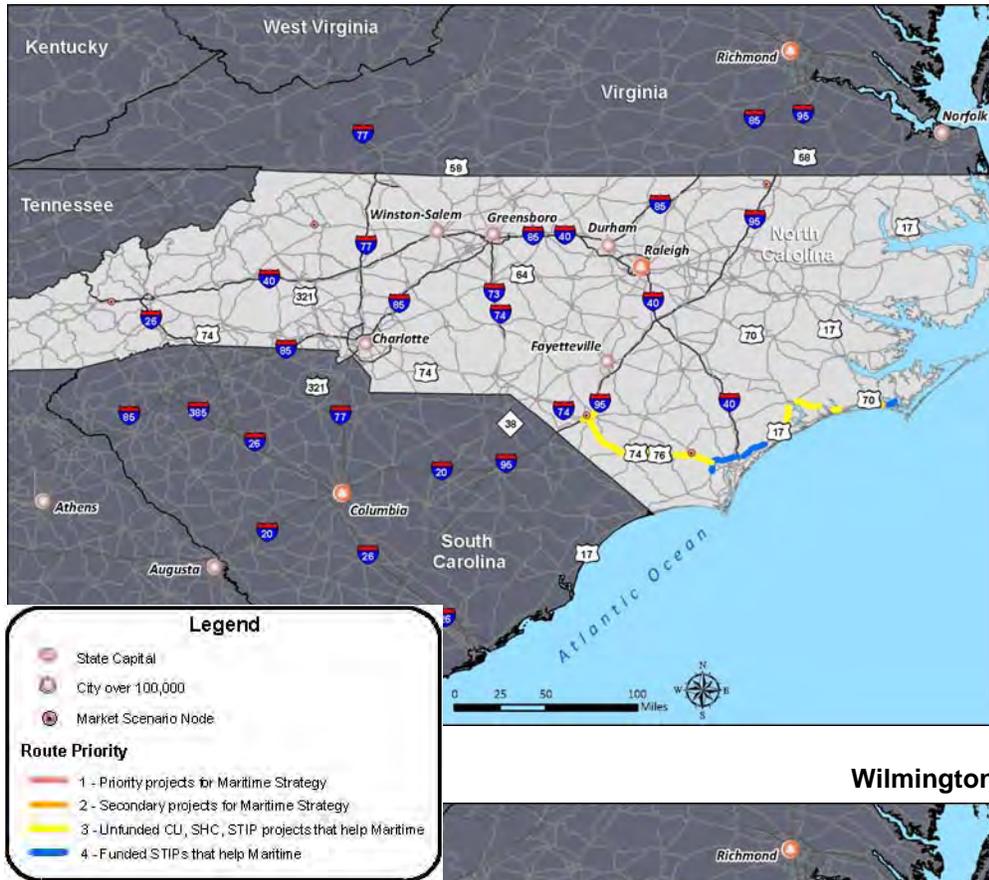
Note: CU = Conceptual Upgrade; SHC = Strategic Highway Corridor; FS = Feasibility Study. For more information, please refer to the "Project ID numbers explained" text below Table 12.

Construction and right-of-way costs of the highway corridor projects identified above are estimated as \$271 million and \$79 million, respectively.

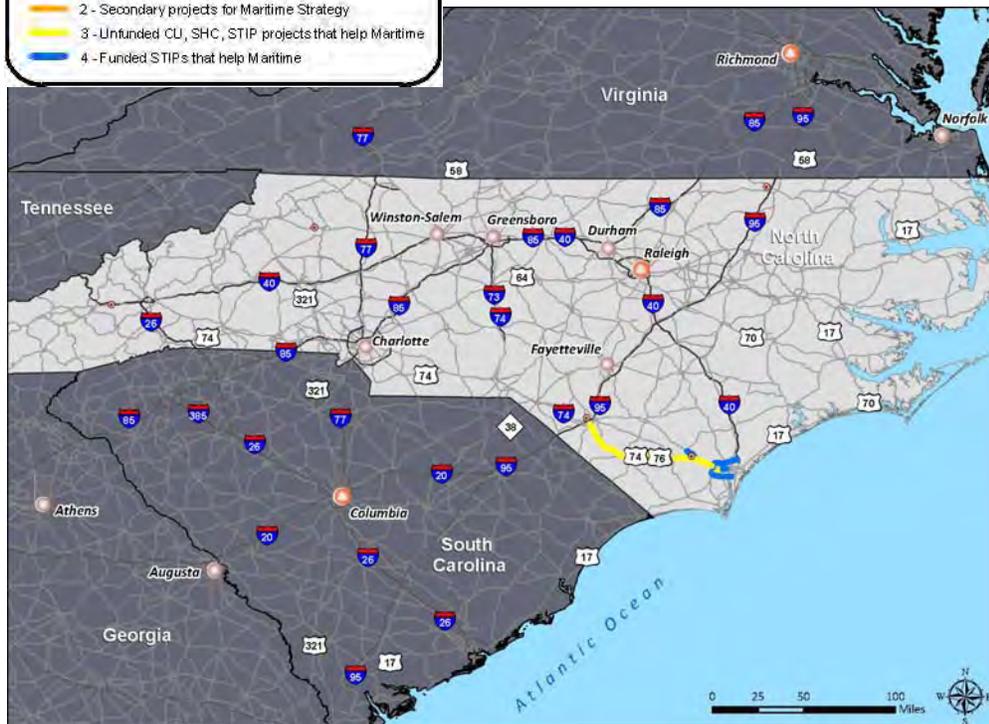
Total highway infrastructure costs associated with the wood pellets and wood products market scenario at the Port of Wilmington total \$350 million.

**Figure 6: Highway Network Improvements to Support Wood Products Market**

**Radio Island**



**Wilmington**



Source: AECOM/URS from ESRI, NCDOT, FAF v3.1, USGS ThematicMapping world borders dataset

## Containers

To support the transport of containers to and from major North Carolina markets in Charlotte, the Triad, and Triangle regions, upgrades to major corridors are proposed to connect those markets to each potential container terminal site. Recommended highway improvements supporting potential terminals at Radio Island, River Road, Port of Wilmington, and Southport are described below.

### Site 3 - Radio Island

Highway travel times from Radio Island to the container nodes are higher than those of competing ports (Charleston and Savannah) for all container nodes, except for the Triangle Region. Both Charlotte and the Triad would require transport by rail. To enhance access to Radio Island from the Triangle, and to enhance access to the interstate network, upgrades to US 70 would be required. To have a minimum of a four-lane expressway from Radio Island to the interstate system and onto the Triangle, unfunded projects such as the North Carteret Bypass and Kinston Bypass are needed. Other critical projects include the funded Havelock Bypass. These and other projects that would facilitate travel to and from a container terminal at Radio Island are listed below.

**Table 16: Detail of Highway Projects to Support Container Access to Site 3 – Radio Island**

ID Number	Route	Description	County
R-2829	Future NC 540	(Eastern Wake Freeway/ Triangle Expressway Southeast Extension/ Raleigh Outer Loop); new location from I-40 to US 64/US 264 Bypass	Wake, Johnston
SHC 139	I-40	widening from Wade Avenue to NC 147	Durham, Wake
SHC 158	I-40	widening from I-95 to NC 42	Johnston
SHC 153	I-40	widening from Lake Wheeler Road to I-440/US 1/ US 64	Wake
SHC 154	I-40	widening from I-440/US 64 to Lake Wheeler Road	Wake
I-5111BB	I-40	widening from I-95 to NC 42	Wake, Johnston
FS-1005A	I-40/US 64	widening, pavement, interchange mod, operation improvements from West of SR 1728 (Wade Avenue) to east of SR 1375 (Lake Wheeler Road)	Wake
CU1 24	NC 24	widening from Atlantic Beach Causeway to NC 24	Carteret
R-4431	New Route	new location (Havelock Bypass) to Beaufort	Carteret
FS-1002A	US 70	widening from Morehead City to Beaufort Causeway	Carteret
FS-0802B	US 70	access improvements from James City to proposed Havelock Bypass	Craven
SHC 336	US 70	upgrade to interstate standards from SR 1200 to Kinston Bypass	Craven, Jones
CU1 70	US 70	upgrade to interstate standards from Goldsboro Bypass to Selma Bypass	Johnston, Wayne
R-2553	US 70	new location (US 70 Kinston Bypass) from Craven County line to west of Kinston	Lenoir
SHC 341	US 70	upgrade to interstate standards from east of La Grange to Goldsboro Bypass	Lenoir
SHC 357	US 70	upgrade to interstate standards from Kinston Bypass to LaGrange Bypass	Lenoir
CU1 95	I-95	widening from I-40 to Virginia state line	New Hanover, Pender
CU2 70	US 70	Selma Bypass at US 70/I-95	Wake, Johnston

Source: AECOM/URS from FAF 3.1 and AECOM Delivered Cost Model

Note: CU = Conceptual Upgrade; SHC = Strategic Highway Corridor; FS = Feasibility Study. For more information, please refer to the "Project ID numbers explained" text below Table 12.

In addition to improvements to these highway corridors, the local highway connection to provide access from US 70 to Radio Island (as described in the Grain and Wood market scenarios) is needed. Local access to Radio Island is estimated to cost \$23 million (\$18 million for construction and \$5 million for right-of-way).

Construction and right-of-way costs of the highway corridor projects identified above are estimated as \$2.487 billion and \$721 million, respectively (for a total of \$3.208 billion).

Including local access costs, total highway infrastructure costs associated with the container market scenario at Radio Island are estimated at \$3.231 billion.

Site 4 – River Road

In 2040, with highway infrastructure improvements, the River Road container terminal site provides shorter travel times than competing ports (Savannah, Charleston, and Norfolk) to the markets of the Triangle, Triad, and Charlotte; however, travel times to portions of the Triangle suggest that Norfolk may be able to reach eastern portions of the Triangle with a similar travel time. To further enhance access to each of these regions, improvements to I-40 at various locations between Wilmington and Durham, completion of the I-73/74 interstate corridor, and improvements to US 74 between Rockingham and Monroe are included. Currently unfunded projects that would enhance access to this potential port location are listed below.

**Table 17: Detail of Highway Projects to Support Container Access to Site 4 – River Road**

ID Number	Route	Description	County
I-3801	Future I-74/US 74	upgrade to interstate standards from Rockingham-Hamlet Bypass to Laurinburg Bypass	Richmond, Scotland
R-2829	Future NC 540	(Eastern Wake Freeway/ Triangle Expressway Southeast Extension/ Raleigh Outer Loop); new location from I-40 to US 64/US 264 Bypass	Wake, Johnston
CU2 I-40	I-40	widening NC 24 segment Exit 364 to 373	Duplin
SHC 139	I-40	widening from Wade Avenue to NC 147	Durham, Wake
FS-1104B	I-40	widening from NC 42 to NC 210	Johnston
SHC 158	I-40	widening from I-95 to NC 42	Johnston
CU1 I-40	I-40	widening Exit 398 (NC 53) to Exit 416 (US 17)	New Hanover, Pender
SHC 153	I-40	widening from Lake Wheeler Road to I-440/US 1/ US 64	Wake
SHC 154	I-40	widening from I-440/US 64 to Lake Wheeler Road	Wake
I-5111BB	I-40	widening from I-95 to NC 42	Wake, Johnston
FS-1005A	I-40/US 64	widening, pavement, interchange mod, operation improvements from West of SR 1728 (Wade Avenue) to east of SR 1375 (Lake Wheeler Road)	Wake
CU1 73	I-73	widening from US 220 Bus in Asheboro to SR 2269	Randolph
SHC 264	I-73	widening from US 220 Bus in Asheboro to SR 2269	Randolph
UFSTIP 133	NC 133	widening from Cape Fear Skyway to US 17/US 74/US 76	Brunswick
FS-1106B	US 74	upgrade to interstate standards from NC 41 in Lumberton to SR 1585 (Union Valley Road) in Columbus County	Robeson, Columbus
R-4441	US 74	upgrade to freeway standards with bypass of Wadesboro from Monroe Bypass (F-2559) to Rockingham Bypass (R-512)	Union, Anson
R-4462	US 74/US 76	upgrade to interstate standards from Whiteville to the proposed US 17 Wilmington Bypass	Columbus, Brunswick

Source: AECOM/URS from FAF 3.1 and AECOM Delivered Cost Model

Note: CU = Conceptual Upgrade; SHC = Strategic Highway Corridor; FS = Feasibility Study. For more information, please refer to the “Project ID numbers explained” text below Table 12.



would also provide better local access. Currently unfunded projects that would enhance access to the Port of Wilmington are listed in Table 18.

**Table 18: Detail of Highway Projects to Support Container Access to Site 4 – Port of Wilmington**

ID Number	Route	Description	County
I-3801	Future I-74/US 74	upgrade to interstate standards from Rockingham-Hamlet Bypass to Laurinburg Bypass	Richmond, Scotland
R-2829	Future NC 540	(Eastern Wake Freeway/ Triangle Expressway Southeast Extension/ Raleigh Outer Loop); new location from I-40 to US 64/US 264 Bypass	Wake, Johnston
CU2 I-40	I-40	widening NC 24 segment Exit 364 to 373	Duplin
SHC 139	I-40	widening from Wade Avenue to NC 147	Durham, Wake
SHC 158	I-40	widening from I-95 to NC 42	Johnston
CU1 I-40	I-40	widening Exit 398 (NC 53) to Exit 416 (US 17)	New Hanover, Pender
SHC 153	I-40	widening from Lake Wheeler Road to I-440/US 1/ US 64	Wake
SHC 154	I-40	widening from I-440/US 64 to Lake Wheeler Road	Wake
I-5111BB	I-40	widening from I-95 to NC 42	Wake, Johnston
FS-1005A	I-40/US 64	widening, pavement, interchange mod, operation improvements from West of SR 1728 (Wade Avenue) to east of SR 1375 (Lake Wheeler Road)	Wake
CU1 73	I-73	widening from US 220 Bus in Asheboro to SR 2269	Randolph
SHC 264	I-73	widening from US 220 Bus in Asheboro to SR 2269	Randolph
FS-0803A	US 17	widening from proposed I-140 to NC 133 (Village Road)	Brunswick
FS-1106B	US 74	upgrade to interstate standards from NC 41 in Lumberton to SR 1585 (Union Valley Road) in Columbus County	Robeson, Columbus
R-4441	US 74	upgrade to freeway standards with bypass of Wadesboro from Monroe Bypass (F-2559) to Rockingham Bypass (R-512)	Union, Anson
R-4462	US 74/US 76	upgrade to interstate standards from Whiteville to the proposed US 17 Wilmington Bypass	Columbus, Brunswick

Source: AECOM/URS from FAF 3.1 and AECOM Delivered Cost Model

Note: CU = Conceptual Upgrade; SHC = Strategic Highway Corridor; FS = Feasibility Study. For more information, please refer to the "Project ID numbers explained" text below Table 12.

Construction and right-of-way costs of the highway corridor projects identified above are estimated as \$2.242 billion and \$650 million, respectively. Total highway infrastructure costs associated with the container market scenario at the Port of Wilmington total \$2.892 billion.

#### Site 6 - Southport

Access to the proposed site from I-40 and I-95 would be accomplished using I-140 to US 421 to US 17 and to an improved NC 87, with a bypass of Boiling Springs Lakes. The improvements to NC 87 and bypass of Boiling Springs Lakes are identified Strategic Highway Corridor projects, but they are currently unfunded. Currently unfunded projects that should be considered to enhance access to this potential port location are listed below:

**Table 19: Detail of Highway Projects to Support Container Access to Site 6 – Southport**

ID Number	Route	Description	County
I-3801	Future I-74/US 74	Future I-74/US 74; upgrade to interstate standards from Rockingham-Hamlet Bypass to Laurinburg Bypass	Richmond, Scotland
R-2829	Future NC 540	(Eastern Wake Freeway/ Triangle Expressway Southeast Extension/ Raleigh Outer Loop); new location from I-40 to US 64/US 264 Bypass	Wake, Johnston
CU2 I-40	I-40	widening NC 24 segment Exit 364 to 373	Duplin
SHC 139	I-40	widening from Wade Avenue to NC 147	Durham, Wake
SHC 158	I-40	widening from I-95 to NC 42	Johnston
CU1 I-40	I-40	widening Exit 398 (NC 53) to Exit 416 (US 17)	New Hanover, Pender
SHC 153	I-40	widening from Lake Wheeler Road to I-440/US 1/ US 64	Wake
SHC 154	I-40	widening from I-440/US 64 to Lake Wheeler Road	Wake
I-5111BB	I-40	widening from I-95 to NC 42	Wake, Johnston
FS-1005A	I-40/US 64	widening, pavement, interchange mod, operation improvements from West of SR 1728 (Wade Avenue) to east of SR 1375 (Lake Wheeler Road)	Wake
CU1 73	I-73	widening from US 220 Bus in Asheboro to SR 2269	Randolph
SHC 264	I-73	widening from US 220 Bus in Asheboro to SR 2269	Randolph
SHC353-354	NC 87	widening from US 17 to NC 133	Brunswick, New Hanover
CU1 S87U17	NC 87/US 17	widening from NC 87 to I-140	Brunswick
SHC 352	NC 87/US 17	widening from NC 211 to N of Orton Creek	Brunswick
FS-0803A	US 17	widening from proposed I-140 to NC 133 (Village Road)	Brunswick
FS-1106B	US 74	upgrade to interstate standards from NC 41 in Lumberton to SR 1585 (Union Valley Road) in Columbus County	Robeson, Columbus
R-4441	US 74	upgrade to freeway standards with bypass of Wadesboro from Monroe Bypass (F-2559) to Rockingham Bypass (R-512)	Union, Anson
R-4462	US 74/US 76	upgrade to interstate standards from Whiteville to the proposed US 17 Wilmington Bypass	Columbus, Brunswick

Source: AECOM/URS from FAF 3.1 and AECOM Delivered Cost Model

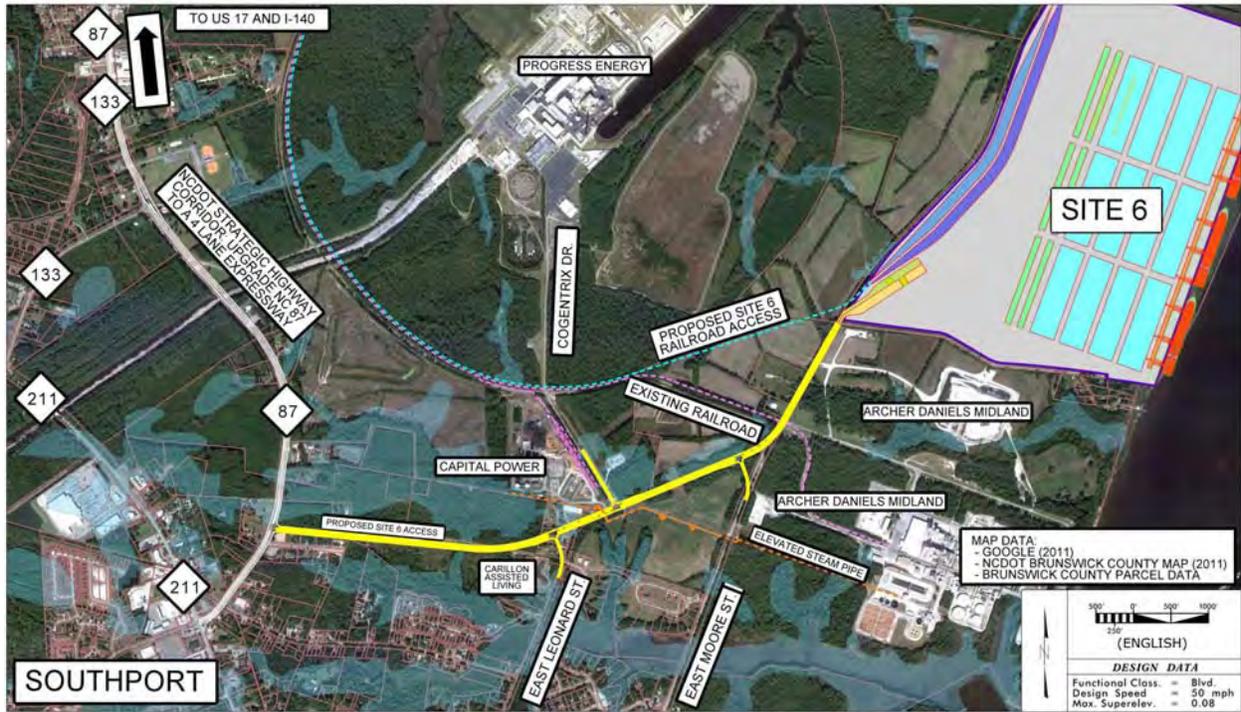
Note: CU = Conceptual Upgrade; SHC = Strategic Highway Corridor; FS = Feasibility Study. For more information, please refer to the “Project ID numbers explained” text below Table 12.

In addition, a connection similar to that shown in Figure 8 would provide access to the container terminal from NC 87. Construction and right-of-way costs for the connection shown in Figure 8 are estimated as \$13 million and \$3.77 million, respectively (for a total of \$16.7 million). This estimate is included in Appendix VII of the *Capital Costs* technical memorandum.

Construction and right-of-way costs for the highway network improvements identified in Table 19 are estimated as \$2.483 billion and \$720.07 million, respectively (for a total of \$3.203 billion).

Including costs to provide local road access, highway infrastructure costs associated with the container market scenario at the potential Southport site total \$3.220 billion.

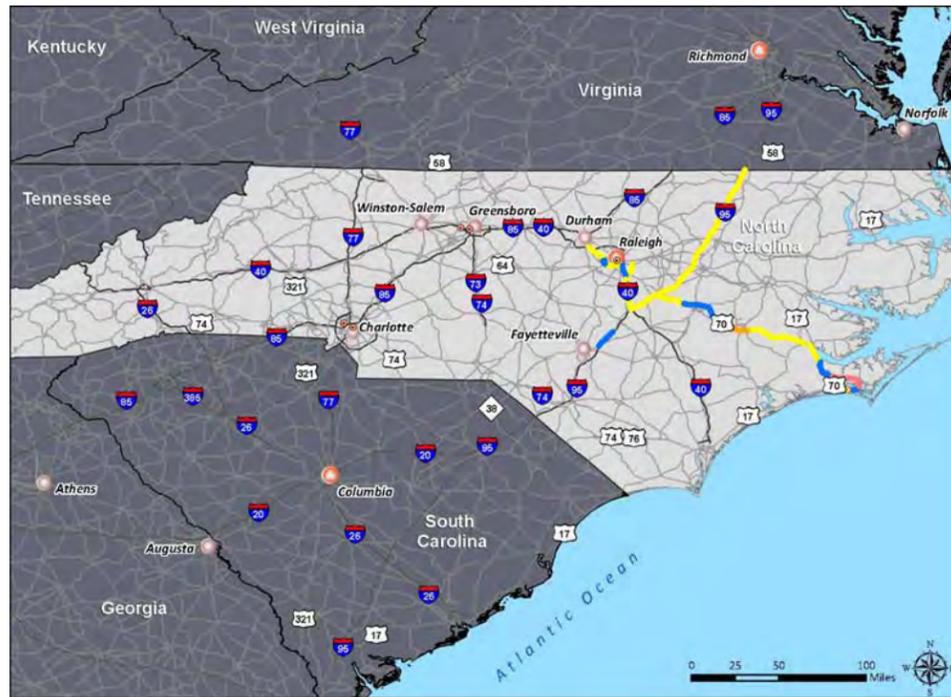
**Figure 8: Highway Access to Site 6 – Southport**



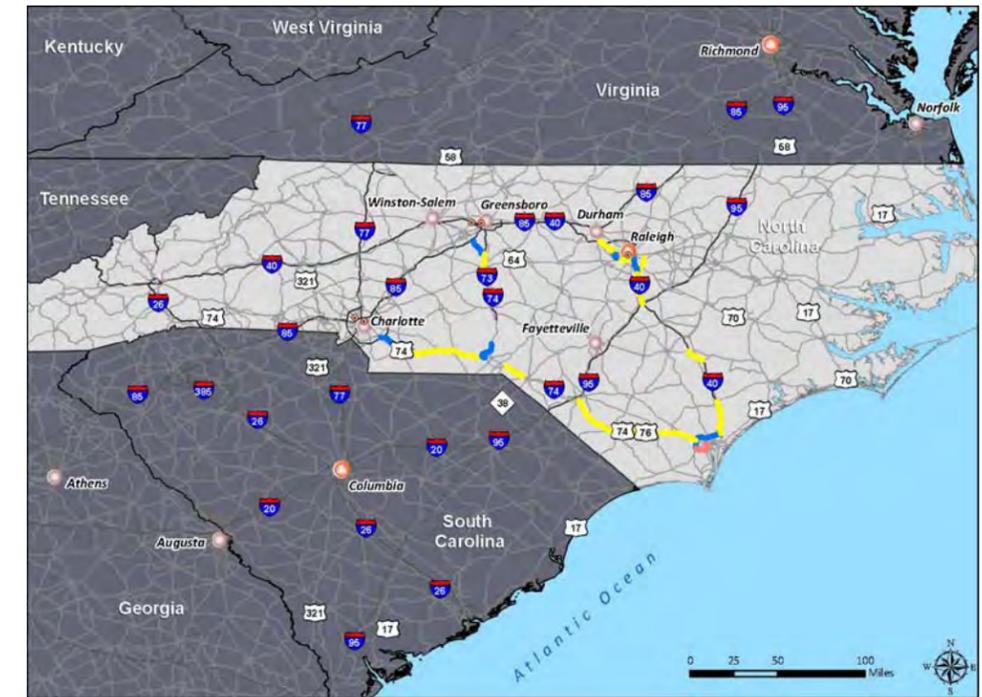
Source: AECOM/URS with ESRI, I-Cubed Imagery

Figure 9: Highway Network Improvements to Support Container Market

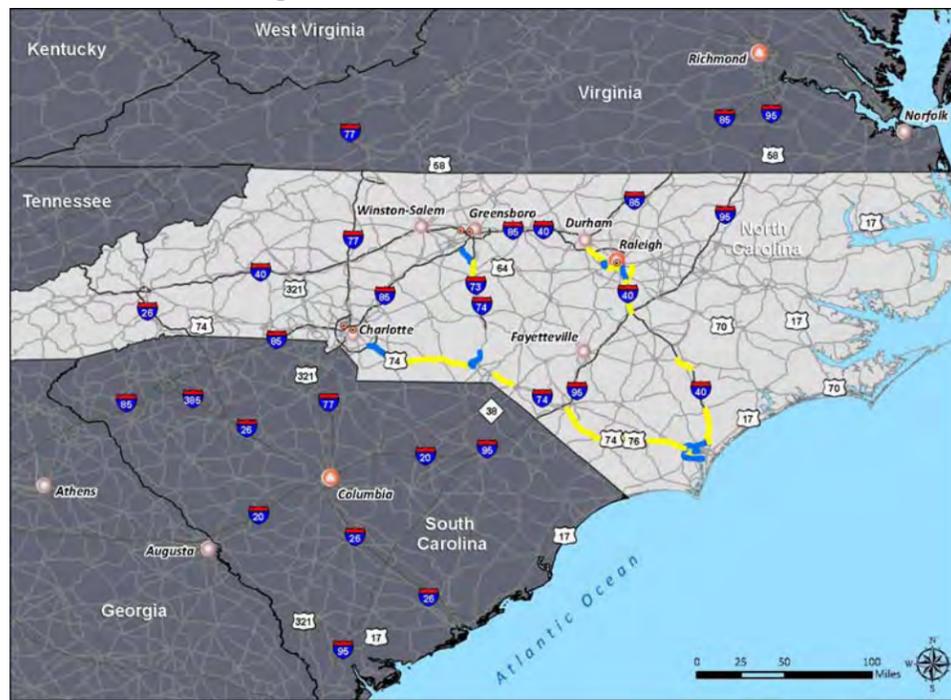
Site 3 – Radio Island



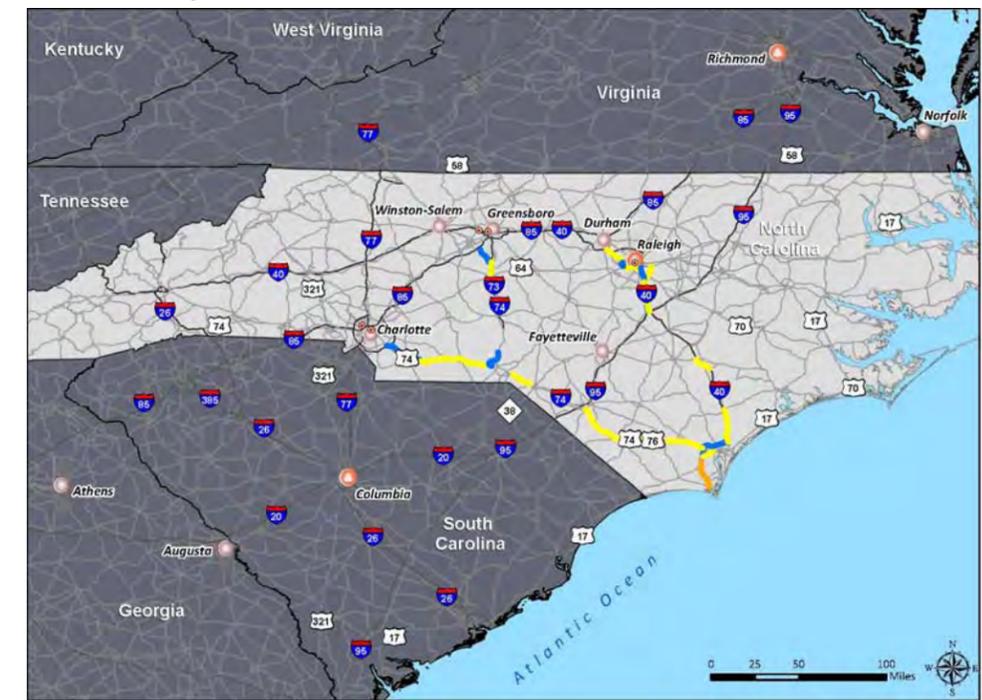
Site 4 – River Road



Site 5 – Port of Wilmington



Site 6 – Southport



**Legend**

- State Capital
- City over 100,000
- Market Scenario Node

**Route Priority**

- 1 - Priority projects for Maritime Strategy
- 2 - Secondary projects for Maritime Strategy
- 3 - Unfunded CU, SHC, STIP projects that help Maritime
- 4 - Funded STIPs that help Maritime

Source: AECOM/URS from ESRI, NCDOT, FAF v3.1, USGS ThematicMapping world borders dataset

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## Cold Storage

No inland highway infrastructure costs were incorporated into estimates for facilities supporting the Cold Storage market scenario.

## Ro/Ro and Oversize Cargo

Highway investments were targeted to improve access from manufacturing centers in the Triangle region, Kinston, and other sites in the eastern Piedmont to potential port locations. Due to the size and weight of this cargo, it is assumed that transport to and from points further west would be supported by rail.

### Radio Island

Key improvements to enhance access to the Port of Morehead City – Radio Island include the North Carteret Bypass and Kinston Bypass. Additional improvements to US 70, I-40, NC 42, US 401, and US 421 have been identified. Currently unfunded projects included in cost estimates for this scenario are listed below. Proposed highway network improvements to support the transport of Ro/Ro and oversize goods are illustrated in Figure 10.

**Table 20: Detail of Highway Projects to Support Ro/Ro and Oversize Access to Radio Island**

ID Number	Route	Description	County
SHC 139	I-40	widening from Wade Avenue to NC 147	Durham, Wake
SHC 153	I-40	widening from Lake Wheeler Road to I-440/US 1/ US 64	Wake
SHC 154	I-40	widening from I-440/US 64 to Lake Wheeler Road	Wake
I-5111BB	I-40	widening from I-95 to NC 42	Wake, Johnston
FS-1005A	I-40/US 64	widening, pavement, interchange mod, operation improvements from West of SR 1728 (Wade Avenue) to east of SR 1375 (Lake Wheeler Road)	Wake
CU2 24	NC 24	widening from NC 58 to White Oak River	Carteret
CU3 24	NC 24	widening lanes from NC 172 to FS-1103A	Onslow
FS-1103A	NC 24	access management and drainage improvements from NC 24 to SR 1459	Onslow
R-3410	NC 42	widening from NC 50 to US 70	Johnston
CU1 42	NC 42	widening from Fuquay Varina to NC 50	Wake, Johnston
R-4431	New Route	new location (Havelock Bypass) to Beaufort	Carteret
R-2609	US 401	widening from North of Fayetteville to Fuquay Varina	Wake, Harnett, Cumberland
UF STIP	US 421	widening from Sanford to US 401	Harnett, Lee
FS-0802B	US 70	access improvements from James City to proposed Havelock Bypass	Craven
SHC 336	US 70	upgrade to interstate standards from SR 1200 to Kinston Bypass	Craven, Jones
CU3 70	US 70	upgrade to interstate standards from Buffalo Road to Clayton Bypass	Johnston
CU1 70	US 70	upgrade to interstate standards from Goldsboro Bypass to Selma Bypass	Johnston, Wayne
R-2553	US 70	new location (US 70 Kinston Bypass) from Craven County line to west of Kinston	Lenoir
SHC 341	US 70	upgrade to interstate standards from east of La Grange to Goldsboro Bypass	Lenoir
CU2 70	US 70	Selma Bypass at US 70/I-95	Wake, Johnston

Source: AECOM/URS from FAF 3.1 and AECOM Delivered Cost Model

Note: CU = Conceptual Upgrade; SHC = Strategic Highway Corridor; FS = Feasibility Study. For more information, please refer to the "Project ID numbers explained" text below Table 12.

In addition to improvements to these highway corridors, the local highway connection to provide access from US 70 to Radio Island (as described in the Grain and Wood Market Scenarios) is needed. Local access to Radio Island is estimated to cost \$23 million (\$18 million for construction and \$5 million for right-of-way).

Construction and right-of-way costs of the highway corridor projects identified in Table 20 above are estimated as \$1.672 billion and \$485 million, respectively (for a total of \$2.157 billion). Including local access costs, total highway infrastructure costs associated with the Ro/Ro and Oversize market scenario at Radio Island are estimated as \$2.180 billion.

### Wilmington

Key improvements to enhance access to the Port of Wilmington to market scenario nodes include US 74/76, I-40, and US 17 to US 258. Currently unfunded projects included in cost estimates for this scenario are listed below.

**Table 21: Detail of Highway Projects to Support Ro/Ro and Oversize Access to Wilmington**

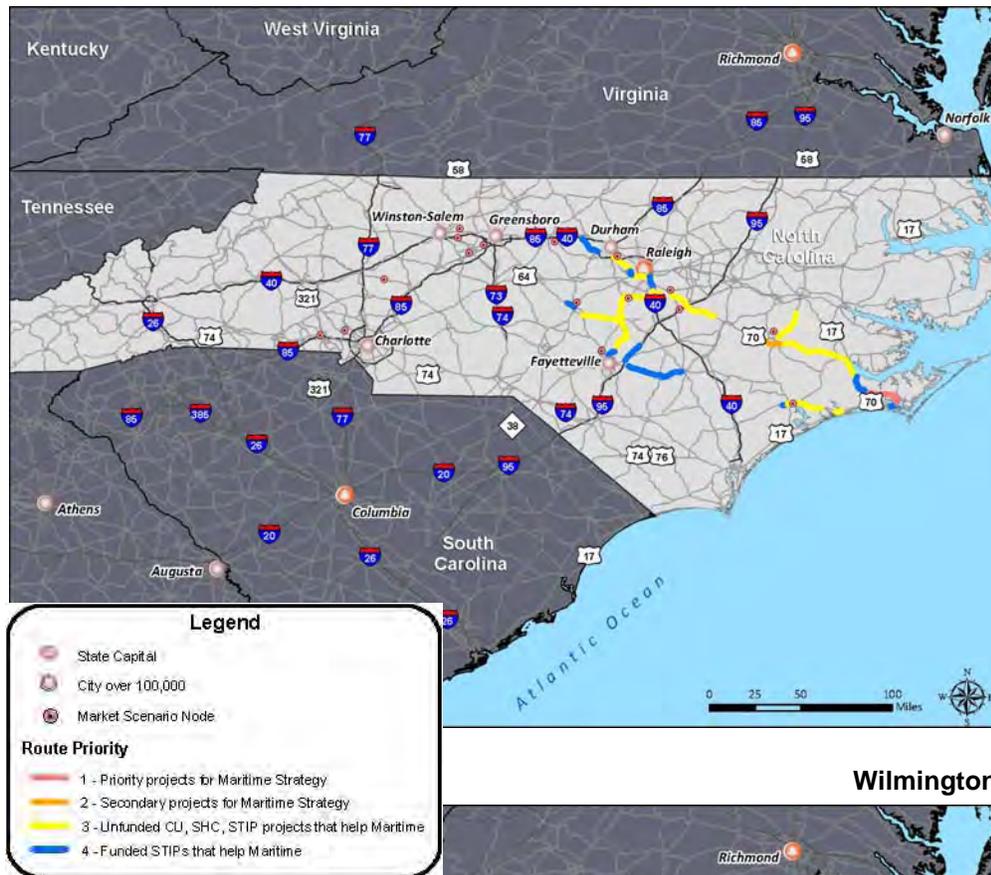
ID Number	Route	Description	County
CU2 I-40	I-40	widening NC 24 segment Exit 364 to 373	Duplin
SHC 139	I-40	widening from Wade Avenue to NC 147	Durham, Wake
SHC 158	I-40	widening from I-95 to NC 42	Johnston
CU1 I-40	I-40	widening Exit 398 (NC 53) to Exit 416 (US 17)	New Hanover, Pender
SHC 153	I-40	widening from Lake Wheeler Road to I-440/US 1/ US 64	Wake
SHC 154	I-40	widening from I-440/US 64 to Lake Wheeler Road	Wake
I-5111BB	I-40	widening from I-95 to NC 42	Wake, Johnston
FS-1005A	I-40/US 64	widening, pavement, interchange mod, operation improvements from West of SR 1728 (Wade Avenue) to east of SR 1375 (Lake Wheeler Road)	Wake
CU4 24	NC 24	widening from NC 24 Business to NC 111	Onslow
R-3410	NC 42	widening from NC 50 to US 70	Johnston
CU1 42	NC 42	widening from Fuquay Varina to NC 50	Wake, Johnston
FS-0803A	US 17	widening from proposed I-140 to NC 133 (Village Road)	Brunswick
CU1 17	US 17	upgrade to freeway from US 17 Bypass in Jacksonville to Maysville	Onslow
CU2 258	US 17/US 258	widening from NC 24 Business to NC 111	Onslow
R-2609	US 401	widening from North of Fayetteville to Fuquay Varina	Wake, Harnett, Cumberland
UF STIP	US 421	widening from Sanford to US 401	Harnett, Lee
CU3 70	US 70	upgrade to interstate standards from Buffalo Road to Clayton Bypass	Johnston
CU2 70	US 70	Selma Bypass at US 70/I-95	Wake, Johnston
FS-1106B	US 74	upgrade to interstate standards from NC 41 in Lumberton to SR 1585 (Union Valley Road) in Columbus County	Robeson, Columbus
R-4462	US 74/US 76	upgrade to interstate standards from Whiteville to the proposed US 17 Wilmington Bypass	Columbus, Brunswick

Source: AECOM/URS from FAF 3.1 and AECOM Delivered Cost Model

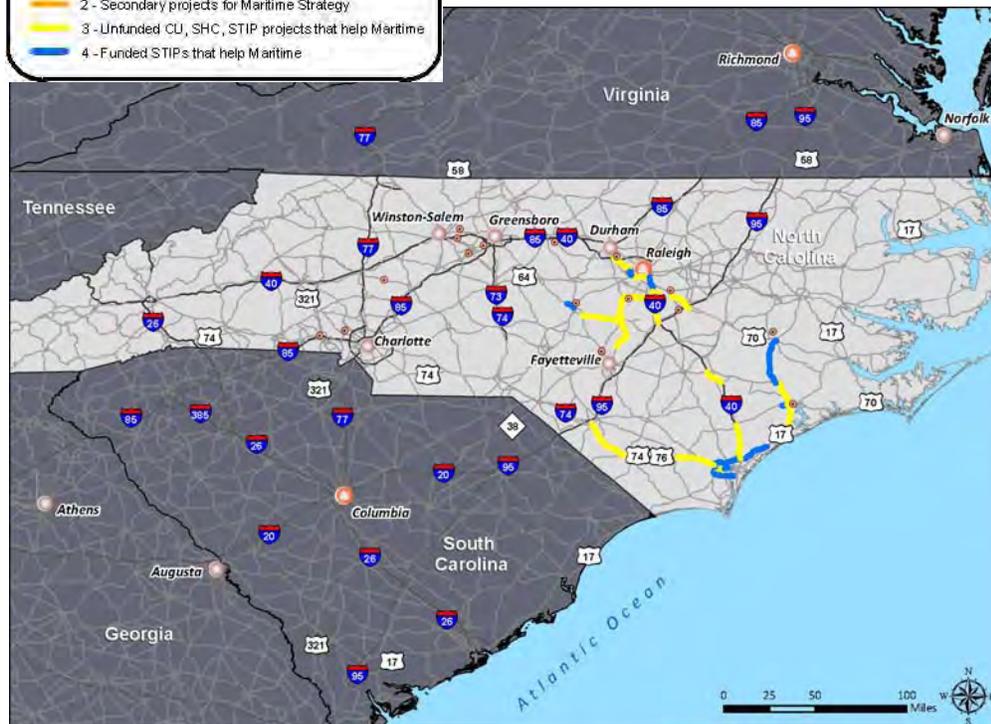
Note: CU = Conceptual Upgrade; SHC = Strategic Highway Corridor; FS = Feasibility Study. For more information, please refer to the "Project ID numbers explained" text below Table 12.

Construction and right-of-way costs of the highway corridor projects identified above are estimated as \$1.833 billion and \$532 million, respectively. Total highway infrastructure costs associated with the Ro/Ro and Oversize market scenario at the Port of Wilmington total \$2.365 billion.

**Figure 10: Highway Network Improvements to Support Ro/Ro and Oversize Market  
Radio Island**



**Wilmington**



Source: AECOM/URS from ESRI, NCDOT, FAF v3.1, USGS ThematicMapping world borders dataset

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## 7 HIGHWAY PROJECT DATA USED IN BENEFIT CALCULATIONS

The highway infrastructure projects identified in the *North Carolina Maritime Strategy* will have benefits to other users beyond maritime shippers. Other road users will benefit from travel time savings and safety benefits associated with the introduction of medians on widened roadways. These benefits are described in more detail in the technical memorandum entitled *Economic Impact and Benefit Cost Assessment of Market Scenario Outcomes*. Table 22 presents data associated with the highway projects identified each port location and market scenario. This data was subsequently used to estimate road-user benefits (as described in *Economic Impact and Benefit Cost Assessment of Market Scenario Outcomes*). Average daily traffic information was obtained from the Freight Analysis Framework database.

In the table below, each line combines all of the highway projects that would be needed at either the Port of Wilmington or Port of Morehead City to pursue each market scenario.

**Table 22: Highway Project Data Used in Non-Shipper Road User Benefits**

Port	Market Scenario	Total Length (mi)	Total New Lane Miles	Total New Median Miles	Avg ADT on Median	Avg ADT 2040 (estimated)	VMT in 2040	Total Travel Time Savings (annual hours)
Wilmington	Containers	191.68	395.58	-	n/a	55,722	10,680,616.27	359,542,194.84
	Grain	73.94	38.95	11.53	32,638	29,661	2,193,233.54	101,214,546.77
	Ro/Ro	221.45	341.56	31.01	18,772	52,159	11,550,407.76	385,547,733.51
	Wood	48.66	11.45	-	n/a	28,906	1,406,666.30	44,412,790.77
Morehead City	Containers	241.61	447.97	-	n/a	59,948	14,484,256.67	331,872,201.69
	Grain	148.77	114.51	18.54	38,152	30,165	4,487,724.72	131,372,465.74
	Ro/Ro	200.58	308.56	26.49	20,262	54,330	10,897,418.81	288,344,570.83
	Wood	88.17	55.56	18.54	38,152	37,951	3,346,056.16	81,030,449.21
Southport	Containers	211.06	466.56	-	n/a	52,423	11,064,258.89	307,538,307.32
River Road	Containers	195.54	413.71	-	n/a	55,238	10,800,887.59	467,344,478.52

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## **APPENDICES**

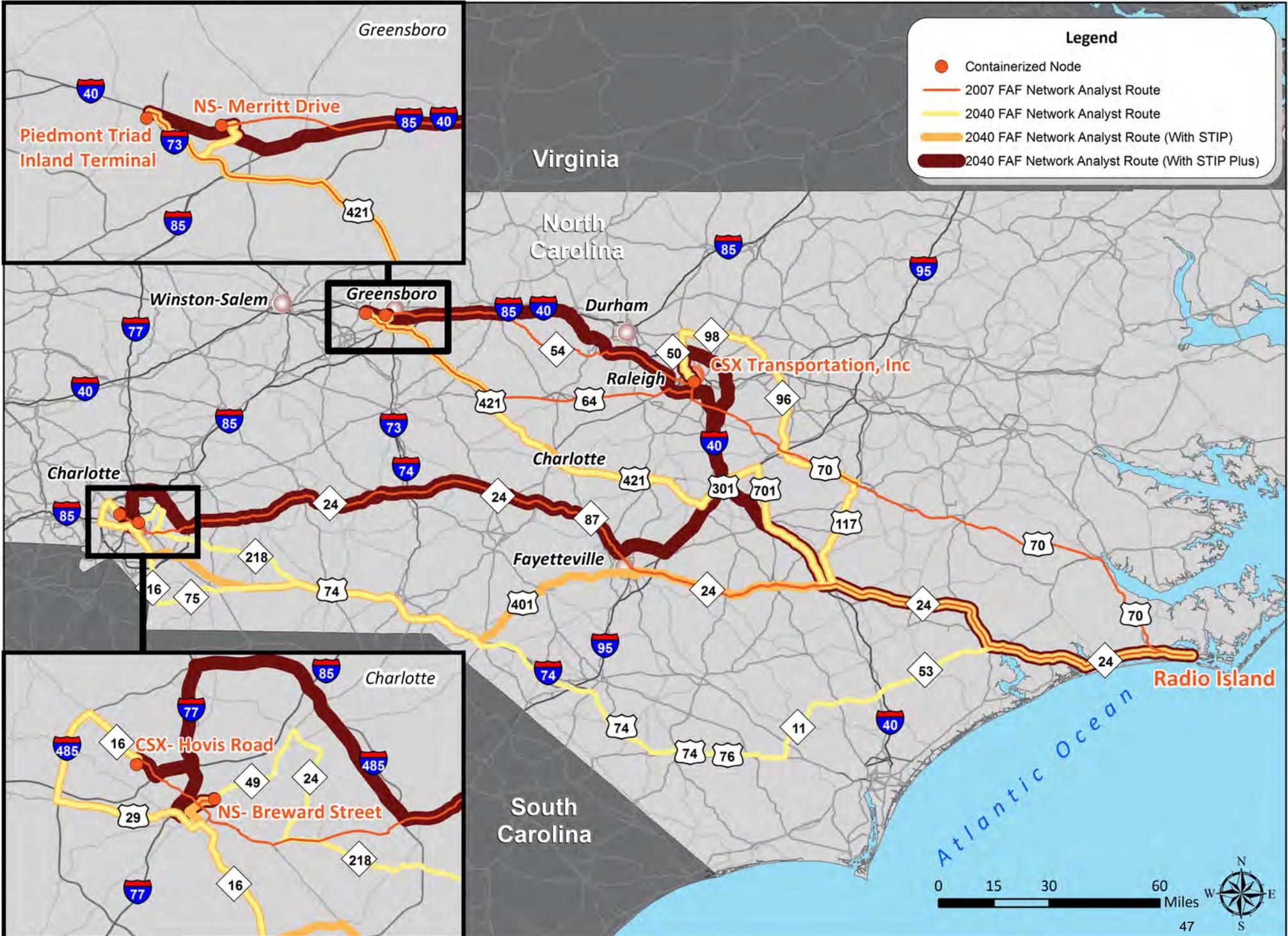
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- I. Routes Identified Using Network Analyst
- II. Summary of Projects Included in Network Analyst Model

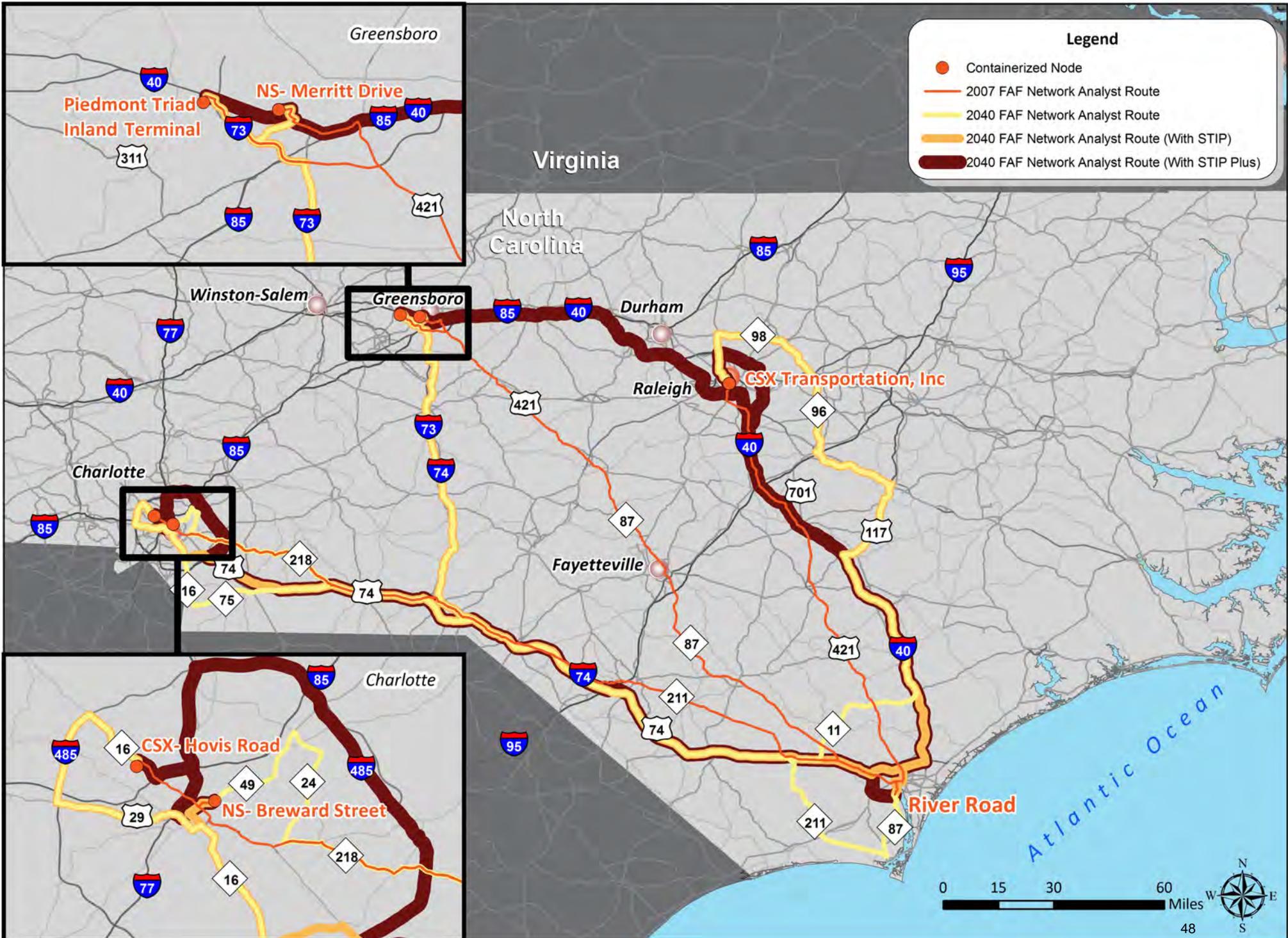
**APPENDIX I ROUTES IDENTIFIED USING NETWORK ANALYST**

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# Containerized Cargo Network Analyst Route Evaluation From Radio Island

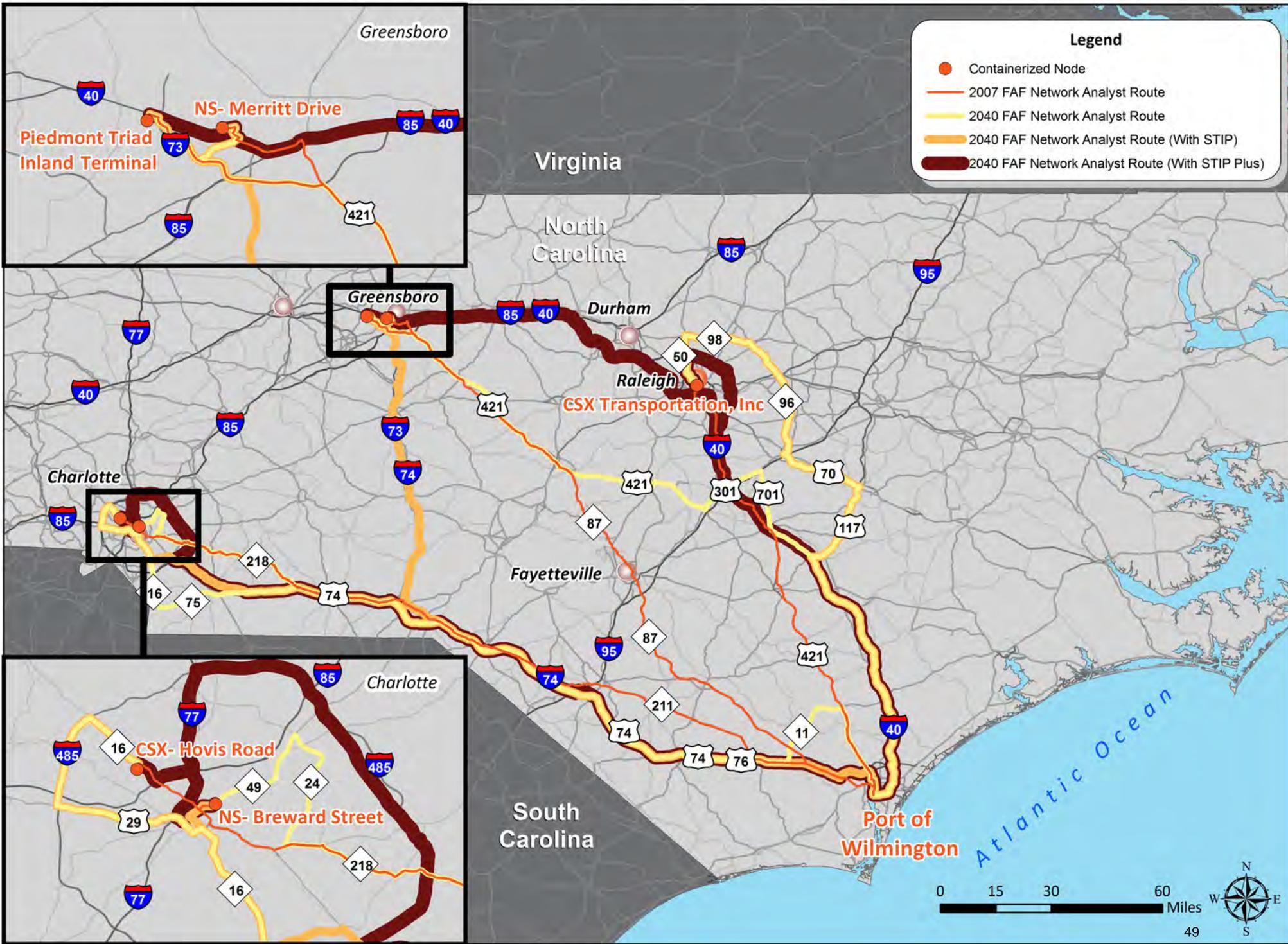


# Containerized Cargo Network Analyst Evaluation From River Road



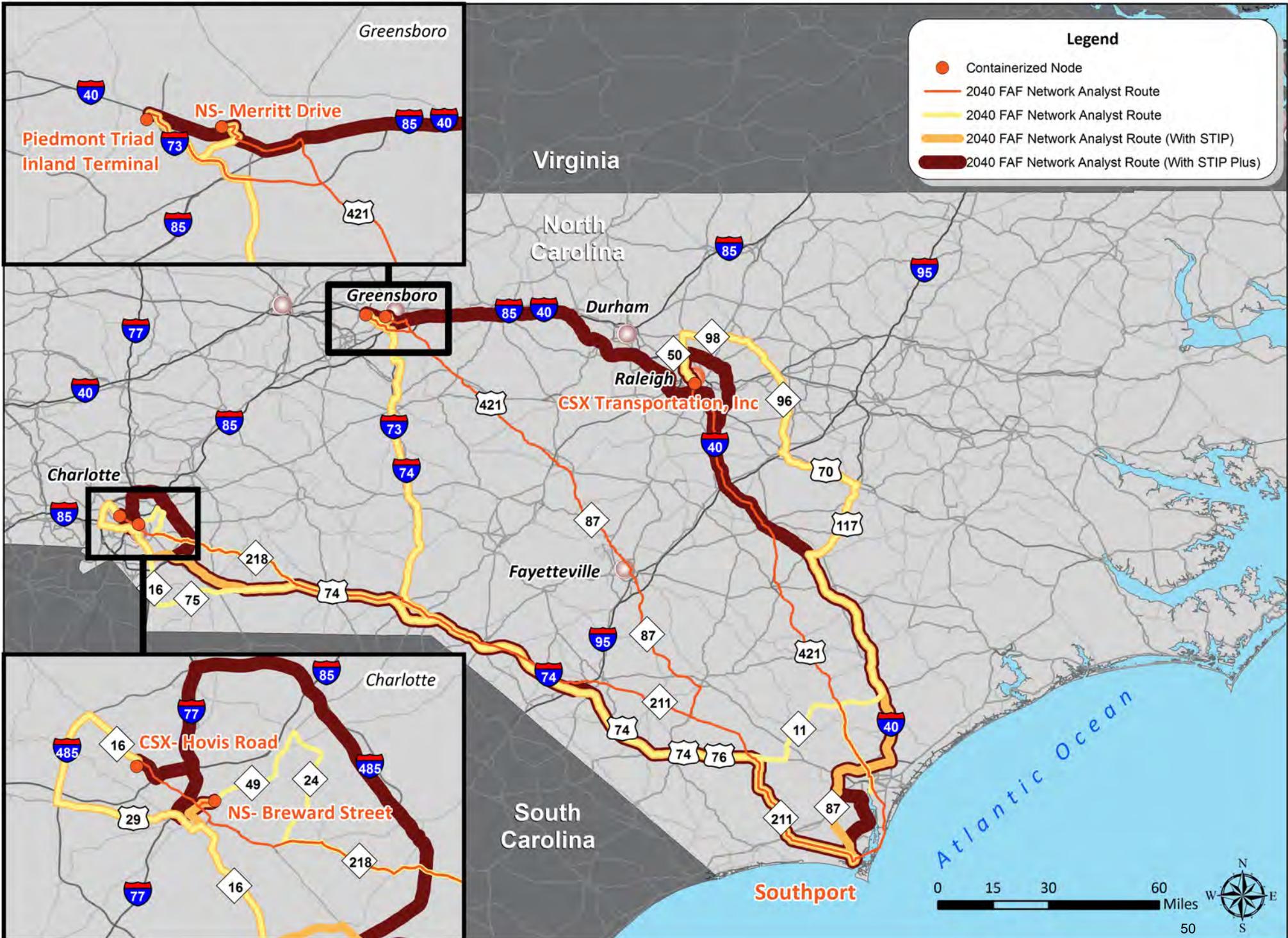
Source: ESRI, NCDOT, USDOT Freight Analysis Framework v3.1, USGS ThematicMapping world borders dataset

# Containerized Cargo Network Analyst Route Evaluation From Port of Wilmington

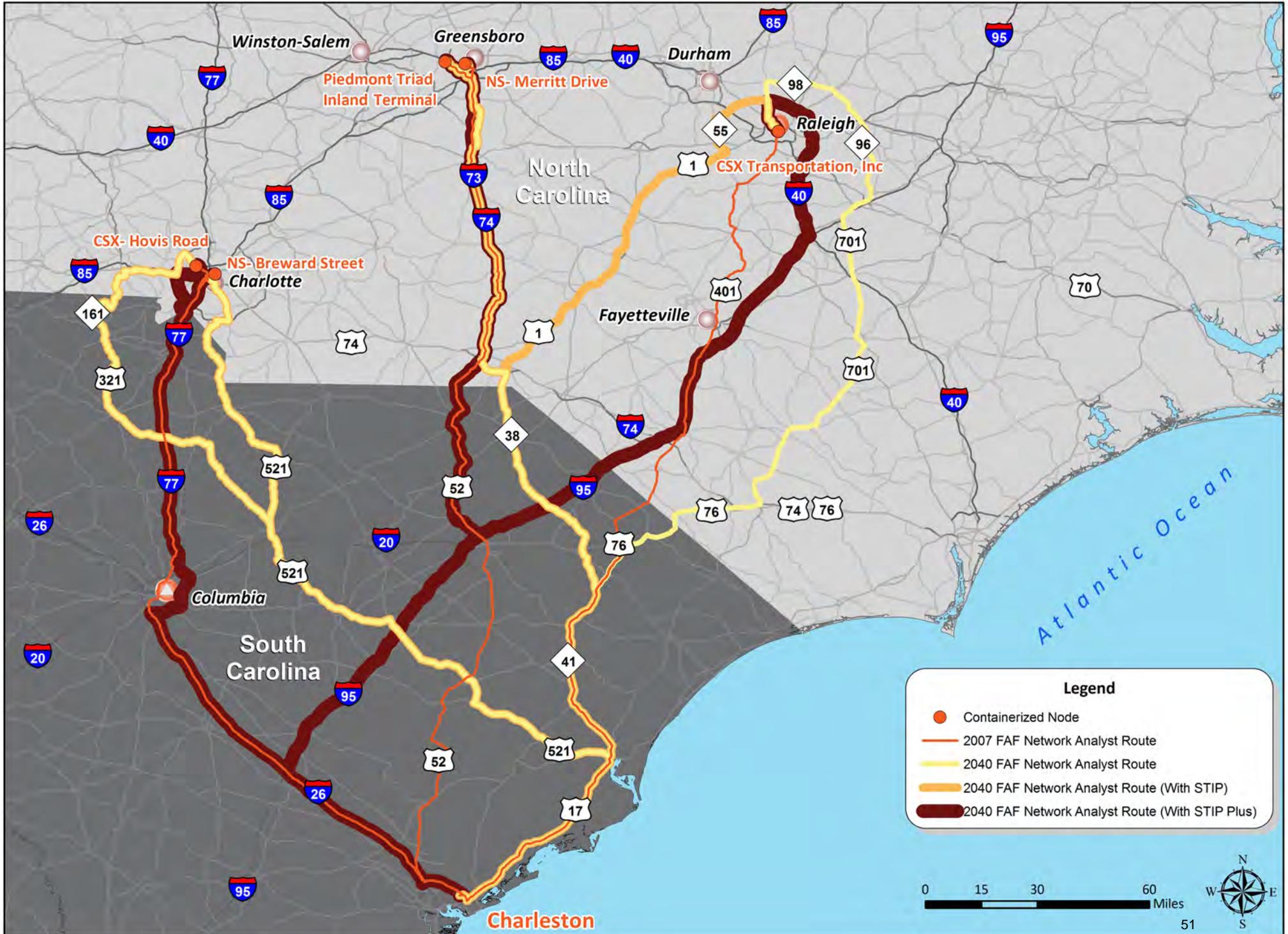


Source: ESRI, NCDOT, USDOT Freight Analysis Framework v3.1, USGS ThematicMapping world borders dataset

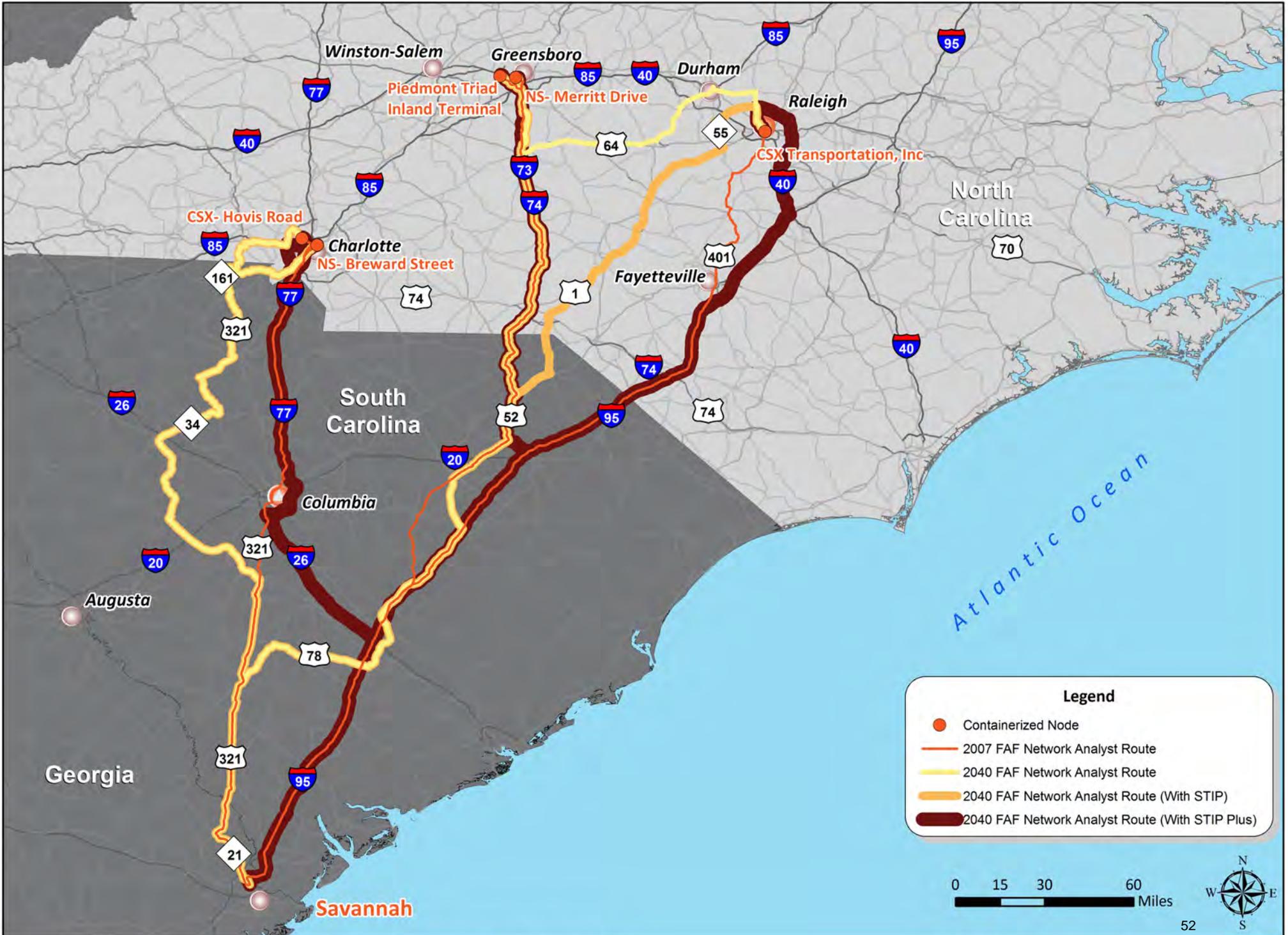
# Containerized Cargo Network Analyst Route Evaluation From Southport



# Containerized Cargo Network Analyst Route Evaluation From Charleston



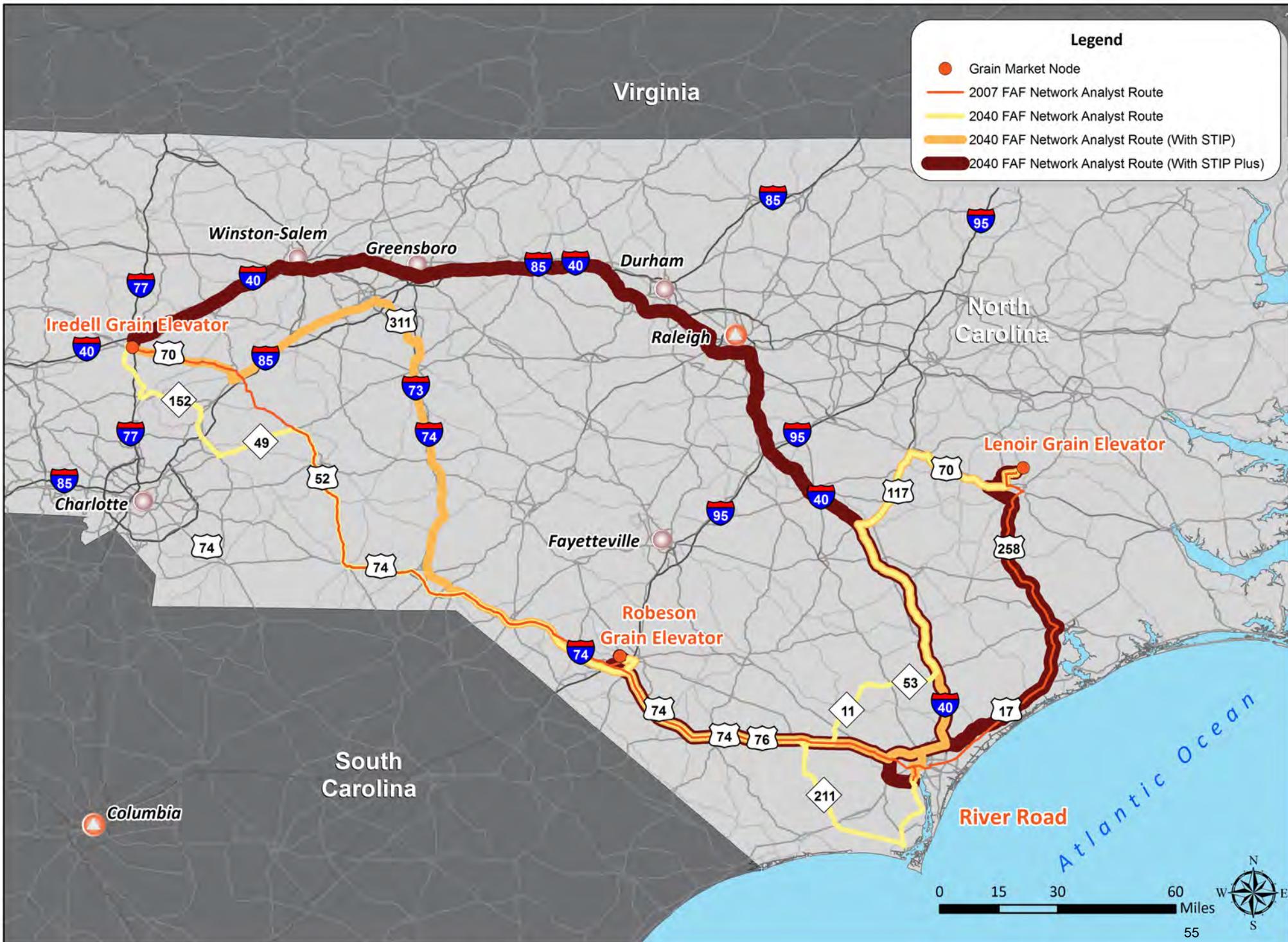
# Containerized Cargo Network Analyst Route Evaluation From Savannah



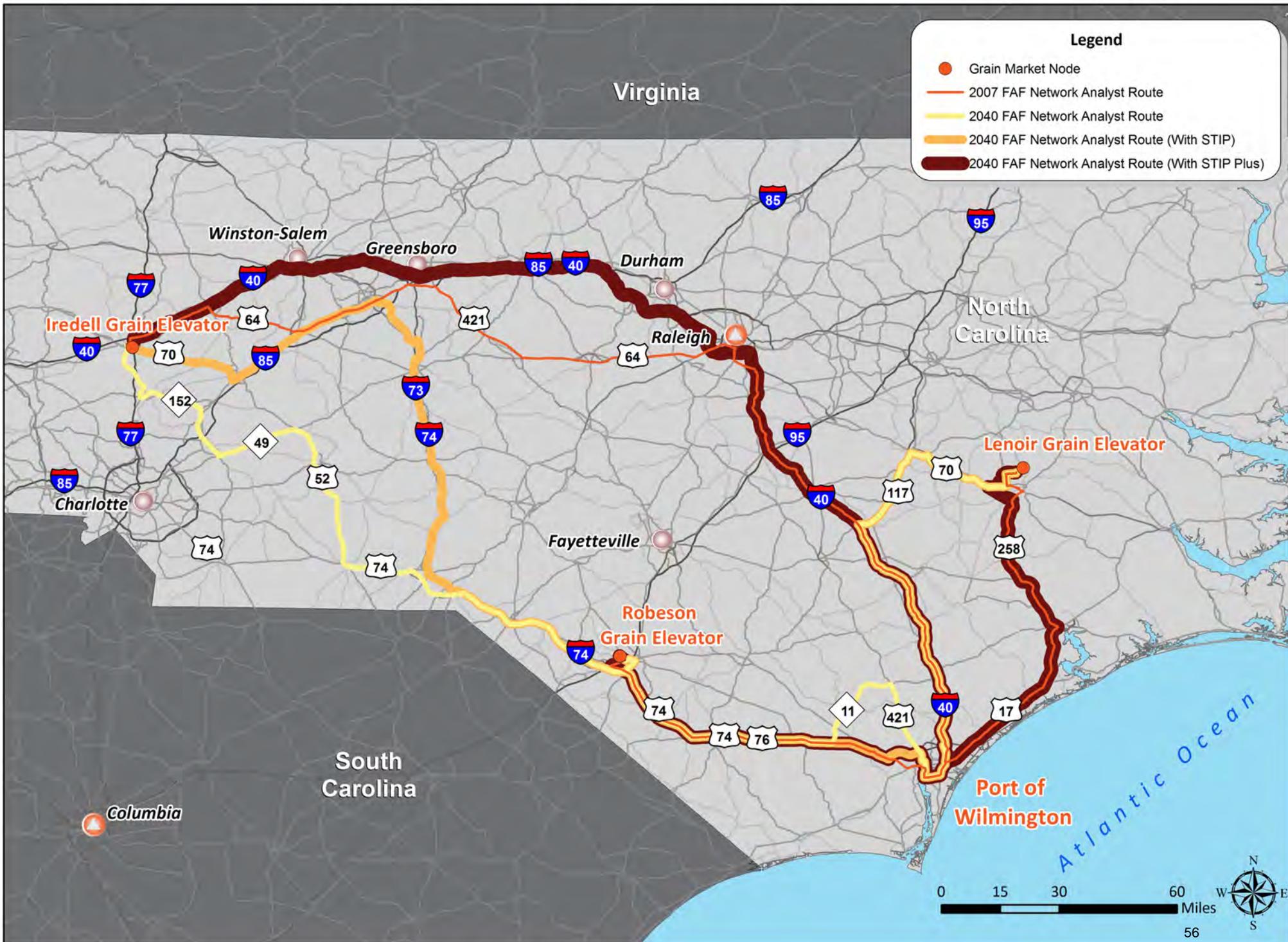




# Grain Market Cargo Network Analyst Route Evaluation From River Road



# Grain Market Cargo Network Analyst Route Evaluation From Port of Wilmington

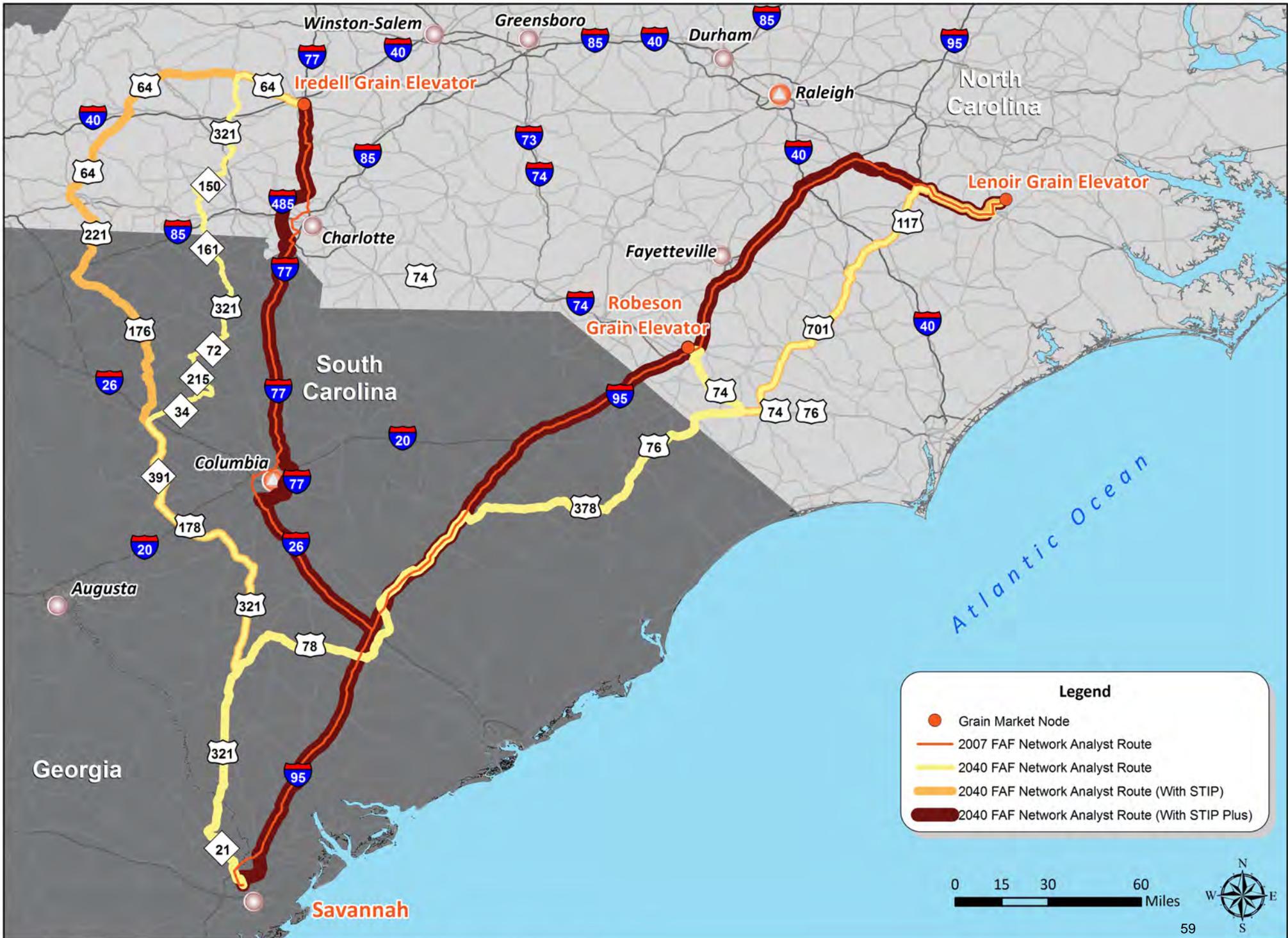


Source: ESRI, NCDOT, USDOT Freight Analysis Framework v3.1, USGS ThematicMapping world borders dataset





# Grain Market Cargo Network Analyst Route Evaluation From Savannah

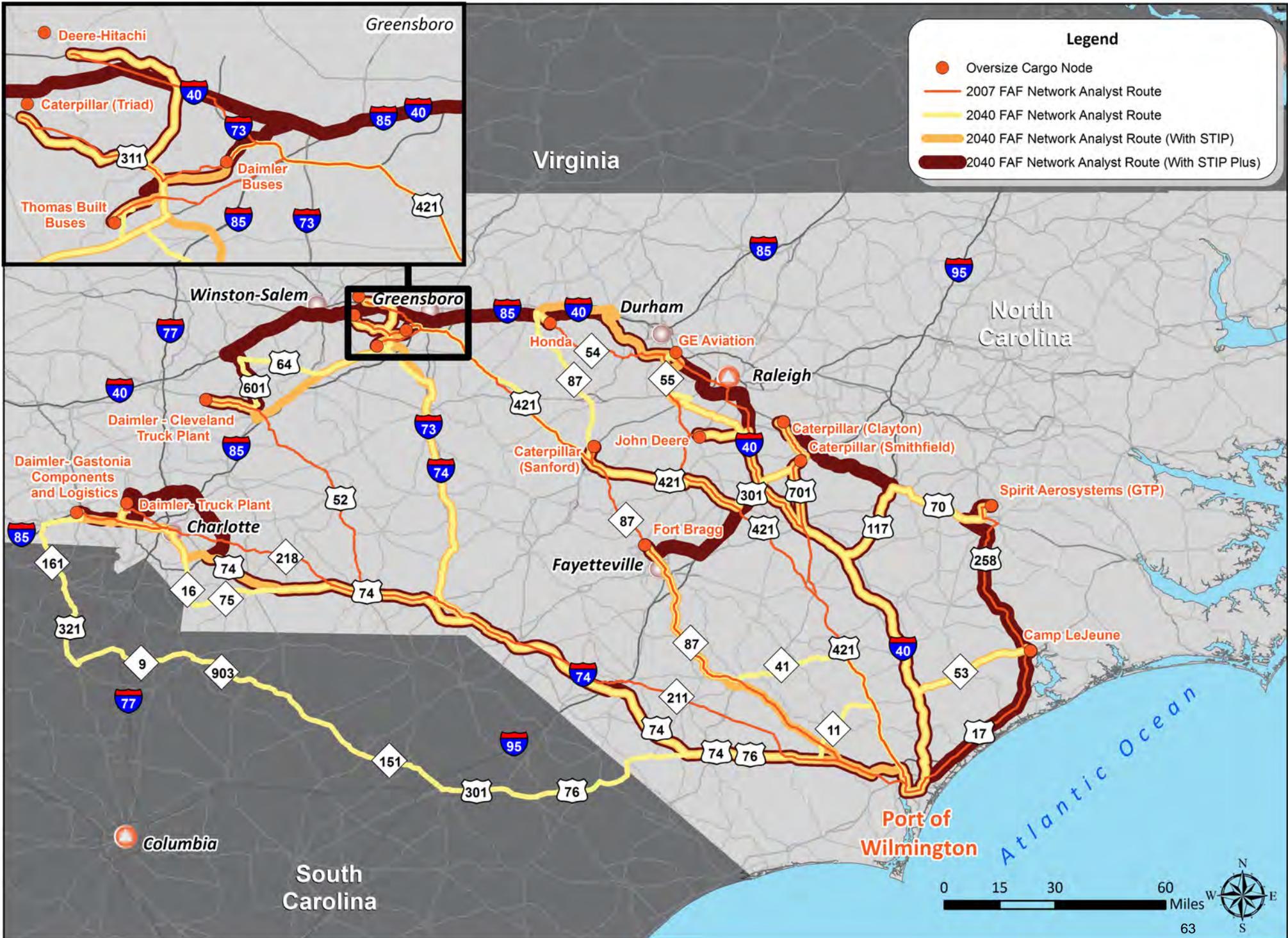








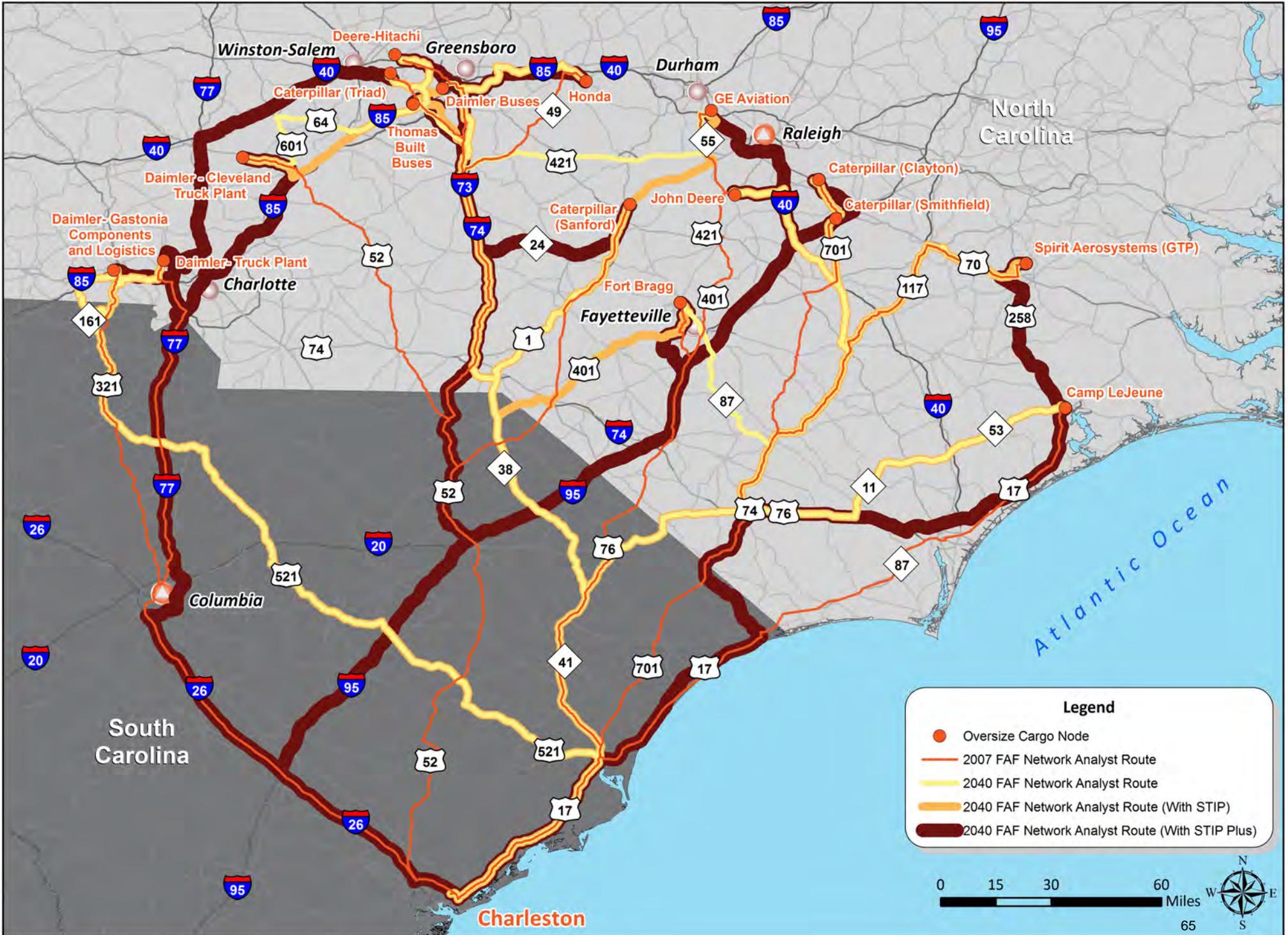
# Oversize Cargo Network Analyst Route Evaluation From Port of Wilmington



Source: ESRI, NCDOT, USDOT Freight Analysis Framework v3.1, USGS ThematicMapping world borders dataset



# Oversize Cargo Network Analyst Route Evaluation From Charleston



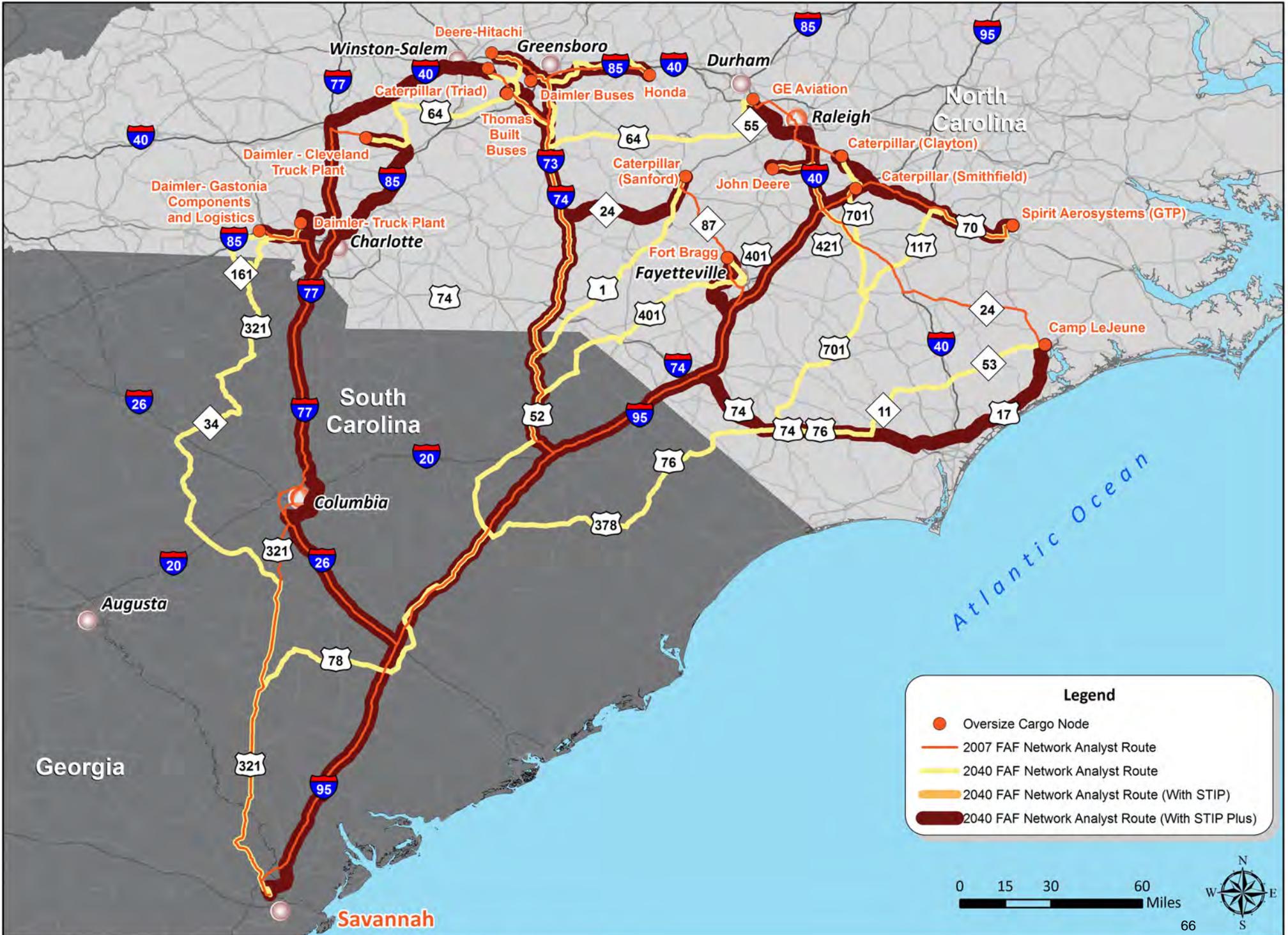
**Legend**

- Oversize Cargo Node
- 2007 FAF Network Analyst Route
- 2040 FAF Network Analyst Route
- 2040 FAF Network Analyst Route (With STIP)
- 2040 FAF Network Analyst Route (With STIP Plus)



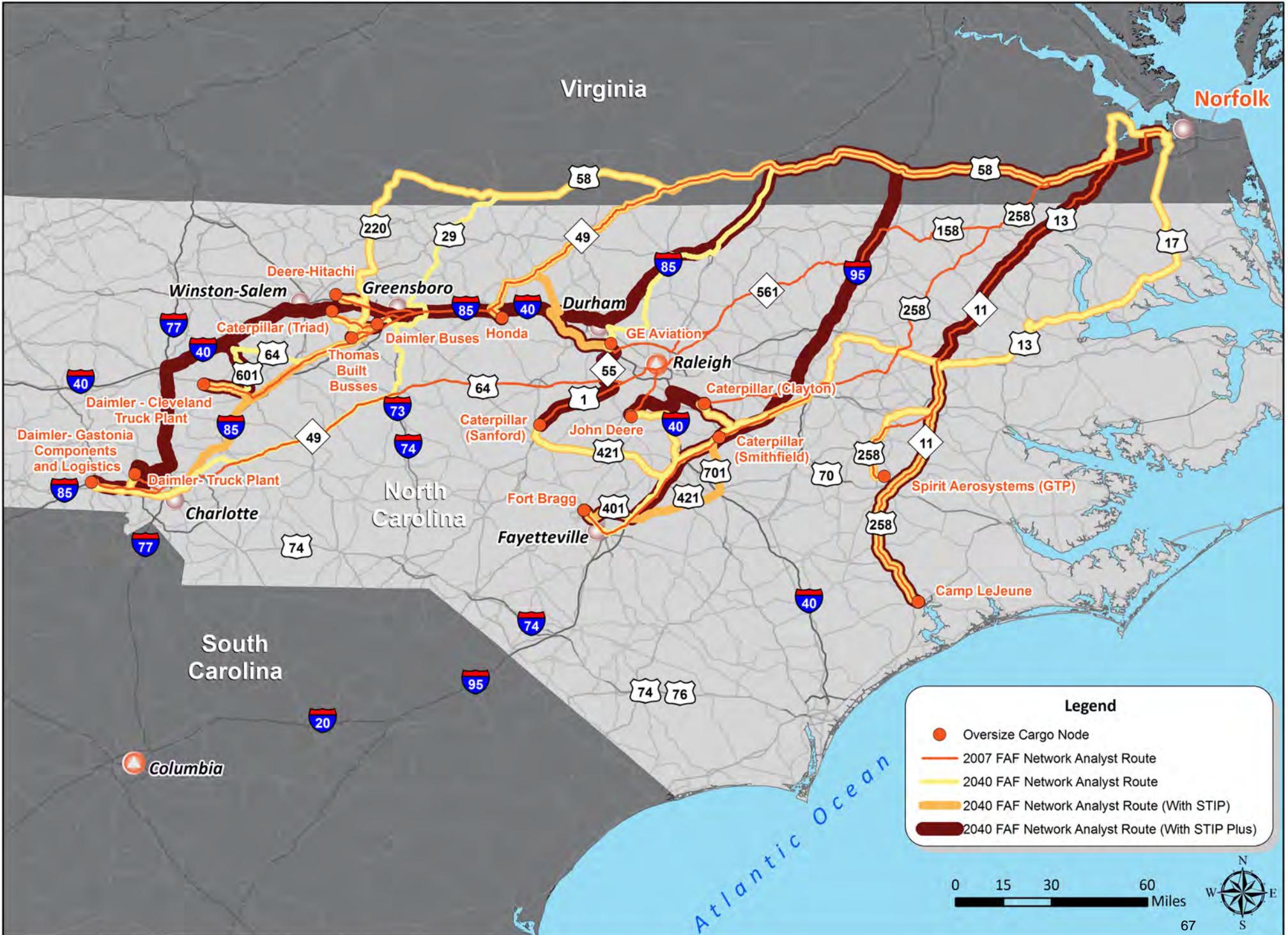
Source: ESRI, NCDOT, USDOT Freight Analysis Framework v3.1, USGS ThematicMapping world borders dataset

# Oversize Cargo Network Analyst Route Evaluation From Savannah



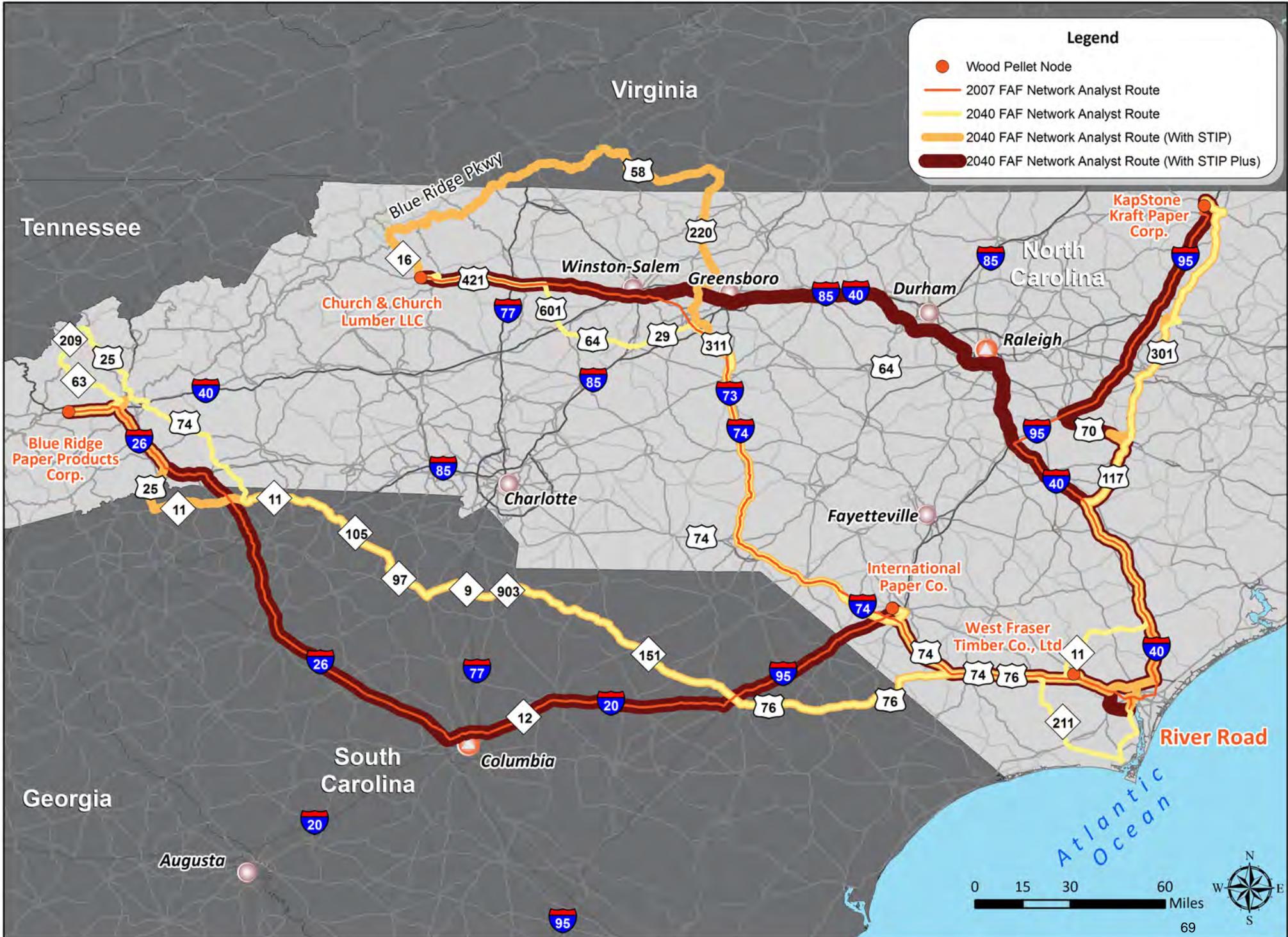
Source: ESRI, NCDOT, USDOT Freight Analysis Framework v3.1, USGS ThematicMapping world borders dataset

# Oversize Cargo Network Analyst Route Evaluation From Norfolk



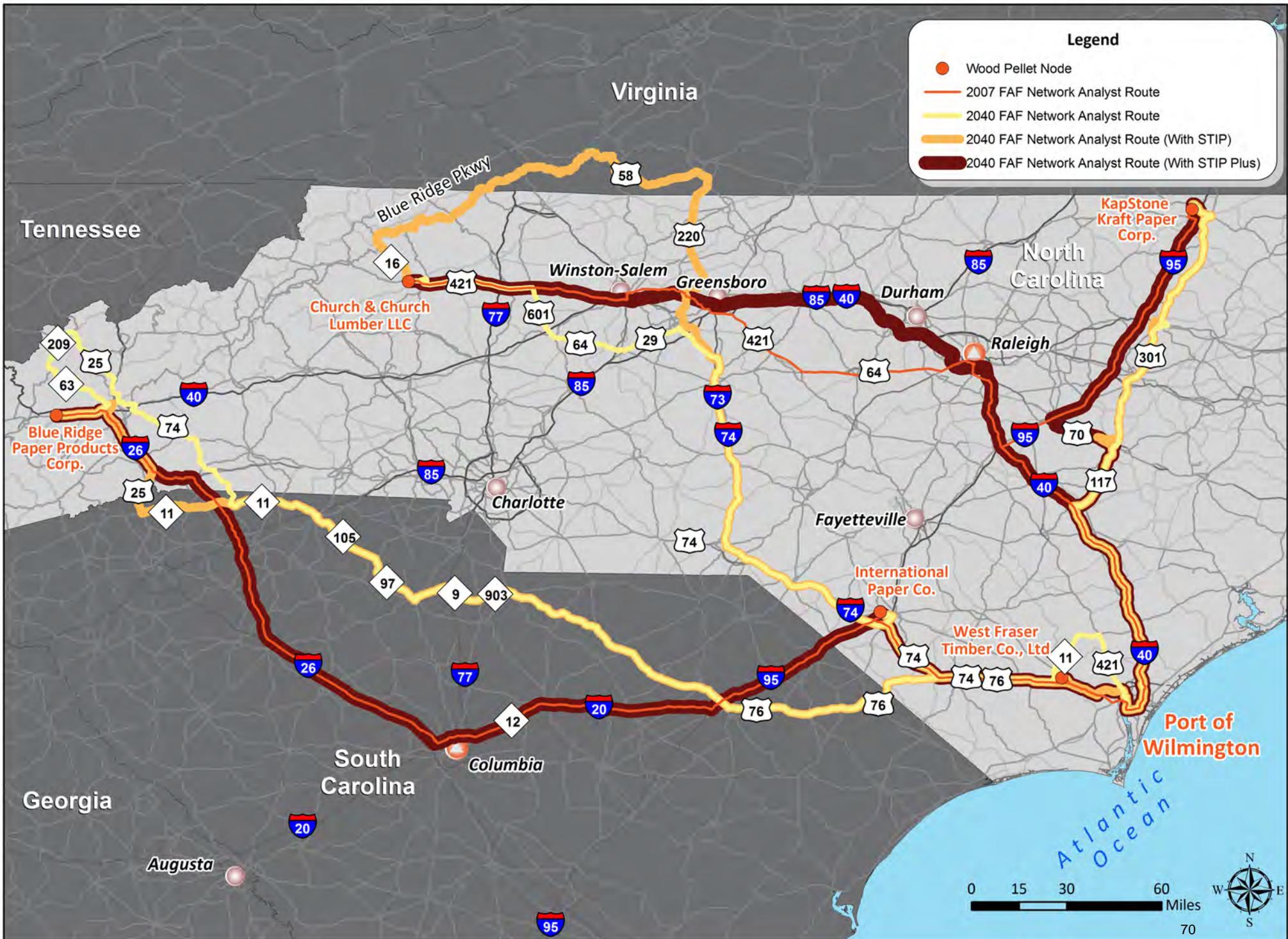


# Wood Pellet Network Analyst Route Evaluation From River Road

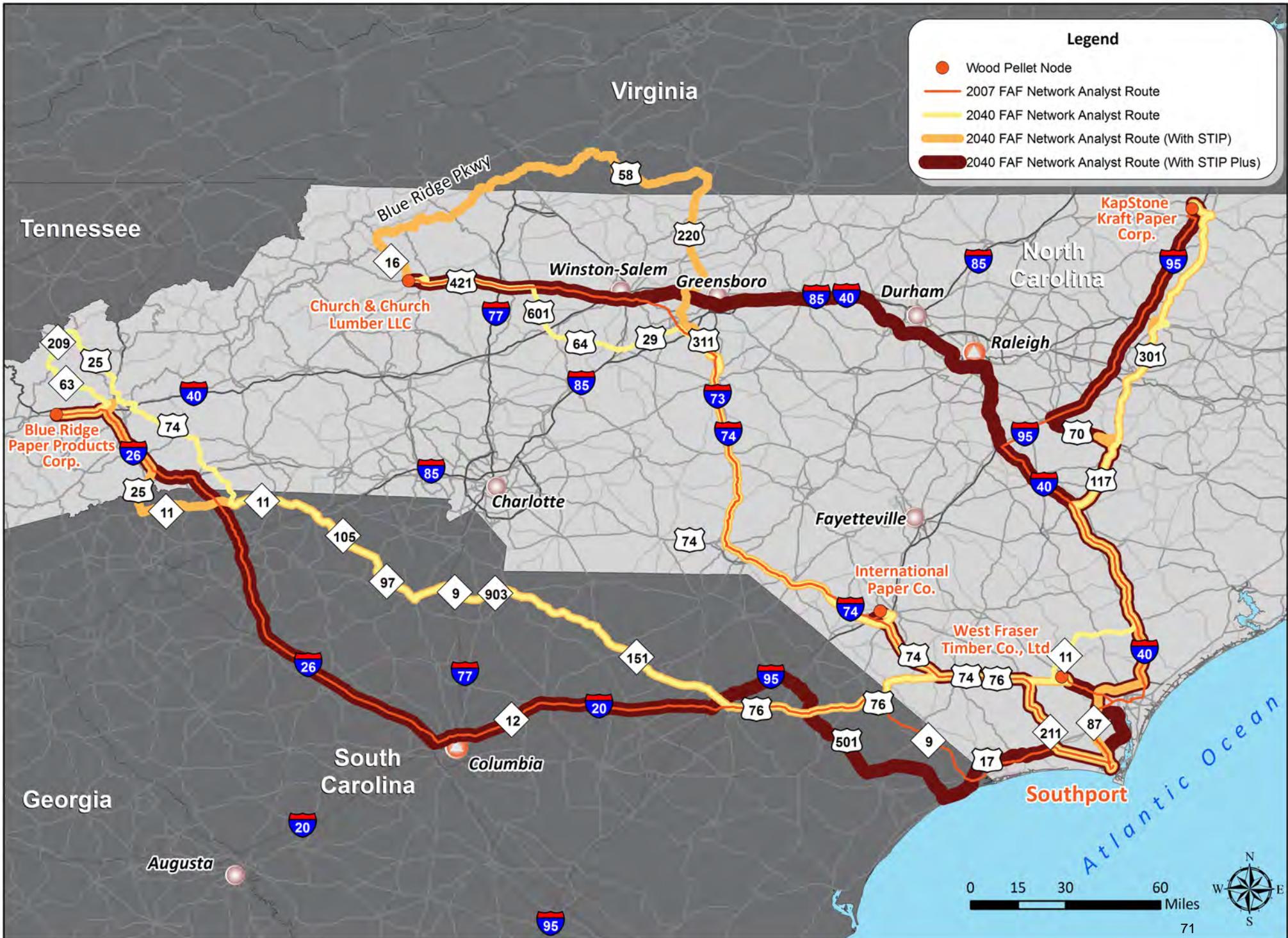


Source: ESRI, NCDOT, USDOT Freight Analysis Framework v3.1, USGS ThematicMapping world borders dataset

# Wood Pellet Network Analyst Route Evaluation From Port of Wilmington

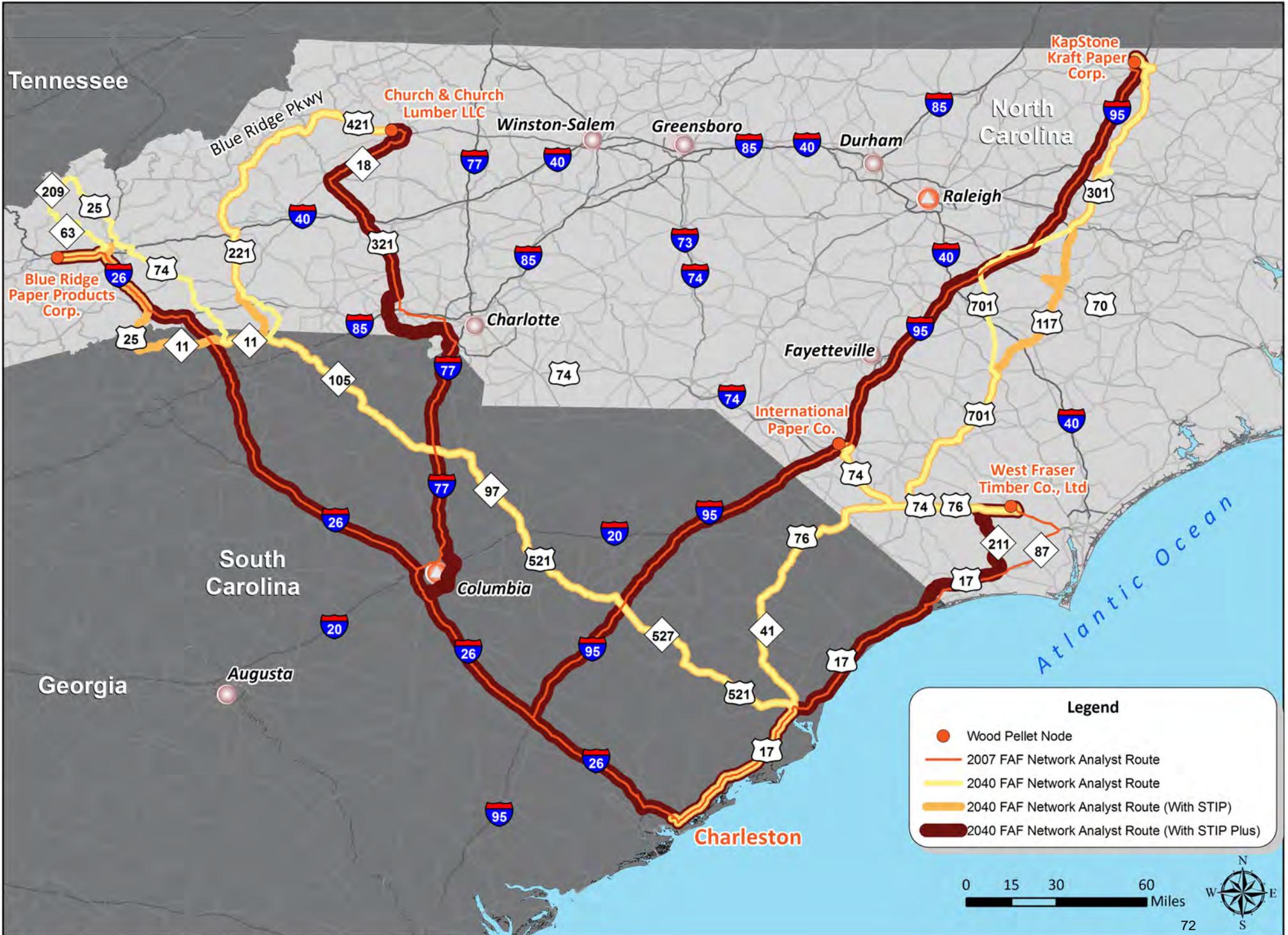


# Wood Pellet Network Analyst Route Evaluation From Southport



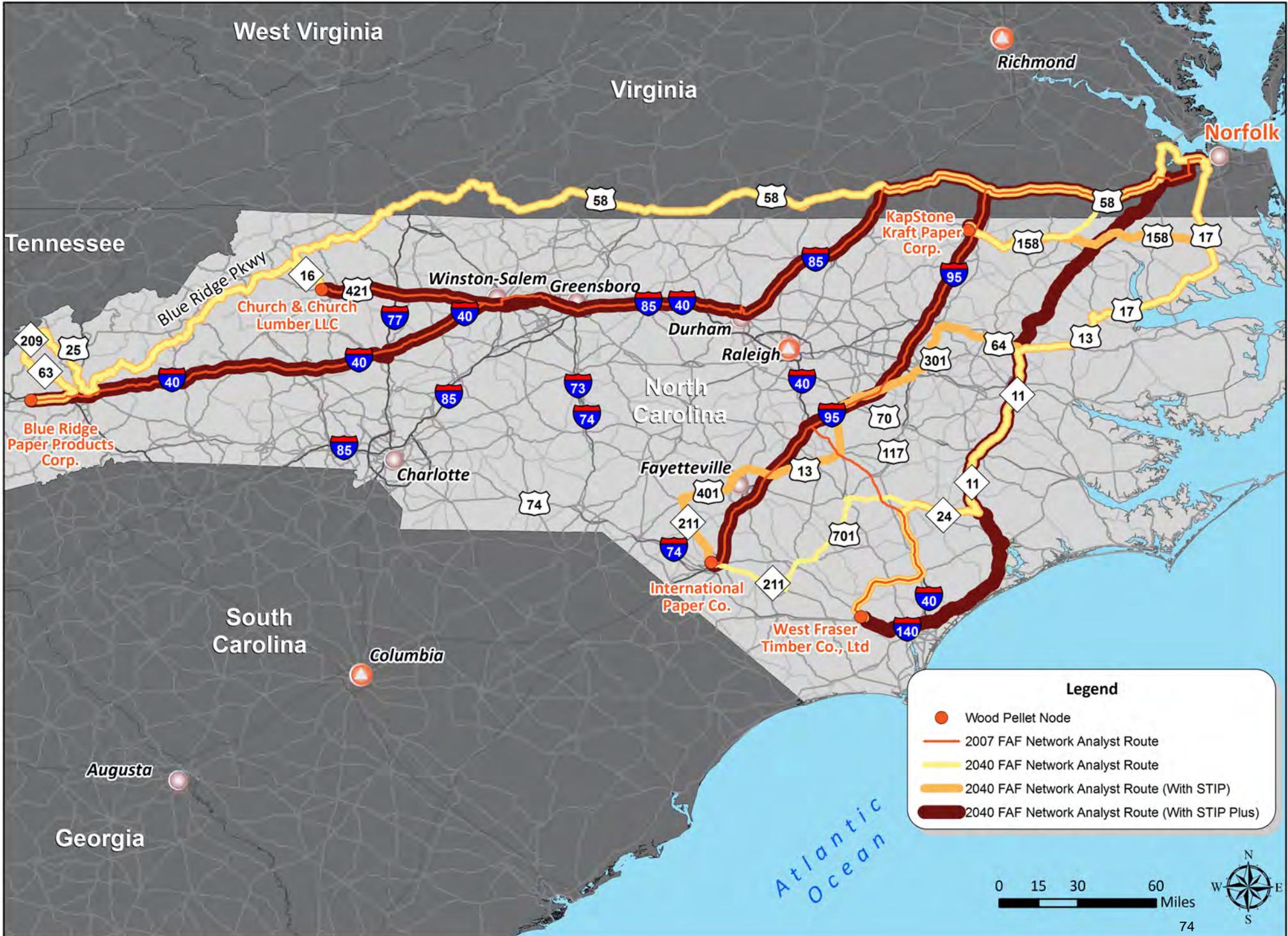
Source: ESRI, NCDOT, USDOT Freight Analysis Framework v3.1, USGS ThematicMapping world borders dataset

# Wood Pellet Network Analyst Route Evaluation From Charleston





# Wood Pellet Network Analyst Route Evaluation From Norfolk



Source: ESRI, NCDOT, USDOT Freight Analysis Framework v3.1, USGS ThematicMapping world borders dataset

**APPENDIX II SUMMARY OF PROJECTS INCLUDED IN NETWORK ANALYST MODEL**

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Projects Included in Network Analyst Model (2040 STIP PLUS) - Container Cargo

Draft STIP Scenario Cost (in millions)															
Container Cargo	Location	Site 3- Beaufort Inlet- Radio Island		Site 4- River Road		Site 5- Port of Wilmington		Site 6- Cape Fear River- Southport		Charleston, SC		Savannah, GA		Norfolk, VA	
2040 STIP Road Screening Criteria		Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost
Charlotte NS Railyard	1914 N Tryon Street, Charlotte, NC 28206	FS-1002A	\$ 6	FS-1106B	\$ 116	FS-1106B	\$ 116	FS-1106B	\$ 116	SC I26	\$ 39	SC I26	\$ 39	I-0305	\$ 213
		FS-1103A	\$ 46	I-3311C	\$ 170	I-3311C	\$ 170	I-3311C	\$ 170	STIP Total	\$ 39	STIP Total	\$ 39	I-0911A	\$ 49
		I-3311C	\$ 170	I-3311E	\$ 12	I-3311E	\$ 12	I-3311E	\$ 12	SHC 95	\$ 217	SHC 95	\$ 217	I-3311B	\$ 170
		I-3311E	\$ 12	I-3801	\$ 106	I-3801	\$ 106	I-3801	\$ 106	SHC 96	\$ 112	SHC 96	\$ 112	I-3311C	\$ 170
		I-4745A	\$ 160	R-2248E	\$ 104	R-2248E	\$ 104	R-2248E	\$ 104	SHC Total	\$ 329	SHC Total	\$ 329	I-3311E	\$ 12
		I-4745B	\$ 367	R-2633	\$ 532	R-2633	\$ 532	R-2320	\$ 105	CU5 485	\$ 121	ACC CU18	\$ 24	I-4743	\$ 99
		I-4745C	\$ 51	R-2559	\$ 824	R-2633BB	\$ 532	R-2633	\$ 532	SCP2 CU10	\$ 458	CU5 485	\$ 121	I-4750A	\$ 93
		R-0623	\$ 41	R-3329	\$ 200	R-2559	\$ 824	R-2559	\$ 824	SCP2 CU11	\$ 120	LCY9rk CU2	\$ 17	I-4750B	\$ 176
		R-2212	\$ 104	R-4462	\$ 1,031	R-3329	\$ 200	R-3329	\$ 200	SCP2 CU12	\$ 85	SCP2 CU10	\$ 458	VA100937	\$ 160
		R-2248E	\$ 44	U-4738	\$ 22	R-4462	\$ 200	R-4441	\$ 399	SCP2 CU8	\$ 95	SCP2 CU8	\$ 95	STIP Total	\$ 971
		R-2527	\$ 78	UFSTIP 133	\$ 22	STIP Total	\$ 2,064	R-4462	\$ 200	SCP2 CU9	\$ 272	SCP2 CU9	\$ 272	SHC 220	\$ 144
		R-2528	\$ 94	STIP Total	\$ 3,118	SHC 91	\$ 107	SC 73	\$ 59	SCP4 CU10	\$ 99	SCP4 CU10	\$ 99	SHC 97	\$ 42
		R-2529	\$ 35	SHC 91	\$ 107	SHC 97	\$ 42	STIP Total	\$ 2,627	SCP4 CU11	\$ 36	SCP4 CU11	\$ 36	SHC131-132	\$ 654
		R-2530B	\$ 89	SHC 97	\$ 42	SHC Total	\$ 149	SHC 352	\$ 37	SCP4 CU12	\$ 138	SCP4 CU12	\$ 138	SHC Total	\$ 840
		X-0002B	\$ 89	SHC Total	\$ 149	CU1 485	\$ 75	SHC 91	\$ 107	SCP4 CU13	\$ 45	SCP4 CU13	\$ 45	CU1 40m	\$ 132
		X-0002CA	\$ 89	CU1 485	\$ 75	CU2 485	\$ 37	SHC 97	\$ 42	SCP4 CU14	\$ 95	SCP4 CU14	\$ 95	CU1 85	\$ 593
		X-0002CB	\$ 89	CU2 485	\$ 37	CU3 95	\$ 120	SHC353-354	\$ 88	SCP4 CU2	\$ 65	SCP4 CU2	\$ 65	CU2 40m	\$ 237
		STIP Total	\$ 1,298	CU3 95	\$ 120	Conceptual Upgrade Total	\$ 232	SHC Total	\$ 274	SCP4 CU3	\$ 33	SCP4 CU3	\$ 33	VA I664	\$ 932
		SHC 97	\$ 42	Conceptual Upgrade Total	\$ 232	Grand Total	\$ 2,446	CU1 485	\$ 75	SCP4 CU4	\$ 36	SCP4 CU4	\$ 36	VA S164	\$ 16
		SHC Total	\$ 42	Grand Total	\$ 3,499			CU1 S211	\$ 13	SCP4 CU5	\$ 26	SCP4 CU5	\$ 26	VA U58 CU1	\$ 9
		CU1 24	\$ 28					CU1 S87U17	\$ 41	SCP4 CU6&7	\$ 154	SCP4 CU6&7	\$ 154	VA U58 CU2	\$ 49
		CU1 485	\$ 75					CU2 485	\$ 37	SCP4 CU8	\$ 116	SCP4 CU8	\$ 116	Conceptual Upgrade Total	\$ 1,970
		CU10 24	\$ 9					CU3 95	\$ 120	SCP4 CU9	\$ 348	SCP4 CU9	\$ 348	Grand Total	\$ 3,781
		CU2 24	\$ 23					SCP6 CU1	\$ 240	SCP8 CU2	\$ 42	SCP6 CU5	\$ 1,131		
		CU2 258	\$ 38					Conceptual Upgrade Total	\$ 525	SCP8 CU3	\$ 132	Conceptual Upgrade Total	\$ 3,309		
		CU2 485	\$ 37					Grand Total	\$ 3,426	Conceptual Upgrade Total	\$ 2,516	Grand Total	\$ 3,677		
		CU3 24	\$ 31							Grand Total	\$ 2,884				
		CU4 24	\$ 38												
		CU6 24	\$ 44												
		CU7 24	\$ 100												
		CU8 24	\$ 144												
		CU9 24	\$ 66												
		Conceptual Upgrade Total	\$ 633												
		Grand Total	\$ 1,974												
Charlotte CSX Railyard	5430 Hovis Road, Charlotte, NC 28208	FS-1002A	\$ 6	FS-1106B	\$ 116	FS-1106B	\$ 116	FS-1106B	\$ 116	SC I26	\$ 39	SC I26	\$ 39	I-0305	\$ 213
		FS-1103A	\$ 46	I-3801	\$ 106	I-3801	\$ 106	I-3801	\$ 106	STIP Total	\$ 39	STIP Total	\$ 39	I-0911A	\$ 49
		I-4745A	\$ 160	R-2248E	\$ 104	R-2248E	\$ 104	R-2248E	\$ 104	SHC Total	\$ -	SHC Total	\$ -	I-3311B	\$ 170
		I-4745B	\$ 367	R-2633	\$ 532	R-2633	\$ 532	R-2320	\$ 105	CU3 85	\$ 614	ACC CU18	\$ 24	I-4743	\$ 99
		I-4745C	\$ 51	R-2559	\$ 824	R-2633BB	\$ 532	R-2633	\$ 532	CU4 485	\$ 59	CU3 85	\$ 614	I-4750A	\$ 93
		R-0623	\$ 41	R-3329	\$ 200	R-2559	\$ 824	R-2559	\$ 824	CU5 485	\$ 121	CU4 485	\$ 59	I-4750B	\$ 176
		R-2212	\$ 104	R-4462	\$ 1,031	R-3329	\$ 200	R-3329	\$ 200	SCP2 CU10	\$ 458	CU5 485	\$ 121	VA100937	\$ 160
		R-2248E	\$ 44	U-4738	\$ 22	R-4462	\$ 200	R-4441	\$ 399	SCP2 CU11	\$ 120	LCY9rk CU2	\$ 17	STIP Total	\$ 959
		R-2527	\$ 78	UFSTIP 133	\$ 22	STIP Total	\$ 1,882	R-4462	\$ 200	SCP2 CU12	\$ 85	SCP2 CU10	\$ 458	SHC 220	\$ 144
		R-2528	\$ 94	STIP Total	\$ 2,935	SHC 91	\$ 107	SC 73	\$ 59	SCP2 CU8	\$ 95	SCP2 CU8	\$ 95	SHC131-132	\$ 654
		R-2529	\$ 35	SHC 91	\$ 107	SHC Total	\$ 107	STIP Total	\$ 2,445	SCP2 CU9	\$ 272	SCP2 CU9	\$ 272	SHC Total	\$ 798
		R-2530B	\$ 89	SHC Total	\$ 107	CU1 485	\$ 75	SHC 352	\$ 37	SCP4 CU10	\$ 99	SCP4 CU10	\$ 99	CU1 40m	\$ 132
		X-0002B	\$ 89	CU1 485	\$ 75	CU2 485	\$ 37	SHC 91	\$ 107	SCP4 CU11	\$ 36	SCP4 CU11	\$ 36	CU1 85	\$ 593
		X-0002CA	\$ 89	CU2 485	\$ 37	CU3 85	\$ 614	SHC353-354	\$ 88	SCP4 CU12	\$ 138	SCP4 CU12	\$ 138	CU2 40m	\$ 237
		X-0002CB	\$ 89	CU3 85	\$ 614	CU3 95	\$ 120	SHC Total	\$ 231	SCP4 CU13	\$ 45	SCP4 CU13	\$ 45	CU3 85	\$ 614
		STIP Total	\$ 1,116	CU3 95	\$ 120	Conceptual Upgrade Total	\$ 847	CU1 485	\$ 75	SCP4 CU14	\$ 95	SCP4 CU14	\$ 95	VA I664	\$ 932
		SHC Total	\$ -	Conceptual Upgrade Total	\$ 847	Grand Total	\$ 2,835	CU1 S211	\$ 13	SCP4 CU2	\$ 65	SCP4 CU2	\$ 65	VA S164	\$ 16
		CU1 24	\$ 28	Grand Total	\$ 3,888			CU1 S87U17	\$ 41	SCP4 CU3	\$ 33	SCP4 CU3	\$ 33	VA U58 CU1	\$ 9
		CU1 485	\$ 75					CU2 485	\$ 37	SCP4 CU4	\$ 36	SCP4 CU4	\$ 36	VA U58 CU2	\$ 49
		CU10 24	\$ 9					CU3 85	\$ 614	SCP4 CU5	\$ 26	SCP4 CU5	\$ 26	Conceptual Upgrade Total	\$ 2,584
		CU2 24	\$ 23					CU3 95	\$ 120	SCP4 CU6&7	\$ 154	SCP4 CU6&7	\$ 154	Grand Total	\$ 4,341
		CU2 258	\$ 38					SCP6 CU1	\$ 240	SCP4 CU8	\$ 116	SCP4 CU8	\$ 116		
		CU2 485	\$ 37					Conceptual Upgrade Total	\$ 1,140	SCP4 CU9	\$ 348	SCP4 CU9	\$ 348		
		CU3 24	\$ 31					Grand Total	\$ 3,816	SCP8 CU2	\$ 42	SCP6 CU5	\$ 1,131		
		CU3 85	\$ 614							SCP8 CU3	\$ 132	Conceptual Upgrade Total	\$ 3,982		
		CU4 24	\$ 38							Conceptual Upgrade Total	\$ 3,189	Grand Total	\$ 4,021		
		CU6 24	\$ 44							Grand Total	\$ 3,228				
		CU7 24	\$ 100												
		CU8 24	\$ 144												
		CU9 24	\$ 66												
		Conceptual Upgrade Total	\$ 1,248												
		Grand Total	\$ 2,363												
Charlotte Inland Port	1301 Exchange Street, Charlotte, NC 28208														

Projects Included in Network Analyst Model (2040 STIP PLUS) - Container Cargo

Greensboro NS Railyard	1105 Merritt Drive, Greensboro, NC 27407	FS-1002A	\$	6	FS-1005A	\$	126	FS-1005A	\$	126	FS-1005A	\$	126	R-3421	\$	220	R-3421	\$	220	I-0305	\$	213			
		FS-1005A	\$	126	I-0305	\$	213	I-0305	\$	213	I-0305	\$	213	SC U52	\$	24	SC U52	\$	24	I-4743	\$	99			
		FS-1103A	\$	46	I-3306A	\$	159	I-3306A	\$	159	I-3306A	\$	159	I-3306A	\$	159	STIP Total	\$	244	STIP Total	\$	244	VA100937	\$	160
		I-0305	\$	213	I-5111A	\$	59	I-5111A	\$	59	I-5111A	\$	59	I-5111A	\$	59	SHC 264	\$	218	SHC 264	\$	218	STIP Total	\$	471
		I-3306A	\$	159	I-5111BA	\$	137	I-5111BA	\$	137	I-5111BA	\$	137	I-5111BA	\$	137	SHC Total	\$	218	SHC Total	\$	218	SHC131-132	\$	654
		I-4744	\$	126	I-5111BB	\$	32	I-5111BB	\$	32	I-5111BB	\$	32	I-5111BB	\$	32	CU1 73	\$	91	ACC CU18	\$	24	SHC Total	\$	654
		I-5111A	\$	59	R-2633	\$		STIP Total	\$	726	R-2633	\$		R-2633	\$		PD CU1	\$	42	CU1 73	\$	91	CU1 40m	\$	132
		I-5111BA	\$	137	R-2633BB	\$	532	SHC 139	\$	198	R-2633BB	\$	532	R-2633BB	\$	532	SCP2 CU10	\$	458	LCYork CU2	\$	17	CU1 85	\$	593
		I-5111BB	\$	32	R-2633CA	\$		SHC 153	\$	38	R-2633CA	\$		R-2633CA	\$		SCP2 CU11	\$	120	PD CU1	\$	42	VA 1664	\$	932
		STIP Total	\$	903	U-4738	\$	1,031	SHC 154	\$	48	STIP Total	\$	1,258	STIP Total	\$	1,258	SCP2 CU12	\$	85	SCP6 CU2	\$	96	VA S164	\$	16
		SHC 139	\$	198	UFSTIP 133	\$	22	SHC 158	\$	127	SHC 139	\$	198	SHC 139	\$	198	SCP6 CU2	\$	96	SCP6 CU3	\$	240	VA U58 CU1	\$	9
		SHC 153	\$	38	STIP Total	\$	2,311	SHC Total	\$	411	SHC 153	\$	38	SHC 153	\$	38	SCP6 CU3	\$	240	SCP6 CU4	\$	313	VA U58 CU2	\$	49
		SHC 154	\$	48	SHC 139	\$	198	CU1 40m	\$	132	SHC 154	\$	48	SHC 154	\$	48	SCP6 CU4	\$	313	SCP6 CU5	\$	1,131	Conceptual Upgrad Total	\$	1,733
		SHC 158	\$	127	SHC 153	\$	38	CU1 85	\$	593	SHC 158	\$	127	SHC 158	\$	127	SCP8 CU2	\$	42	Conceptual Upgrad Total	\$	1,954	Grand Total	\$	2,858
		SHC Total	\$	411	SHC 154	\$	48	CU1 I-40	\$	160	SHC 352	\$	37	SHC 352	\$	37	SCP8 CU3	\$	132	Grand Total	\$	2,416			
		CU1 24	\$	28	SHC 158	\$	127	CU2 I-40	\$	72	SHC353-354	\$	88	SHC353-354	\$	88	Conceptual Upgrad Total	\$	1,619						
		CU1 40m	\$	132	SHC Total	\$	411	Conceptual Upgrad Total	\$	958	SHC Total	\$	536	SHC Total	\$	536	Grand Total	\$	2,082						
		CU1 85	\$	593	CU1 40m	\$	132	Grand Total	\$	2,095	CU1 40m	\$	132	CU1 40m	\$	132									
		CU2 24	\$	23	CU1 85	\$	593				CU1 85	\$	593	CU1 85	\$	593									
		CU2 258	\$	38	CU1 I-40	\$	160				CU1 I-40	\$	160	CU1 I-40	\$	160									
		CU3 24	\$	31	CU2 I-40	\$	72				CU1 S211	\$	13	CU1 S211	\$	13									
		CU4 24	\$	38	Conceptual Upgrad Total	\$	958				CU1 S87U17	\$	41	CU1 S87U17	\$	41									
		Conceptual Upgrad Total	\$	884	Grand Total	\$	3,680				CU2 I-40	\$	72	CU2 I-40	\$	72									
		Grand Total	\$	2,199							Conceptual Upgrad Total	\$	1,011	Conceptual Upgrad Total	\$	1,011									
									Grand Total	\$	2,805	Grand Total	\$	2,805											
NCSPA Greensboro NS Inland Port	505 Chimney Rock Rd, Greensboro, NC 27409	FS-1002A	\$	6	FS-1005A	\$	126	FS-1005A	\$	126	FS-1005A	\$	126	R-3421	\$	220	R-3421	\$	220	I-0305	\$	213			
		FS-1005A	\$	126	I-0305	\$	213	I-0305	\$	213	I-0305	\$	213	SC U52	\$	24	SC U52	\$	24	I-4743	\$	99			
		FS-1103A	\$	46	I-3306A	\$	159	I-3306A	\$	159	I-3306A	\$	159	I-3306A	\$	159	STIP Total	\$	244	STIP Total	\$	244	VA100937	\$	160
		I-0305	\$	213	I-5111A	\$	59	I-5111A	\$	59	I-5111A	\$	59	I-5111A	\$	59	SHC 264	\$	218	SHC 264	\$	218	STIP Total	\$	471
		I-3306A	\$	159	I-5111BA	\$	137	I-5111BA	\$	137	I-5111BA	\$	137	I-5111BA	\$	137	SHC Total	\$	218	SHC Total	\$	218	SHC131-132	\$	654
		I-4744	\$	126	I-5111BB	\$	32	I-5111BB	\$	32	I-5111BB	\$	32	I-5111BB	\$	32	CU1 73	\$	91	ACC CU18	\$	24	SHC Total	\$	654
		I-5111A	\$	59	R-2633	\$		STIP Total	\$	726	R-2633	\$		R-2633	\$		PD CU1	\$	42	CU1 73	\$	91	CU1 40m	\$	132
		I-5111BA	\$	137	R-2633BB	\$	532	SHC 139	\$	198	R-2633BB	\$	532	R-2633BB	\$	532	SCP2 CU10	\$	458	LCYork CU2	\$	17	CU1 85	\$	593
		I-5111BB	\$	32	R-2633CA	\$		SHC 153	\$	38	R-2633CA	\$		R-2633CA	\$		SCP2 CU11	\$	120	PD CU1	\$	42	VA 1664	\$	932
		STIP Total	\$	903	U-4738	\$	1,031	SHC 154	\$	48	STIP Total	\$	1,258	STIP Total	\$	1,258	SCP2 CU12	\$	85	SCP6 CU2	\$	96	VA S164	\$	16
		SHC 139	\$	198	UFSTIP 133	\$	22	SHC 158	\$	127	SHC 139	\$	198	SHC 139	\$	198	SCP6 CU2	\$	96	SCP6 CU3	\$	240	VA U58 CU1	\$	9
		SHC 153	\$	38	STIP Total	\$	2,311	SHC Total	\$	411	SHC 153	\$	38	SHC 153	\$	38	SCP6 CU3	\$	240	SCP6 CU4	\$	313	VA U58 CU2	\$	49
		SHC 154	\$	48	SHC 139	\$	198	CU1 40m	\$	132	SHC 154	\$	48	SHC 154	\$	48	SCP6 CU4	\$	313	SCP6 CU5	\$	1,131	Conceptual Upgrad Total	\$	1,733
		SHC 158	\$	127	SHC 153	\$	38	CU1 85	\$	593	SHC 158	\$	127	SHC 158	\$	127	SCP8 CU2	\$	42	Conceptual Upgrad Total	\$	1,954	Grand Total	\$	2,858
		SHC Total	\$	411	SHC 154	\$	48	CU1 I-40	\$	160	SHC 352	\$	37	SHC 352	\$	37	SCP8 CU3	\$	132	Grand Total	\$	2,416			
		CU1 24	\$	28	SHC 158	\$	127	CU2 I-40	\$	72	SHC353-354	\$	88	SHC353-354	\$	88	Conceptual Upgrad Total	\$	1,619						
		CU1 40m	\$	132	SHC Total	\$	411	Conceptual Upgrad Total	\$	958	SHC Total	\$	536	SHC Total	\$	536	Grand Total	\$	2,082						
		CU1 85	\$	593	CU1 40m	\$	132	Grand Total	\$	2,095	CU1 40m	\$	132	CU1 40m	\$	132									
		CU2 24	\$	23	CU1 85	\$	593				CU1 85	\$	593	CU1 85	\$	593									
		CU2 258	\$	38	CU1 I-40	\$	160				CU1 I-40	\$	160	CU1 I-40	\$	160									
		CU3 24	\$	31	CU2 I-40	\$	72				CU1 S211	\$	13	CU1 S211	\$	13									
		CU4 24	\$	38	Conceptual Upgrad Total	\$	958				CU1 S87U17	\$	41	CU1 S87U17	\$	41									
		Conceptual Upgrad Total	\$	884	Grand Total	\$	3,680				CU2 I-40	\$	72	CU2 I-40	\$	72									
		Grand Total	\$	2,199							Conceptual Upgrad Total	\$	1,011	Conceptual Upgrad Total	\$	1,011									
									Grand Total	\$	2,805	Grand Total	\$	2,805											
Raleigh: CSX	860 Semart Drive, Raleigh, NC 27604	FS-1002A	\$	6	I-5111BB	\$	32	I-5111BB	\$	32	I-5111BB	\$	32	I-3806	\$	106	I-3806	\$	106	VA100937	\$	160			
		FS-1103A	\$	46	R-2633	\$		R-2829	\$	376	R-2633	\$		I-4745A	\$	160	I-4745A	\$	160	STIP Total	\$	160			
		I-5111BB	\$	32	R-2633BB	\$	532	STIP Total	\$	408	R-2633BB	\$	532	I-4745B	\$	367	I-4745B	\$	367	SHC 174	\$	102			
		R-2829	\$	376	R-2633CA	\$		SHC 158	\$	127	R-2633CA	\$		I-4745C	\$	367	I-4745C	\$	367	SHC 175	\$	124			
		STIP Total	\$	460	R-2829	\$	376	SCH Total	\$	127	R-2829	\$	376	I-5111BB	\$	32	I-5111BB	\$	32	SCH Total	\$	226			
		SHC 158	\$	127	U-4738	\$	1,031	CU1 I-40	\$	160	STIP Total	\$	940	R-2829	\$	376	R-2829	\$	376	CU1 95	\$	864			
		SHC Total	\$	127	UFSTIP 133	\$	22	CU2 I-40	\$	72	SHC 158	\$	127	STIP Total	\$	1,408	STIP Total	\$	1,041	VA 1664	\$	932			
		CU1 24	\$	28	STIP Total	\$	1,993	Conceptual Upgrade Total	\$	232	SHC 352	\$	37	SHC 158	\$	127	SHC 158	\$	127	VA 195	\$	370			
		CU2 24	\$	23	SHC 158	\$	127	Grand Total	\$	767	SHC353-354	\$	88	SCH Total	\$	127	SCH Total	\$	127	VA S164	\$	16			
		CU2 258	\$	38	SCH Total	\$	127				SCH Total	\$	252	CU2 95	\$	292	ACC CU18	\$	24	VA U58 CU1	\$	9			
		CU3 24	\$	31	CU1 I-40	\$	160				CU1 I-40	\$	160	CU3 95	\$	120	CU2 95	\$	292	VA U58 CU2	\$	49			
		CU4 24	\$	38	CU2 I-40	\$	72				CU1 S211	\$	13	SCP2 CU10	\$	458	CU3 95	\$	120	Conceptual Upgrade Total	\$	2,241			
		Conceptual Upgrade Total	\$	158	Conceptual Upgrade Total	\$	232				CU1 S87U17	\$	41	SCP2 CU11	\$	120	LCYork CU2	\$	17	Grand Total	\$	2,626			
		Grand Total	\$	746</																					

**Projects Included in Network Analyst Model (2040 STIP PLUS) - RoRo and Oversized Cargo**

Ro-Ro and Oversized Cargo		Site 3- Beaufort Inlet- Radio Island		Site 4- River Road		Site 5- Port of Wilmington		Site 6- Cape Fear River- Southport		Charleston, SC		Savannah, GA		Norfolk, VA	
2040 STIP Road Screening Criteria	Location	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost
Spirit AeroSystems	GTP, Kinston	FS-0802B	\$ 200	R-2235	\$ 115	R-2235	\$ 115	R-2235	\$ 115	I-3801	\$ 106	I-3806	\$ 106	R-2235	\$ 115
		FS-1002A	\$ 6	R-2553	\$ 182	R-2553	\$ 182	R-2553	\$ 182	R-2235	\$ 115	I-4745A	\$ 160	R-2507	\$ 156
		R-1015	\$ 183	R-2633	\$ 532	STIP Total	\$ 296	R-2633	\$ 532	R-2553	\$ 182	I-4745B	\$ 367	R-2553	\$ 182
		R-2553	\$ 182	R-2633BB	\$ -	SCH Total	\$ -	R-2633BB	\$ 532	R-2633	\$ 532	I-4745C	\$ 532	R-5311	\$ 73
		R-3307	\$ 98	R-2633CA	\$ -	CU1 17	\$ 124	R-2633CA	\$ -	R-2633BB	\$ -	STIP Total	\$ 633	STIP Total	\$ 526
		R-4431	\$ 181	R-3300	\$ 220	CU2 258	\$ 38	R-3300	\$ 220	R-2633CA	\$ -	SHC 347	\$ 18	SHC 344	\$ 107
		STIP Total	\$ 849	U-4738	\$ 1,031	CU4 24	\$ 38	STIP Total	\$ 1,048	R-3300	\$ 220	SCH Total	\$ 18	SHC 345	\$ 21
		SHC 336	\$ 25	UFSTIP 133	\$ 22	Conceptual Upgrade Total	\$ 200	SHC 352	\$ 37	R-4462	\$ 200	ACC CU18	\$ 24	SHC 346	\$ 60
		SHC Total	\$ 25	STIP Total	\$ 2,102	Grand Total	\$ 496	SHC353-354	\$ 88	SC U17	\$ 79	CU1 70	\$ 120	SHC 347	\$ 37
		Conceptual Upgrade Total	\$ -	SCH Total	\$ -			SCH Total	\$ 125	STIP Total	\$ 1,433	CU1 95	\$ 864	SHC 348	\$ 36
		Grand Total	\$ 874	CU1 17	\$ 124			CU1 17	\$ 124	SCH Total	\$ -	CU2 95	\$ 292	SHC 349	\$ 96
				CU2 258	\$ 38			CU1 S211	\$ 13	ACC CU1	\$ 25	CU3 95	\$ 120	SHC285-286	\$ 146
				CU4 24	\$ 38			CU1 S87U17	\$ 41	ACC CU11	\$ 57	LCYork CU2	\$ 17	SHC287-288	\$ 107
				Conceptual Upgrade Total	\$ 200			ACC CU2	\$ 38	ACC CU2	\$ 62	SCP6 CU1	\$ 240	SHC313-314	\$ 216
				Grand Total	\$ 2,302			CU4 24	\$ 38	ACC CU3	\$ 62	SCP6 CU2	\$ 96	SCH Total	\$ 825
								Conceptual Upgrade Total	\$ 253	ACC CU4	\$ 46	SCP6 CU3	\$ 240	VA I664	\$ 932
								Grand Total	\$ 1,427	ACC CU5	\$ 55	SCP6 CU4	\$ 313	VA S164	\$ 16
										ACC CU6	\$ 49	SCP6 CU5	\$ 1,131	VA U58 CU1	\$ 9
										ACC CU7	\$ 39	Conceptual Upgrade Total	\$ 3,458	VA U58 CU2	\$ 49
										ACC CU8	\$ 10	Grand Total	\$ 4,108	Conceptual Upgrade Total	\$ 1,007
								ACC CU9	\$ 350			Grand Total	\$ 2,357		
								CU1 17	\$ 124						
								CU2 258	\$ 38						
								CU4 24	\$ 38						
								SC U17CU10	\$ 98						
								SCP6 CU3	\$ 132						
								Conceptual Upgrade Total	\$ 1,184						
								Grand Total	\$ 2,617						
Camp LeJeune	US 17/NC 24, Jacksonville	FS-1002A	\$ 6	R-2633	\$ 532	STIP Total	\$ -	R-2633	\$ 532	I-3801	\$ 106	FS-1106B	\$ 116	R-2235	\$ 115
		FS-1103A	\$ 46	R-2633BB	\$ 532	SHC Total	\$ -	R-2633BB	\$ 532	R-2633	\$ 532	I-3801	\$ 106	R-2507	\$ 156
		STIP Total	\$ 52	R-2633CA	\$ -	CU1 17	\$ 124	R-2633CA	\$ -	R-2633BB	\$ 532	R-2633	\$ 532	R-5311	\$ 73
		SHC Total	\$ -	R-3300	\$ 220	Conceptual Upgrade Total	\$ 124	R-3300	\$ 220	R-2633CA	\$ -	R-2633BB	\$ 532	STIP Total	\$ 344
		CU1 24	\$ 28	U-4738	\$ 1,031	Grand Total	\$ 124	STIP Total	\$ 752	R-3300	\$ 220	R-2633CA	\$ -	SHC 344	\$ 107
		CU2 24	\$ 23	UFSTIP 133	\$ 22			SHC 352	\$ 37	R-4462	\$ 200	R-3300	\$ 220	SHC 345	\$ 21
		CU3 24	\$ 31	STIP Total	\$ 1,805			SHC353-354	\$ 88	SC U17	\$ 79	R-4462	\$ 200	SHC 346	\$ 60
		Conceptual Upgrade Total	\$ 82	SHC Total	\$ -			SHC Total	\$ 125	STIP Total	\$ 1,137	STIP Total	\$ 1,174	SHC 347	\$ 37
		Grand Total	\$ 135	CU1 17	\$ 124			CU1 17	\$ 124	SHC Total	\$ -	SHC Total	\$ -	SHC 348	\$ 36
				Conceptual Upgrade Total	\$ 124			CU1 S211	\$ 13	ACC CU1	\$ 25	ACC CU18	\$ 24	SHC 349	\$ 96
				Grand Total	\$ 1,930			CU1 S87U17	\$ 41	ACC CU11	\$ 57	CU1 17	\$ 124	SHC285-286	\$ 146
								Conceptual Upgrade Total	\$ 177	ACC CU2	\$ 62	CU3 95	\$ 120	SHC287-288	\$ 107
								Grand Total	\$ 1,055	ACC CU3	\$ 62	LCYork CU2	\$ 17	SHC313-314	\$ 216
										ACC CU4	\$ 46	SCP6 CU1	\$ 240	SHC Total	\$ 825
										ACC CU5	\$ 55	SCP6 CU2	\$ 96	CU2 258	\$ 38
										ACC CU6	\$ 49	SCP6 CU3	\$ 240	CU4 24	\$ 38
										ACC CU7	\$ 39	SCP6 CU4	\$ 313	VA I664	\$ 932
										ACC CU8	\$ 10	SCP6 CU5	\$ 1,131	VA S164	\$ 16
										ACC CU9	\$ 350	Conceptual Upgrade Total	\$ 2,305	VA U58 CU1	\$ 9
										CU1 17	\$ 124	Grand Total	\$ 3,480	VA U58 CU2	\$ 49
								SC U17CU10	\$ 98			Conceptual Upgrade Total	\$ 1,083		
								SCP6 CU3	\$ 132			Grand Total	\$ 2,252		
								Conceptual Upgrade Total	\$ 1,108						
								Grand Total	\$ 2,245						
Fort Bragg	NC 210/NC 24, Fayetteville	FS-1002A	\$ 6	I-4745A	\$ 160	I-4745A	\$ 160	I-4745A	\$ 160	I-3806	\$ 106	I-3806	\$ 106	I-4745A	\$ 160
		FS-1103A	\$ 46	R-2561	\$ 96	I-4745B	\$ 367	R-2561	\$ 96	U-2519AA	\$ 96	U-2519AA	\$ 96	I-4745B	\$ 367
		I-4745A	\$ 160	R-2561C	\$ 47	I-4745C	\$ 47	I-4745C	\$ 47	U-2519AB	\$ 529	U-2519AB	\$ 529	I-4745C	\$ 367
		I-4745B	\$ 367	R-2633	\$ 532	X-0002B	\$ 89	R-2633	\$ 532	U-2519A	\$ 529	U-2519A	\$ 529	VA I00937	\$ 160
		I-4745C	\$ 367	R-4462	\$ 200	X-0002CA	\$ 89	R-4462	\$ 200	U-2519BB	\$ 529	U-2519BB	\$ 529	X-0002B	\$ 89
		X-0002B	\$ 89	U-4738	\$ 1,031	X-0002CB	\$ 89	X-0002B	\$ 89	U-3423	\$ 19	U-3423	\$ 19	X-0002CA	\$ 89
		X-0002CA	\$ 89	UFSTIP 133	\$ 22	STIP Total	\$ 616	X-0002CA	\$ 89	X-0002B	\$ 89	X-0002B	\$ 89	X-0002CB	\$ 89
		X-0002CB	\$ 89	X-0002CB	\$ 89	SHC Total	\$ -	X-0002CB	\$ 89	STIP Total	\$ 743	STIP Total	\$ 743	STIP Total	\$ 775
		STIP Total	\$ 668	X-0002CA	\$ 89	CU1 I-40	\$ 160	STIP Total	\$ 1,124	SHC Total	\$ -	SHC Total	\$ -	SHC Total	\$ -
		SHC Total	\$ -	X-0002CB	\$ 89	CU2 I-40	\$ 72	SHC 352	\$ 37	ACC CU2 95	\$ 292	ACC CU18	\$ 24	CU1 95	\$ 864
		CU1 24	\$ 28	STIP Total	\$ 2,177	CU6 24	\$ 44	SHC353-354	\$ 88	CU3 95	\$ 120	CU2 95	\$ 292	CU6 24	\$ 44
		CU2 24	\$ 23	SHC Total	\$ -	Conceptual Upgrade Total	\$ 276	SHC Total	\$ 125	CU6 24	\$ 44	CU3 95	\$ 120	VA I664	\$ 932
		CU2 258	\$ 38	CU2 95	\$ 292	Grand Total	\$ 892	CU1 S211	\$ 13	SCP2 CU10	\$ 458	CU6 24	\$ 44	VA I95	\$ 370
		CU3 24	\$ 31	CU6 24	\$ 44			CU1 S87U17	\$ 41	SCP2 CU11	\$ 120	LCYork CU2	\$ 17	VA S164	\$ 16
		CU4 24	\$ 38	Conceptual Upgrade Total	\$ 336			CU2 95	\$ 292	SCP2 CU12	\$ 85	SCP6 CU1	\$ 240	VA U58 CU1	\$ 9
		CU6 24	\$ 44	Grand Total	\$ 2,514			CU6 24	\$ 44	SCP6 CU1	\$ 240	SCP6 CU2	\$ 96	VA U58 CU2	\$ 49
		Conceptual Upgrade Total	\$ 202					Conceptual Upgrade Total	\$ 390	SCP6 CU2	\$ 96	SCP6 CU3	\$ 240	Conceptual Upgrade Total	\$ 2,285
		Grand Total	\$ 870					Grand Total	\$ 1,639	SCP6 CU3	\$ 240	SCP6 CU4	\$ 313	Grand Total	\$ 3,060
										SCP6 CU4	\$ 313	SCP6 CU5	\$ 1,131		
										SCP8 CU2	\$ 42	Conceptual Upgrade Total	\$ 2,518		
								SCP8 CU3	\$ 132	Grand Total	\$ 3,260				
								Conceptual Upgrade Total	\$ 2,183						
								Grand Total	\$ 2,926						

Projects Included in Network Analyst Model (2040 STIP PLUS) - RoRo and Oversized Cargo

Caterpillar (Triad)	Intersection of Union Cross and Dell Blvd, Winston-Salem	FS-1002A	\$	6	FS-1005A	\$	126	FS-1005A	\$	126	FS-1005A	\$	126	I-0911A	\$	49	I-0911A	\$	49	I-0305	\$	213
		FS-1005A	\$	126	I-0305	\$	213	I-0305	\$	213	I-0305	\$	213	I-3311B	\$	170	I-3311B	\$	170	I-4743	\$	99
		FS-1103A	\$	46	I-3306A	\$	159	I-3306A	\$	159	I-3306A	\$	159	I-4750A	\$	93	I-4750A	\$	93	VA100937	\$	160
		I-0305	\$	213	I-5111A	\$	59	I-4744	\$	126	I-5111A	\$	59	I-4750B	\$	176	I-4750B	\$	176	STIP Total	\$	471
		I-3306A	\$	159	I-5111BA	\$	137	I-5111A	\$	59	I-5111BA	\$	137	SC 126	\$	39	SC 126	\$	39	SHC131-132	\$	654
		I-4744	\$	126	I-5111BB	\$	32	I-5111BA	\$	137	I-5111BB	\$	32	STIP Total	\$	527	STIP Total	\$	527	SHC Total	\$	654
		I-5111A	\$	59	R-2633	\$	532	I-5111BB	\$	32	R-2633	\$	532	SHC 220	\$	144	SHC 220	\$	144	SHC 40m	\$	132
		I-5111BA	\$	137	R-2633BB	\$	532	STIP Total	\$	851	R-2633BB	\$	532	SHC Total	\$	144	SHC Total	\$	144	CU1 85	\$	593
		I-5111BB	\$	32	R-2633CA	\$	532	SHC 139	\$	198	R-2633CA	\$	532	CU2 40m	\$	237	ACC CU18	\$	24	VA 1664	\$	932
		STIP Total	\$	903	U-4738	\$	1,031	SHC 153	\$	38	STIP Total	\$	1,258	CU3 485	\$	86	CU2 40m	\$	237	VA S164	\$	16
		SHC 139	\$	198	UFSTIP 133	\$	22	SHC 154	\$	48	SHC 139	\$	198	CU3 485	\$	59	CU3 485	\$	86	VA U58 CU1	\$	9
		SHC 153	\$	38	STIP Total	\$	2,311	SHC 158	\$	127	SHC 153	\$	38	CU5 485	\$	121	CU4 485	\$	59	VA U58 CU2	\$	49
		SHC 154	\$	48	SHC 139	\$	198	SHC Total	\$	411	SHC 154	\$	48	SCP2 CU10	\$	458	CU5 485	\$	121	Conceptual Upgrade Total	\$	1,733
		SHC 158	\$	127	SHC 153	\$	38	CU1 40m	\$	132	SHC 158	\$	127	SCP2 CU11	\$	120	LCYork CU2	\$	17	Grand Total	\$	2,858
		SHC Total	\$	411	SHC 154	\$	48	CU1 74	\$	40	SHC 352	\$	37	SCP2 CU12	\$	85	SCP2 CU10	\$	458			
		CU1 24	\$	28	SHC 158	\$	127	CU1 85	\$	593	SHC353-354	\$	88	SCP2 CU8	\$	95	SCP2 CU8	\$	95			
		CU1 40m	\$	132	SHC Total	\$	411	CU1 I-40	\$	160	SHC Total	\$	536	SCP2 CU9	\$	272	SCP2 CU9	\$	272			
		CU1 74	\$	40	CU1 40m	\$	132	CU2 I-40	\$	72	CU1 40m	\$	132	SCP4 CU10	\$	99	SCP4 CU10	\$	99			
		CU1 85	\$	593	CU1 74	\$	40	Conceptual Upgrade Total	\$	999	CU1 74	\$	40	SCP4 CU11	\$	36	SCP4 CU11	\$	36			
		CU2 24	\$	23	CU1 85	\$	593	Grand Total	\$	2,261	CU1 85	\$	593	SCP4 CU12	\$	138	SCP4 CU12	\$	138			
		CU2 258	\$	38	CU1 I-40	\$	160				CU1 I-40	\$	160	SCP4 CU13	\$	45	SCP4 CU13	\$	45			
		CU3 24	\$	31	CU2 I-40	\$	72				CU1 S211	\$	13	SCP4 CU14	\$	95	SCP4 CU14	\$	95			
		CU4 24	\$	38	Conceptual Upgrade Total	\$	999				CU1 S87U17	\$	41	SCP4 CU2	\$	65	SCP4 CU2	\$	65			
		Conceptual Upgrade Total	\$	925	Grand Total	\$	3,721				CU2 I-40	\$	72	SCP4 CU3	\$	33	SCP4 CU3	\$	33			
		Grand Total	\$	2,239							Conceptual Upgrade Total	\$	1,052	SCP4 CU4	\$	36	SCP4 CU4	\$	36			
											Grand Total	\$	2,846	SCP4 CU5	\$	26	SCP4 CU5	\$	26			
														SCP4 CU6&7	\$	154	SCP4 CU6&7	\$	154			
														SCP4 CU8	\$	116	SCP4 CU8	\$	116			
														SCP4 CU9	\$	348	SCP4 CU9	\$	348			
														SCP8 CU2	\$	42	SCP6 CU5	\$	1,131			
														SCP8 CU3	\$	132	Conceptual Upgrade Total	\$	3,691			
														Conceptual Upgrade Total	\$	2,898	Grand Total	\$	4,361			
												Grand Total	\$	3,568								
Daimler Buses	6012-B High Point Road, Greensboro	FS-1002A	\$	6	FS-1005A	\$	126	FS-1005A	\$	126	FS-1005A	\$	126	R-3421	\$	220	R-3421	\$	220	I-0305	\$	213
		FS-1005A	\$	126	I-0305	\$	213	I-0305	\$	213	I-0305	\$	213	SC U52	\$	24	SC U52	\$	24	I-4743	\$	99
		FS-1103A	\$	46	I-3306A	\$	159	I-3306A	\$	159	I-3306A	\$	159	U-2412	\$	44	U-2412	\$	44	U-2412	\$	44
		I-0305	\$	213	I-5111A	\$	59	I-5111A	\$	59	I-5111A	\$	59	STIP Total	\$	289	STIP Total	\$	289	VA100937	\$	160
		I-3306A	\$	159	I-5111BA	\$	137	I-5111BA	\$	137	I-5111BA	\$	137	SHC 264	\$	218	SHC 264	\$	218	STIP Total	\$	515
		I-4744	\$	126	I-5111BB	\$	32	I-5111BB	\$	32	I-5111BB	\$	32	SHC Total	\$	218	SHC Total	\$	218	SHC131-132	\$	654
		I-5111A	\$	59	R-2633	\$	532	U-2412	\$	44	R-2633	\$	532	CU1 73	\$	91	ACC CU18	\$	24	SHC Total	\$	654
		I-5111BA	\$	137	R-2633BB	\$	532	STIP Total	\$	770	R-2633BB	\$	532	PD CU1	\$	42	CU1 73	\$	91	CU1 40m	\$	132
		I-5111BB	\$	32	R-2633CA	\$	532	SHC 139	\$	198	R-2633CA	\$	532	SCP2 CU10	\$	458	LCYork CU2	\$	17	CU1 85	\$	593
		U-2412	\$	44	U-2412	\$	44	SHC 153	\$	38	U-2412	\$	44	SCP2 CU11	\$	120	PD CU1	\$	42	VA 1664	\$	932
		STIP Total	\$	948	U-4738	\$	1,031	SHC 154	\$	48	STIP Total	\$	1,302	SCP2 CU12	\$	85	SCP6 CU2	\$	96	VA S164	\$	16
		SHC 139	\$	198	UFSTIP 133	\$	22	SHC 158	\$	127	SHC 139	\$	198	SCP6 CU2	\$	96	SCP6 CU3	\$	240	VA U58 CU1	\$	9
		SHC 153	\$	38	STIP Total	\$	2,355	SHC Total	\$	411	SHC 153	\$	38	SCP6 CU3	\$	240	SCP6 CU4	\$	313	VA U58 CU2	\$	49
		SHC 154	\$	48	SHC 139	\$	198	CU1 40m	\$	132	SHC 154	\$	48	SCP6 CU4	\$	313	SCP6 CU5	\$	1,131	Conceptual Upgrade Total	\$	1,733
		SHC 158	\$	127	SHC 153	\$	38	CU1 85	\$	593	SHC 158	\$	127	SCP8 CU2	\$	42	Conceptual Upgrade Total	\$	1,954	Grand Total	\$	2,902
		SHC Total	\$	411	SHC 154	\$	48	CU1 I-40	\$	160	SHC 352	\$	37	SCP8 CU3	\$	132	Grand Total	\$	2,461			
		CU1 24	\$	28	SHC 158	\$	127	CU2 I-40	\$	72	SHC353-354	\$	88	Conceptual Upgrade Total	\$	1,619						
		CU1 40m	\$	132	SHC Total	\$	411	CU1 85	\$	593	SHC Total	\$	536	Grand Total	\$	2,126						
		CU1 85	\$	593	CU1 40m	\$	132	CU1 I-40	\$	160	CU1 40m	\$	132									
		CU2 24	\$	23	CU1 85	\$	593	CU2 I-40	\$	72	CU1 85	\$	593									
		CU2 258	\$	38	CU1 I-40	\$	160	Conceptual Upgrade Total	\$	1,784	CU1 I-40	\$	160									
		CU3 24	\$	31	CU2 I-40	\$	72	Grand Total	\$	2,965	CU1 S211	\$	13									
		CU4 24	\$	38	Conceptual Upgrade Total	\$	958				CU1 S87U17	\$	41									
		Conceptual Upgrade Total	\$	884	Grand Total	\$	3,724				CU2 I-40	\$	72									
		Grand Total	\$	2,243							Conceptual Upgrade Total	\$	1,011									
											Grand Total	\$	2,849									

Projects Included in Network Analyst Model (2040 STIP PLUS) - RoRo and Oversized Cargo

Thomas Build Buses	1408 Courtesy Road, High Point	FS-1002A	\$	6	FS-1005A	\$	126	FS-1005A	\$	126	FS-1005A	\$	126	R-3421	\$	220	R-3421	\$	220	I-0305	\$	213
		FS-1005A	\$	126	I-0305	\$	213	I-0305	\$	213	I-0305	\$	213	SC U52	\$	24	SC U52	\$	24	I-4743	\$	99
		FS-1103A	\$	46	I-3306A	\$	159	I-3306A	\$	159	I-3306A	\$	159	STIP Total	\$	244	STIP Total	\$	244	VA100937	\$	160
		I-0305	\$	213	I-5111A	\$	59	I-5111A	\$	59	I-5111A	\$	59	SHC 264	\$	218	SHC 264	\$	218	STIP Total	\$	515
		I-3306A	\$	159	I-5111BA	\$	137	I-5111BA	\$	137	I-5111BA	\$	137	SHC Total	\$	218	SHC Total	\$	218	SHC131-132	\$	654
		I-4744	\$	126	I-5111BB	\$	32	I-5111BB	\$	32	I-5111BB	\$	32	CU1 73	\$	91	ACC CU18	\$	24	SHC Total	\$	654
		I-5111A	\$	59	R-2633	\$	44	R-2633	\$	44	R-2633	\$	44	CU2 85	\$	320	CU1 73	\$	91	SHC Total	\$	654
		I-5111BA	\$	137	R-2633BB	\$	532	R-2633BB	\$	532	R-2633BB	\$	532	PD CU1	\$	42	CU2 85	\$	320	CU1 40m	\$	132
		I-5111BB	\$	32	R-2633CA	\$	198	R-2633CA	\$	198	R-2633CA	\$	198	SCP2 CU10	\$	458	LCYork CU2	\$	17	CU1 85	\$	593
		U-2412	\$	44	U-2412	\$	44	U-2412	\$	44	U-2412	\$	44	SCP2 CU11	\$	120	PD CU1	\$	42	VA I664	\$	932
		STIP Total	\$	948	U-4738	\$	1,031	U-4738	\$	1,031	U-4738	\$	1,031	SCP2 CU12	\$	85	SCP6 CU2	\$	96	VA S164	\$	16
		SHC 139	\$	198	UFSTIP 133	\$	22	SHC 158	\$	127	SHC 139	\$	198	SCP6 CU3	\$	96	SCP6 CU3	\$	240	VA U58 CU1	\$	9
		SHC 153	\$	38	STIP Total	\$	2,355	SHC 154	\$	48	SHC 153	\$	48	SCP6 CU2	\$	240	SCP6 CU4	\$	313	VA U58 CU2	\$	49
		SHC 154	\$	48	SHC 139	\$	198	SHC 158	\$	127	SHC 154	\$	48	SCP6 CU4	\$	313	SCP6 CU5	\$	1,131	Conceptual Upgrade Total	\$	1,733
		SHC 158	\$	127	SHC 153	\$	38	SHC Total	\$	586	SHC 158	\$	127	SCP8 CU2	\$	42	Conceptual Upgrade Total	\$	2,273	Grand Total	\$	2,902
		SHC Total	\$	411	SHC 154	\$	48	CU1 40m	\$	132	SHC 352	\$	37	SCP8 CU3	\$	132	Conceptual Upgrade Total	\$	2,736	Grand Total	\$	2,902
		CU1 24	\$	28	SHC 158	\$	127	CU1 85	\$	593	SHC353-354	\$	88	Conceptual Upgrade Total	\$	1,939						
		CU1 40m	\$	132	SHC Total	\$	411	CU1 I-40	\$	160	SHC Total	\$	536	Grand Total	\$	2,401						
		CU1 85	\$	593	CU1 40m	\$	132	CU2 I-40	\$	72	CU1 40m	\$	132									
		CU2 24	\$	23	CU1 85	\$	593	Conceptual Upgrade Total	\$	958	CU1 85	\$	593									
		CU2 258	\$	38	CU1 I-40	\$	160	Grand Total	\$	2,314	CU1 I-40	\$	160									
		CU3 24	\$	31	CU2 I-40	\$	72				CU1 S211	\$	13									
		CU4 24	\$	38	Conceptual Upgrade Total	\$	958				CU1 S87U17	\$	41									
		Conceptual Upgrade Total	\$	884	Grand Total	\$	3,724				CU2 I-40	\$	72									
Grand Total	\$	2,243							Conceptual Upgrade Total	\$	1,011											
									Grand Total	\$	2,849											
Honda	3601 S. Hwy 119, Haw River	FS-1002A	\$	6	FS-1005A	\$	126	FS-1005A	\$	126	FS-1005A	\$	126	R-3421	\$	220	R-3421	\$	220	I-0305	\$	213
		FS-1005A	\$	126	I-0305	\$	213	I-0305	\$	213	I-0305	\$	213	SC U52	\$	24	SC U52	\$	24	I-4743	\$	99
		FS-1103A	\$	46	I-3306A	\$	159	I-3306A	\$	159	I-3306A	\$	159	STIP Total	\$	244	STIP Total	\$	244	VA100937	\$	160
		I-0305	\$	213	I-5111A	\$	59	I-5111A	\$	59	I-5111A	\$	59	SHC 264	\$	218	SHC 264	\$	218	STIP Total	\$	471
		I-3306A	\$	159	I-5111BA	\$	137	I-5111BA	\$	137	I-5111BA	\$	137	SHC Total	\$	218	SHC Total	\$	218	SHC131-132	\$	654
		I-5111A	\$	59	I-5111BB	\$	32	I-5111BB	\$	32	I-5111BB	\$	32	CU1 73	\$	91	ACC CU18	\$	24	SHC Total	\$	654
		I-5111BA	\$	137	R-2633	\$	44	R-2633	\$	44	R-2633	\$	44	CU1 85	\$	593	CU1 73	\$	91	CU1 85	\$	593
		I-5111BB	\$	32	R-2633BB	\$	532	R-2633BB	\$	532	R-2633BB	\$	532	PD CU1	\$	42	CU1 85	\$	593	VA I664	\$	932
		STIP Total	\$	778	R-2633CA	\$	198	R-2633CA	\$	198	R-2633CA	\$	198	SCP2 CU10	\$	458	LCYork CU2	\$	17	VA S164	\$	16
		SHC 139	\$	198	U-4738	\$	1,031	SHC 154	\$	48	STIP Total	\$	1,258	SCP2 CU11	\$	120	PD CU1	\$	42	VA U58 CU1	\$	9
		SHC 153	\$	38	UFSTIP 133	\$	22	SHC 158	\$	127	SHC 139	\$	198	SCP2 CU12	\$	85	SCP6 CU2	\$	96	VA U58 CU2	\$	49
		SHC 154	\$	48	STIP Total	\$	2,311	SHC Total	\$	411	SHC 153	\$	38	SCP6 CU2	\$	96	SCP6 CU3	\$	240	Conceptual Upgrade Total	\$	1,600
		SHC 158	\$	127	SHC 139	\$	198	CU1 85	\$	593	SHC 154	\$	48	SCP6 CU3	\$	240	SCP6 CU4	\$	313	Grand Total	\$	2,725
		SHC Total	\$	411	SHC 153	\$	38	CU1 I-40	\$	160	SHC 158	\$	127	SCP6 CU4	\$	313	SCP6 CU5	\$	1,131			
		CU1 24	\$	28	SHC 154	\$	48	CU2 I-40	\$	72	SHC 352	\$	37	SCP8 CU2	\$	42	Conceptual Upgrade Total	\$	2,547			
		CU1 85	\$	593	SHC 158	\$	127	Conceptual Upgrade Total	\$	826	SHC353-354	\$	88	SCP8 CU3	\$	132	Grand Total	\$	3,010			
		CU2 24	\$	23	SHC Total	\$	411	Grand Total	\$	1,963	SHC Total	\$	536	Conceptual Upgrade Total	\$	2,213						
		CU2 258	\$	38	CU1 85	\$	593				CU1 85	\$	593	Grand Total	\$	2,675						
		CU3 24	\$	31	CU1 I-40	\$	160				CU1 I-40	\$	160									
		CU4 24	\$	38	CU2 I-40	\$	72				CU1 S211	\$	13									
		Conceptual Upgrade Total	\$	752	Conceptual Upgrade Total	\$	826				CU1 S87U17	\$	41									
		Grand Total	\$	1,941	Grand Total	\$	3,548				CU2 I-40	\$	72									
											Conceptual Upgrade Total	\$	879									
											Grand Total	\$	2,673									



Projects Included in Network Analyst Model (2040 STIP PLUS) - RoRo and Oversized Cargo

John Deere	6501 NC 55 East, Fuquay Varina	FS-1002A	\$ 6	R-2609	\$ 239	R-2609	\$ 239	R-2609	\$ 239	I-3806	\$ 106	I-3806	\$ 106	I-5111BA	\$ 137		
		FS-1103A	\$ 46	R-2633	\$ 40	R-3410	\$ 40	R-2633	\$ 40	I-4745A	\$ 160	I-4745A	\$ 160	I-5111BB	\$ 32		
		R-2609	\$ 239	R-2633BB	\$ 532	STIP Total	\$ 279	R-2633BB	\$ 532	R-2633BB	\$ 532	I-4745B	\$ 367	I-4745B	\$ 367	R-2609	\$ 239
		R-3410	\$ 40	R-2633CA	\$ 127	SHC 158	\$ 127	R-2633CA	\$ 127	R-2633CA	\$ 127	I-4745C	\$ 239	I-4745C	\$ 239	VA100937	\$ 160
		STIP Total	\$ 331	R-3410	\$ 40	SHC Total	\$ 127	R-3410	\$ 40	R-2609	\$ 239	R-2609	\$ 239	R-2609	\$ 239	STIP Total	\$ 568
		SHC 158	\$ 127	U-4738	\$ 1,031	CU1 42	\$ 53	STIP Total	\$ 811	R-3410	\$ 40	R-3410	\$ 40	R-3410	\$ 40	SHC Total	\$ -
		SHC Total	\$ 127	UFSTIP 133	\$ 22	CU1 I-40	\$ 160	SHC 158	\$ 127	STIP Total	\$ 911	STIP Total	\$ 911	STIP Total	\$ 911	CU1 95	\$ 864
		CU1 24	\$ 28	STIP Total	\$ 1,864	CU2 I-40	\$ 72	SHC 352	\$ 37	SHC 158	\$ 127	SHC 158	\$ 127	SHC 158	\$ 127	CU2 401	\$ 54
		CU1 42	\$ 53	SHC 158	\$ 127	Conceptual Upgrade Total	\$ 285	SHC353-354	\$ 88	SHC Total	\$ 127	SHC Total	\$ 127	SHC Total	\$ 127	CU3 70	\$ 49
		CU2 24	\$ 23	SHC Total	\$ 127	Grand Total	\$ 690	SHC Total	\$ 252	CU1 42	\$ 53	ACC CU18	\$ 24	VA I664	\$ 932	VA I95	\$ 370
		CU2 258	\$ 38	CU1 42	\$ 53	CU1 42	\$ 53	CU2 95	\$ 292	CU2 95	\$ 292	CU1 42	\$ 53	VA S164	\$ 16	VA S164	\$ 16
		CU3 24	\$ 31	CU1 I-40	\$ 160	CU1 I-40	\$ 160	CU3 95	\$ 120	CU3 95	\$ 120	CU2 95	\$ 292	VA U58 CU1	\$ 9	VA U58 CU1	\$ 9
		CU4 24	\$ 38	CU2 I-40	\$ 72	CU1 S211	\$ 13	SCP2 CU10	\$ 458	CU3 95	\$ 120	CU3 95	\$ 120	VA U58 CU2	\$ 49	VA U58 CU2	\$ 49
		Conceptual Upgrade Total	\$ 211	Conceptual Upgrade Total	\$ 285	CU1 S87U17	\$ 41	SCP2 CU11	\$ 120	LCYorK CU2	\$ 17	VA U58 CU2	\$ 49	Conceptual Upgrade Total	\$ 2,343	Conceptual Upgrade Total	\$ 2,343
		Grand Total	\$ 669	Grand Total	\$ 2,275	CU2 I-40	\$ 72	SCP2 CU12	\$ 85	SCP6 CU1	\$ 240	Conceptual Upgrade Total	\$ 3,691	Grand Total	\$ 2,911	Grand Total	\$ 2,911
						Conceptual Upgrade Total	\$ 338	SCP6 CU1	\$ 240	SCP6 CU2	\$ 96	SCP6 CU2	\$ 96				
						Grand Total	\$ 1,400	SCP6 CU2	\$ 240	SCP6 CU3	\$ 240	SCP6 CU3	\$ 240				
								SCP6 CU3	\$ 240	SCP6 CU4	\$ 313	SCP6 CU4	\$ 313				
								SCP6 CU4	\$ 313	SCP6 CU5	\$ 1,131	SCP6 CU5	\$ 1,131				
								SHC 158	\$ 42	Conceptual Upgrade Total	\$ 127	Conceptual Upgrade Total	\$ 2,653				
								SCP8 CU3	\$ 132	Grand Total	\$ 2,192	Grand Total	\$ 3,691				
								Conceptual Upgrade Total	\$ 2,192	Grand Total	\$ 3,230	Grand Total	\$ 3,230				
								Grand Total	\$ 3,230								
Caterpillar (Sanford)	5000 Womack Road, Sanford	FS-1002A	\$ 6	I-4745A	\$ 160	I-4745C	\$ 367	I-4745A	\$ 160	R-2212	\$ 41	R-2212	\$ 41	I-0305	\$ 213		
		FS-1103A	\$ 46	R-2561	\$ 96	R-2609	\$ 235	R-2561	\$ 96	R-2528	\$ 78	R-2528	\$ 78	I-3306A	\$ 159		
		I-4745C	\$ 367	R-2561C	\$ 47	UF STIP	\$ 103	R-2561C	\$ 47	R-3421	\$ 220	R-3421	\$ 220	I-4743	\$ 99		
		R-2609	\$ 235	R-2633	\$ 532	STIP Total	\$ 705	R-2633	\$ 532	SC U52	\$ 24	SC U52	\$ 24	U-2901	\$ 26		
		UF STIP	\$ 103	R-4462	\$ 200	SHC Total	\$ -	R-4462	\$ 200	STIP Total	\$ 364	STIP Total	\$ 364	VA100937	\$ 160		
		STIP Total	\$ 757	U-4738	\$ 1,031	CU1 I-40	\$ 160	CU7 24	\$ 100	SHC Total	\$ -	SHC Total	\$ -	STIP Total	\$ 657		
		SHC Total	\$ -	UFSTIP 133	\$ 22	CU2 I-40	\$ 72	X-0002B	\$ 89	PD CU1	\$ 42	ACC CU18	\$ 24	SHC131-132	\$ 654		
		CU1 24	\$ 28	X-0002B	\$ 89	Conceptual Upgrade Total	\$ 232	X-0002CA	\$ -	SCP2 CU10	\$ 458	LCYorK CU2	\$ 17	SHC 139	\$ 198		
		CU2 24	\$ 23	X-0002CA	\$ -	Grand Total	\$ 937	X-0002CB	\$ -	SCP2 CU11	\$ 120	PD CU1	\$ 42	SHC Total	\$ 852		
		CU2 258	\$ 38	X-0002CB	\$ -	STIP Total	\$ 1,224	SCP2 CU12	\$ 85	SCP6 CU2	\$ 96	SCP6 CU2	\$ 96	VA I664	\$ 932		
		CU3 24	\$ 31	STIP Total	\$ 2,177	SHC 252	\$ 9	SCP6 CU2	\$ 96	SCP6 CU3	\$ 240	SCP6 CU3	\$ 240	VA S164	\$ 16		
		CU4 24	\$ 38	SHC 252	\$ 9	SHC 352	\$ 37	SCP6 CU3	\$ 240	SCP6 CU4	\$ 313	SCP6 CU4	\$ 313	VA U58 CU1	\$ 9		
		Conceptual Upgrade Total	\$ 158	SHC Total	\$ 9	SHC353-354	\$ 88	SCP6 CU4	\$ 313	SCP6 CU5	\$ 1,131	SCP6 CU5	\$ 1,131	VA U58 CU2	\$ 49		
		Grand Total	\$ 916	CU2 95	\$ 292	SHC Total	\$ 134	SCP8 CU2	\$ 42	ACC CU18	\$ 24	Conceptual Upgrade Total	\$ 1,007	Conceptual Upgrade Total	\$ 1,007		
				CU3 87	\$ 5	CU1 S211	\$ 13	SCP8 CU3	\$ 132	LCYorK CU2	\$ 17	Grand Total	\$ 2,516	Grand Total	\$ 2,516		
				CU6 24	\$ 44	CU1 S87U17	\$ 41	Conceptual Upgrade Total	\$ 1,528	PD CU1	\$ 42						
				CU7 24	\$ 100	CU2 95	\$ 292	Grand Total	\$ 1,892	Conceptual Upgrade Total	\$ 1,945						
				Conceptual Upgrade Total	\$ 441	CU3 87	\$ 5			Grand Total	\$ 2,309						
				Grand Total	\$ 2,628	CU6 24	\$ 44										
						CU7 24	\$ 100										
						Conceptual Upgrade Total	\$ 495										
						Grand Total	\$ 1,853										



Projects Included in Network Analyst Model (2040 STIP PLUS) - RoRo and Oversized Cargo

Daimler - Truck Plant	1800 N. Main Street, Mount Holly	FS-1002A	\$	6	FS-1106B	\$	116	FS-1106B	\$	116	FS-1106B	\$	116	SC 126	\$	39	SC 126	\$	39	I-0305	\$	213		
		FS-1103A	\$	46	I-3801	\$	106	I-3801	\$	106	I-3801	\$	106	STIP Total	\$	39	STIP Total	\$	39	I-0911A	\$	49		
		I-4745A	\$	160	R-2248E	\$	104	R-2248E	\$	104	R-2248E	\$	104	SHC Total	\$	-	SHC Total	\$	-	I-3311B	\$	170		
		I-4745B	\$	367	R-2559	\$	824	R-2559	\$	824	R-2320	\$	105	CU4 485	\$	59	ACC CU18	\$	24	I-4743	\$	99		
		I-4745C	\$	51	R-3329	\$	532	R-3329	\$	532	R-2559	\$	824	CU5 485	\$	121	CU4 485	\$	59	I-4750A	\$	93		
		R-0623	\$	51	R-2633	\$	532	R-2633	\$	532	R-3329	\$	532	SCP2 CU10	\$	458	CU5 485	\$	121	I-4750B	\$	176		
		R-2107B	\$	-	R-4462	\$	200	R-2633BB	\$	532	R-2633	\$	532	SCP2 CU11	\$	120	LCYork CU2	\$	17	VA100937	\$	160		
		R-2212	\$	41	U-4738	\$	1,031	R-4462	\$	200	R-4441	\$	399	SCP2 CU12	\$	85	SC 126	\$	39	STIP Total	\$	959		
		R-2248E	\$	104	UFSTIP 133	\$	22	STIP Total	\$	1,882	R-4462	\$	200	SCP2 CU8	\$	95	SCP2 CU10	\$	458	SHC 220	\$	144		
		R-2527	\$	44	STIP Total	\$	2,935	SHC 91	\$	107	SC 73	\$	59	SCP2 CU9	\$	272	SCP2 CU8	\$	95	SHC131-132	\$	654		
		R-2528	\$	78	SHC 91	\$	107	SHC Total	\$	107	STIP Total	\$	2,445	SCP4 CU10	\$	99	SCP2 CU9	\$	272	SHC Total	\$	798		
		R-2529	\$	94	SHC Total	\$	107	CU1 485	\$	75	SHC 352	\$	37	SCP4 CU11	\$	36	SCP4 CU10	\$	99	CU1 40m	\$	132		
		R-2530B	\$	35	CU1 485	\$	75	CU2 485	\$	37	SHC 91	\$	107	SCP4 CU12	\$	138	SCP4 CU11	\$	36	CU1 85	\$	593		
		X-0002B	\$	89	CU2 485	\$	37	CU3 485	\$	86	SHC353-354	\$	88	SCP4 CU13	\$	45	SCP4 CU12	\$	138	CU2 40m	\$	237		
		X-0002CA	\$	89	CU3 485	\$	86	CU3 95	\$	120	SHC Total	\$	231	SCP4 CU14	\$	95	SCP4 CU13	\$	45	CU3 485	\$	86		
		X-0002CB	\$	89	CU3 95	\$	120	Conceptual Upgrade Total	\$	318	CU1 485	\$	75	SCP4 CU2	\$	65	SCP4 CU14	\$	95	VA 1664	\$	932		
		STIP Total	\$	1,116	Conceptual Upgrade Total	\$	318	Grand Total	\$	2,307	CU1 S211	\$	13	SCP4 CU3	\$	33	SCP4 CU2	\$	65	VA S164	\$	16		
		SHC Total	\$	-	Grand Total	\$	3,360	CU1 S87U17	\$	41	SCP4 CU4	\$	36	SCP4 CU3	\$	33	VA U58 CU1	\$	9					
		CU1 24	\$	28							CU2 485	\$	37	SCP4 CU5	\$	26	SCP4 CU4	\$	36	VA U58 CU2	\$	49		
		CU1 485	\$	75							CU3 485	\$	86	SCP4 CU6&7	\$	154	SCP4 CU5	\$	26	Conceptual Upgrade Total	\$	2,056		
		CU10 24	\$	9							CU3 95	\$	120	SCP4 CU8	\$	116	SCP4 CU6&7	\$	154	Grand Total	\$	3,813		
		CU2 24	\$	23							Conceptual Upgrade Total	\$	371	SCP4 CU9	\$	348	SCP4 CU8	\$	116					
		CU2 258	\$	38							Grand Total	\$	3,047	SCP8 CU2	\$	42	SCP4 CU9	\$	348					
		CU2 485	\$	37										SCP8 CU3	\$	132	SCP6 CU5	\$	1,131					
		CU3 24	\$	31										Conceptual Upgrade Total	\$	2,575	Conceptual Upgrade Total	\$	3,406					
		CU3 485	\$	86										Grand Total	\$	2,614	Grand Total	\$	3,445					
		CU4 24	\$	38																				
		CU6 24	\$	44																				
		CU7 24	\$	100																				
		CU8 24	\$	144																				
		CU9 24	\$	66																				
		Conceptual Upgrade Total	\$	719																				
		Grand Total	\$	1,835																				
		Daimler - Cleveland Truck Plant	11550 Statesville Blvd., Cleveland	FS-1002A	\$	6	FS-1005A	\$	126	FS-1005A	\$	126	FS-1005A	\$	126	I-3311C	\$	170	I-3311C	\$	170	I-0305	\$	213
				FS-1005A	\$	126	I-0305	\$	213	I-0305	\$	213	I-0305	\$	213	I-3311E	\$	12	I-3311E	\$	12	I-0911A	\$	49
				FS-1103A	\$	46	I-0911A	\$	49	I-0911A	\$	49	I-0911A	\$	49	I-3802A	\$	178	I-3802A	\$	178	I-4743	\$	99
				I-0305	\$	213	I-3306A	\$	159	I-3306A	\$	159	I-3306A	\$	159	I-3802B	\$	178	I-3802B	\$	178	R-2911	\$	26
				I-0911A	\$	49	I-5111A	\$	59	I-5111A	\$	59	I-5111A	\$	59	R-2911	\$	26	R-2911	\$	26	VA100937	\$	160
				I-3306A	\$	159	I-5111BA	\$	137	I-5111BA	\$	137	I-5111BA	\$	137	SC 126	\$	39	SC 126	\$	39	STIP Total	\$	546
				I-5111A	\$	59	I-5111BB	\$	32	I-5111BB	\$	32	I-5111BB	\$	32	STIP Total	\$	425	STIP Total	\$	425	SHC 220	\$	144
				I-5111BA	\$	137	R-2633	\$	26	R-2633	\$	26	R-2633	\$	26	SHC 95	\$	217	SHC 95	\$	217	SHC131-132	\$	654
I-5111BB	\$			32	R-2633BB	\$	532	STIP Total	\$	800	R-2633BB	\$	532	SHC 96	\$	112	SHC 96	\$	112	SHC Total	\$	798		
R-2911	\$			26	R-2633CA	\$	198	SHC 139	\$	198	R-2633CA	\$	198	SHC 97	\$	42	SHC 97	\$	42	CU1 40m	\$	132		
STIP Total	\$			852	R-2911	\$	26	SHC 153	\$	38	R-2911	\$	26	SHC Total	\$	371	SHC Total	\$	371	CU1 64	\$	13		
SHC 139	\$			198	U-4738	\$	1,031	SHC 154	\$	48	STIP Total	\$	1,332	CU3 85	\$	614	ACC CU18	\$	24	CU1 85	\$	593		
SHC 153	\$			38	UFSTIP 133	\$	22	SHC 158	\$	127	SHC 139	\$	198	CU5 485	\$	121	CU3 85	\$	614	CU2 40m	\$	237		
SHC 154	\$			48	STIP Total	\$	2,385	SHC 220	\$	144	SHC 153	\$	38	SCP2 CU10	\$	458	CU5 485	\$	121	VA 1664	\$	932		
SHC 158	\$			127	SHC 139	\$	198	SHC Total	\$	555	SHC 154	\$	48	SCP2 CU11	\$	120	LCYork CU2	\$	17	VA S164	\$	16		
SHC 220	\$			144	SHC 153	\$	38	CU1 40m	\$	132	SHC 158	\$	127	SCP2 CU12	\$	85	SCP2 CU10	\$	458	VA U58 CU1	\$	9		
SHC Total	\$			555	SHC 154	\$	48	CU1 64	\$	13	SHC 220	\$	144	SCP2 CU8	\$	95	SCP2 CU8	\$	95	VA U58 CU2	\$	49		
CU1 24	\$			28	SHC 158	\$	127	CU1 85	\$	593	SHC 352	\$	37	SCP2 CU9	\$	272	SCP2 CU9	\$	272	Conceptual Upgrade Total	\$	1,983		
CU1 40m	\$			132	SHC 220	\$	144	CU1 I-40	\$	160	SHC353-354	\$	88	SCP4 CU10	\$	99	SCP4 CU10	\$	99	Grand Total	\$	3,327		
CU1 64	\$			13	SHC Total	\$	555	CU2 40m	\$	237	SHC Total	\$	680	SCP4 CU11	\$	36	SCP4 CU11	\$	36					
CU1 85	\$			593	CU1 40m	\$	132	CU2 I-40	\$	72	CU1 40m	\$	132	SCP4 CU12	\$	138	SCP4 CU12	\$	138					
CU2 24	\$			23	CU1 85	\$	593	Conceptual Upgrade Total	\$	1,209	CU1 64	\$	13	SCP4 CU13	\$	45	SCP4 CU13	\$	45					
CU2 258	\$			38	CU1 64	\$	13	Grand Total	\$	2,564	CU1 85	\$	593	SCP4 CU14	\$	95	SCP4 CU14	\$	95					
CU2 40m	\$			237	CU1 I-40	\$	160				CU1 I-40	\$	160	SCP4 CU2	\$	65	SCP4 CU2	\$	65					
CU3 24	\$			31	CU2 40m	\$	237				CU1 S211	\$	13	SCP4 CU3	\$	33	SCP4 CU3	\$	33					
CU4 24	\$			38	CU2 I-40	\$	72				CU1 S87U17	\$	41	SCP4 CU4	\$	36	SCP4 CU4	\$	36					
Conceptual Upgrade Total	\$			1,135	Conceptual Upgrade Total	\$	1,209				CU2 40m	\$	237	SCP4 CU5	\$	26	SCP4 CU5	\$	26					
Grand Total	\$			2,543	Grand Total	\$	4,149				CU2 I-40	\$	72	SCP4 CU6&7	\$	154	SCP4 CU6&7	\$	154					
											Conceptual Upgrade Total	\$	1,262	SCP4 CU8	\$	116	SCP4 CU8	\$	116					
											Grand Total	\$	3,274	SCP4 CU9	\$	348	SCP4 CU9	\$	348					
														SCP8 CU2	\$	42	SCP8 CU5	\$	1,131					
														SCP8 CU3	\$	132	Conceptual Upgrade Total	\$	3,923					
														Conceptual Upgrade Total	\$	3,131	Grand Total	\$	4,719					
														Grand Total	\$	3,927								

Projects Included in Network Analyst (2040 STIP PLUS) - Grain Market

Grain Market		Site 3- Beaufort Inlet- Radio Island		Site 4- River Road		Site 5- Port of Wilmington		Site 6- Cape Fear River- Southport		Charleston, SC		Savannah, GA		Norfolk, VA	
2040 STIP Road Screening Criteria	Location	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost
Iredell County Grain Elevator	Statesville, NC	FS-1002A	\$ 6	FS-1005A	\$ 126	FS-1005A	\$ 126	FS-1106B	\$ 116	I-3311B	\$ 170	I-3311B	\$ 170	I-0305	\$ 213
		FS-1005A	\$ 126	I-0305	\$ 213	I-0305	\$ 213	I-3311B	\$ 170	I-4750A	\$ 93	I-4750A	\$ 93	I-0911A	\$ 49
		FS-1103A	\$ 46	I-0911A	\$ 49	I-0911A	\$ 49	I-3801	\$ 106	I-4750B	\$ 176	I-4750B	\$ 176	I-4743	\$ 99
		I-0305	\$ 213	I-3306A	\$ 159	I-3306A	\$ 159	I-4750A	\$ 93	SC 126	\$ 39	STIP Total	\$ 439	VA 1664	\$ 932
		I-0911A	\$ 49	I-5111A	\$ 59	I-5111A	\$ 59	I-4750B	\$ 176	STIP Total	\$ 478	SHC Total	\$ -	VA S164	\$ 16
		I-3306A	\$ 159	I-5111BA	\$ 137	I-5111BA	\$ 137	R-2248E	\$ 104	SHC Total	\$ -	ACC CU18	\$ 24	VA100937	\$ 160
		I-5111A	\$ 59	I-5111BB	\$ 32	I-5111BB	\$ 32	R-2559	\$ 824	CU3 485	\$ 86	CU3 485	\$ 86	STIP Total	\$ 1,469
		I-5111BA	\$ 137	R-2633	\$ 532	STIP Total	\$ 774	R-3329	\$ 532	CU4 485	\$ 59	CU4 485	\$ 59	SHC 220	\$ 144
		I-5111BB	\$ 32	R-2633BB	\$ 532	SHC 139	\$ 198	R-2633	\$ 532	CU5 485	\$ 121	CU5 485	\$ 121	SHC131-132	\$ 654
		STIP Total	\$ 827	R-2633CA	\$ 532	SHC 153	\$ 38	R-4462	\$ 200	SCP2 CU10	\$ 458	LCYork CU2	\$ 17	SHC Total	\$ 798
		SHC 139	\$ 198	U-4738	\$ 1,031	SHC 154	\$ 48	STIP Total	\$ 2,321	SCP2 CU11	\$ 120	SC 126	\$ 39	CU1 40m	\$ 132
		SHC 153	\$ 38	UFSTIP 133	\$ 22	SHC 158	\$ 127	SHC 352	\$ 37	SCP2 CU12	\$ 85	SCP2 CU10	\$ 458	CU1 85	\$ 593
		SHC 154	\$ 48	STIP Total	\$ 2,360	SHC 220	\$ 144	SHC 91	\$ 107	SCP2 CU8	\$ 95	SCP2 CU8	\$ 95	CU2 40m	\$ 237
		SHC 158	\$ 127	SHC 139	\$ 198	SHC Total	\$ 555	SHC353-354	\$ 88	SCP2 CU9	\$ 272	SCP2 CU9	\$ 272	VA U58 CU1	\$ 9
		SHC 220	\$ 144	SHC 153	\$ 38	CU1 40m	\$ 132	SHC Total	\$ 231	SCP4 CU10	\$ 99	SCP4 CU10	\$ 99	VA U58 CU2	\$ 49
		SHC Total	\$ 555	SHC 154	\$ 48	CU1 85	\$ 593	CU1 485	\$ 75	SCP4 CU11	\$ 36	SCP4 CU11	\$ 36	Conceptual Upgrade Total	\$ 1,021
		CU1 24	\$ 28	SHC 158	\$ 127	CU1 I-40	\$ 160	CU1 S211	\$ 13	SCP4 CU12	\$ 138	SCP4 CU12	\$ 138	Grand Total	\$ 3,288
		CU1 40m	\$ 132	SHC 220	\$ 144	CU2 40m	\$ 237	CU1 S87U17	\$ 41	SCP4 CU13	\$ 45	SCP4 CU13	\$ 45		
		CU1 85	\$ 593	SHC Total	\$ 555	CU2 I-40	\$ 72	CU2 485	\$ 37	SCP4 CU14	\$ 95	SCP4 CU14	\$ 95		
		CU2 24	\$ 23	CU1 40m	\$ 132	Conceptual Upgrade Total	\$ 1,195	CU3 95	\$ 120	SCP4 CU2	\$ 65	SCP4 CU2	\$ 65		
		CU2 258	\$ 38	CU1 85	\$ 593	Grand Total	\$ 2,525	SCP6 CU1	\$ 240	SCP4 CU3	\$ 33	SCP4 CU3	\$ 33		
		CU2 40m	\$ 237	CU1 I-40	\$ 160	Conceptual Upgrade Total	\$ 525	SCP4 CU4	\$ 36	SCP4 CU4	\$ 36	SCP4 CU4	\$ 36		
		CU3 24	\$ 31	CU2 40m	\$ 237	Grand Total	\$ 3,078	SCP4 CU5	\$ 26	SCP4 CU5	\$ 26	SCP4 CU5	\$ 26		
		CU4 24	\$ 38	CU2 I-40	\$ 72			SCP4 CU6&7	\$ 154	SCP4 CU6&7	\$ 154	SCP4 CU6&7	\$ 154		
		Conceptual Upgrade Total	\$ 1,122	Conceptual Upgrade Total	\$ 1,195			SCP4 CU8	\$ 116	SCP4 CU8	\$ 116	SCP4 CU8	\$ 116		
		Grand Total	\$ 1,763	Grand Total	\$ 4,110			SCP4 CU9	\$ 348	SCP4 CU9	\$ 348	SCP4 CU9	\$ 348		
								SCP8 CU2	\$ 42	SCP6 CU5	\$ 1,131	SCP6 CU5	\$ 1,131		
								SCP8 CU3	\$ 132	Conceptual Upgrade Total	\$ 3,492	Conceptual Upgrade Total	\$ 3,492		
								Conceptual Upgrade Total	\$ 2,661	Grand Total	\$ 3,931	Grand Total	\$ 3,931		
								Grand Total	\$ 3,138						

Projects Included in Network Analyst Model (2040 STIP PLUS) - Wood Pellet

Wood Pellet	Location	Site 3- Beafort Inlet- Radio Island		Site 4- River Road		Site 5- Port of Wilmington		Site 6- Cape Fear River- Southport		Charleston, SC		Savannah, GA		Norfolk, VA	
2040 STIP Road Screening Criteria		Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost
International Paper Co.	Lumberton, NC	FS-1002A	\$ 6	FS-1106B	\$ 116	FS-1106B	\$ 116	FS-1106B	\$ 116	I-3806	\$ 106	I-3806	\$ 106	I-3806	\$ 106
		FS-1103A	\$ 46	I-3801	\$ 106	I-3801	\$ 106	I-3801	\$ 106	STIP Total	\$ 106	STIP Total	\$ 106	I-4745A	\$ 160
		FS-1106B	\$ 116	I-3806	\$ 106	I-3806	\$ 106	I-3806	\$ 106	SHC Total	\$ -	SHC Total	\$ -	I-4745B	\$ 367
		I-3801	\$ 106	R-2633	\$ 532	R-2633	\$ 532	R-2633	\$ 532	CU3 95	\$ 120	ACC CU18	\$ 24	I-4745C	\$ -
		I-3806	\$ 106	R-4462	\$ 200	R-2633BB	\$ 532	R-4462	\$ 200	SCP2 CU10	\$ 458	CU3 95	\$ 120	VA I664	\$ 932
		R-2633	\$ 532	U-4738	\$ 1,031	R-4462	\$ 200	STIP Total	\$ 1,060	SCP2 CU11	\$ 120	LCYork CU2	\$ 17	VA I95	\$ 370
		R-2633BB		UFSTIP 133	\$ 22	STIP Total	\$ 1,060	SHC 352	\$ 37	SCP2 CU12	\$ 85	SCP6 CU1	\$ 240	VA S164	\$ 16
		R-2633CA		STIP Total	\$ 2,113	SHC Total	\$ -	SHC353-354	\$ 88	SCP6 CU1	\$ 240	SCP6 CU2	\$ 96	VA100937	\$ 160
		R-3300	\$ 220	SHC Total	\$ -	Conceptual Upgrade Total	\$ -	SHC Total	\$ 125	SCP6 CU2	\$ 96	SCP6 CU3	\$ 240	STIP Total	\$ 2,111
		R-4462	\$ 200	Conceptual Upgrade Total	\$ -	Grand Total	\$ 1,060	CU1 S211	\$ 13	SCP6 CU3	\$ 240	SCP6 CU4	\$ 313	SHC Total	\$ -
		STIP Total	\$ 1,332	Grand Total	\$ 2,113			CU1 S87U17	\$ 41	SCP6 CU4	\$ 313	SCP6 CU5	\$ 1,131	CU1 95	\$ 864
		SHC Total	\$ -					Conceptual Upgrade Total	\$ 53	SCP6 CU2	\$ 42	Conceptual Upgrade Total	\$ 2,181	CU2 95	\$ 292
		CU1 17	\$ 124					Grand Total	\$ 1,238	SCP8 CU3	\$ 132	Grand Total	\$ 2,287	VA U58 CU1	\$ 9
		CU1 24	\$ 28							Conceptual Upgrade Total	\$ 1,847			VA U58 CU2	\$ 49
		CU2 24	\$ 23							Grand Total	\$ 1,953			Conceptual Upgrade Total	\$ 1,215
CU3 24	\$ 31											Grand Total	\$ 3,325		
Conceptual Upgrade Total	\$ 207														
Grand Total	\$ 1,539														
KapStone Kraft Paper Corp.	Roanoke Rapids, NC	FS-0802B	\$ 200	R-2633	\$ 532	U-3125	\$ 133	R-2633	\$ 532	I-3806	\$ 106	I-3806	\$ 106	VA I664	\$ 932
		FS-1002A	\$ 6	R-2633BB		STIP Total	\$ 133	R-2633BB	\$ 160	I-4745A	\$ 160	I-4745A	\$ 160	VA I95	\$ 370
		R-1015	\$ 183	R-2633CA		SHC 375	\$ 52	R-2633CA	\$ 367	I-4745B	\$ 367	I-4745B	\$ 367	VA S164	\$ 16
		R-3307	\$ 98	U-3125	\$ 133	SHC 377	\$ 48	U-3125	\$ 133	I-4745C	\$ 133	I-4745C	\$ 133	VA100937	\$ 160
		R-4431	\$ 181	U-4738	\$ 1,031	SHC Total	\$ 100	STIP Total	\$ 665	STIP Total	\$ 633	STIP Total	\$ 633	STIP Total	\$ 1,478
		STIP Total	\$ 668	UFSTIP 133	\$ 22	CU1 70	\$ 120	SHC 352	\$ 37	SHC Total	\$ -	SHC Total	\$ -	SHC Total	\$ -
		SHC 336	\$ 25	STIP Total	\$ 1,718	CU1 95	\$ 864	SHC 375	\$ 52	CU1 95	\$ 864	ACC CU18	\$ 24	CU1 95	\$ 864
		SHC 344	\$ 107	SHC 375	\$ 52	CU1 I-40	\$ 160	SHC 377	\$ 48	CU2 95	\$ 292	CU1 95	\$ 864	VA U58 CU1	\$ 9
		SHC 345	\$ 21	SHC 377	\$ 48	CU2 I-40	\$ 72	SHC353-354	\$ 88	CU3 95	\$ 120	CU2 95	\$ 292	VA U58 CU2	\$ 49
		SHC 346	\$ 60	SHC Total	\$ 100	Conceptual Upgrade Total	\$ 1,216	SHC Total	\$ 224	SCP2 CU10	\$ 458	CU3 95	\$ 120	Conceptual Upgrade Total	\$ 922
		SHC 347	\$ 37	CU1 70	\$ 120	Grand Total	\$ 1,449	CU1 70	\$ 120	SCP2 CU11	\$ 120	LCYork CU2	\$ 17	Grand Total	\$ 2,400
		SHC 348	\$ 36	CU1 95	\$ 864			CU1 95	\$ 864	SCP2 CU12	\$ 85	SCP6 CU1	\$ 240		
		SHC 349	\$ 96	CU1 I-40	\$ 160			CU1 I-40	\$ 160	SCP6 CU1	\$ 240	SCP6 CU2	\$ 96		
		SHC Total	\$ 381	CU2 I-40	\$ 72			CU1 S211	\$ 13	SCP6 CU2	\$ 96	SCP6 CU3	\$ 240		
		CU1 64e	\$ 72	Conceptual Upgrade Total	\$ 1,216			CU1 S87U17	\$ 41	SCP6 CU3	\$ 240	SCP6 CU4	\$ 313		
CU1 95	\$ 864	Grand Total	\$ 3,034			CU2 I-40	\$ 72	SCP6 CU4	\$ 313	SCP6 CU5	\$ 1,131				
Conceptual Upgrade Total	\$ 936					Conceptual Upgrade Total	\$ 1,270	SCP8 CU2	\$ 42	Conceptual Upgrade Total	\$ 3,338				
Grand Total	\$ 1,985					Grand Total	\$ 2,159	SCP8 CU3	\$ 132	Grand Total	\$ 3,971				
								Conceptual Upgrade Total	\$ 3,003						
								Grand Total	\$ 3,636						
Blue Ridge Paper Products, Inc.	Canton, NC	FS-1002A	\$ 6	FS-1106B	\$ 116	FS-1106B	\$ 116	FS-1106B	\$ 116	I-4400	\$ 113	I-4400	\$ 113	I-0305	\$ 213
		FS-1005A	\$ 126	I-3801	\$ 106	I-3801	\$ 106	I-3801	\$ 106	I-4700	\$ 99	I-4700	\$ 99	I-0911A	\$ 49
		FS-1103A	\$ 46	I-4400	\$ 113	I-4400	\$ 113	I-4400	\$ 113	SC I26	\$ 39	SC I26	\$ 39	I-4743	\$ 99
		I-0305	\$ 213	I-4700	\$ 99	I-4700	\$ 99	I-4700	\$ 99	STIP Total	\$ 251	STIP Total	\$ 251	VA I664	\$ 932
		I-0911A	\$ 49	R-2633	\$ 532	R-2633	\$ 532	R-2633	\$ 532	SHC Total	\$ -	SHC Total	\$ -	VA S164	\$ 16
		I-3306A	\$ 159	R-4462	\$ 200	R-2633BB	\$ 532	R-4462	\$ 200	CU1 40c	\$ 277	ACC CU18	\$ 24	VA100937	\$ 160
		I-5111A	\$ 59	U-4738	\$ 1,031	R-4462	\$ 200	STIP Total	\$ 1,166	CU1 26	\$ 145	CU1 40c	\$ 277	STIP Total	\$ 1,469
		I-5111BA	\$ 137	UFSTIP 133	\$ 22	STIP Total	\$ 1,166	SHC 352	\$ 37	SCP2 CU1	\$ 120	CU1 26	\$ 145	SHC 220	\$ 144
		I-5111BB	\$ 32	STIP Total	\$ 2,219	SHC Total	\$ -	SHC353-354	\$ 88	SCP2 CU10	\$ 458	LCYork CU2	\$ 17	SHC 29	\$ 223
		STIP Total	\$ 827	SHC Total	\$ -	CU1 40c	\$ 277	SHC Total	\$ 125	SCP2 CU11	\$ 120	SCP2 CU1	\$ 120	SHC 55	\$ 489
		SHC 139	\$ 198	CU1 40c	\$ 277	CU1 26	\$ 145	CU1 40c	\$ 277	SCP2 CU12	\$ 85	SCP2 CU10	\$ 458	SHC131-132	\$ 654
		SHC 153	\$ 38	CU1 26	\$ 145	CU3 95	\$ 120	CU1 26	\$ 145	SCP2 CU2	\$ 102	SCP2 CU2	\$ 102	SHC Total	\$ 1,510
		SHC 154	\$ 48	CU3 95	\$ 120	SCP1 CU4	\$ 153	CU1 S211	\$ 13	SCP2 CU3	\$ 257	SCP2 CU3	\$ 257	CU1 40w	\$ 193
		SHC 158	\$ 127	SCP1 CU4	\$ 153	SCP1 CU5	\$ 29	CU1 S87U17	\$ 41	SCP2 CU4	\$ 22	SCP2 CU4	\$ 22	CU1 40c	\$ 277
		SHC 220	\$ 144	SCP1 CU5	\$ 29	SCP1 CU6	\$ 285	CU3 95	\$ 120	SCP2 CU5	\$ 174	SCP2 CU5	\$ 174	CU1 40m	\$ 132
SHC 29	\$ 223	SCP1 CU6	\$ 285	SCP1 CU7	\$ 376	SCP1 CU4	\$ 153	SCP2 CU6	\$ 363	SCP2 CU6	\$ 363	CU1 85	\$ 593		
SHC 55	\$ 489	SCP1 CU7	\$ 376	SCP2 CU1	\$ 120	SCP1 CU5	\$ 285	SCP2 CU7	\$ 157	SCP2 CU7	\$ 157	CU2 40m	\$ 237		
SHC Total	\$ 1,267	SCP2 CU1	\$ 120	SCP2 CU2	\$ 102	SCP1 CU6	\$ 285	SCP2 CU8	\$ 95	SCP2 CU8	\$ 95	CU2 40w	\$ 92		
CU1 140w	\$ 193	SCP2 CU2	\$ 102	SCP2 CU3	\$ 257	SCP1 CU7	\$ 376	SCP2 CU9	\$ 272	SCP2 CU9	\$ 272	VA U58 CU1	\$ 9		
CU1 40c	\$ 277	SCP2 CU3	\$ 257	SCP2 CU4	\$ 22	SCP2 CU1	\$ 120	SCP8 CU2	\$ 42	SCP6 CU5	\$ 1,131	VA U58 CU2	\$ 49		
CU1 24	\$ 28	SCP2 CU4	\$ 22	SCP2 CU5	\$ 174	SCP2 CU2	\$ 102	SCP8 CU3	\$ 132	Conceptual Upgrade Total	\$ 3,615	Conceptual Upgrade Total	\$ 1,584		
CU1 40m	\$ 132	SCP2 CU5	\$ 174	SCP2 CU6	\$ 363	SCP2 CU3	\$ 257	Conceptual Upgrade Total	\$ 2,822	Grand Total	\$ 3,865	Grand Total	\$ 4,562		
CU1 85	\$ 593	SCP2 CU6	\$ 363	SCP2 CU7	\$ 157	SCP2 CU4	\$ 22	Grand Total	\$ 3,073						
CU2 24	\$ 23	SCP2 CU7	\$ 157	SCP6 CU1	\$ 240	SCP2 CU5	\$ 174								
CU2 258	\$ 38	SCP6 CU1	\$ 240	SCP6 CU2	\$ 96	SCP2 CU6	\$ 363								
CU2 40m	\$ 237	SCP6 CU2	\$ 96	Conceptual Upgrade Total	\$ 2,917	SCP2 CU7	\$ 157								
CU2 40w	\$ 92	Conceptual Upgrade Total	\$ 2,917	Grand Total	\$ 4,083	SCP6 CU1	\$ 240								
CU3 24	\$ 31	Grand Total	\$ 5,136			SCP6 CU2	\$ 96								
CU4 24	\$ 38					Conceptual Upgrade Total	\$ 2,970								
Conceptual Upgrade Total	\$ 1,684					Grand Total	\$ 4,261								
Grand Total	\$ 3,778														

Projects Included in Network Analyst Model (2040 STIP PLUS) - Wood Pellet

Church & Church Lumber LLC	Wilkesboro, NC	FS-1002A	\$ 6	FS-1005A	\$ 126	FS-1005A	\$ 126	FS-1005A	\$ 126	R-2608	\$ 158	R-2608	\$ 158	I-0305	\$ 213		
		FS-1005A	\$ 126	I-0305	\$ 213	I-0305	\$ 213	I-0305	\$ 213	SC 126	\$ 39	SC 126	\$ 39	I-4743	\$ 99		
		FS-1103A	\$ 46	I-3306A	\$ 159	I-3306A	\$ 159	I-3306A	\$ 159	U-3321	\$ 947	U-3321	\$ 947	VA 1664	\$ 932		
		I-0305	\$ 213	I-5111A	\$ 59	I-5111A	\$ 59	I-5111A	\$ 59	U-4700	\$ 268	U-4700	\$ 268	VA100937	\$ 160		
		I-3306A	\$ 159	I-5111BA	\$ 137	I-5111BA	\$ 137	I-5111BA	\$ 137	STIP Total	\$ 1,411	STIP Total	\$ 1,411	STIP Total	\$ 1,403		
		I-5111A	\$ 59	I-5111BB	\$ 32	I-5111BB	\$ 32	I-5111BB	\$ 32	SHC 31	\$ 32	SHC 31	\$ 32	SHC 220	\$ 144		
		I-5111BA	\$ 137	R-2633	\$ 532	R-2633	\$ 532	R-2633	\$ 532	SHC 55	\$ 489	SHC 55	\$ 489	SHC131-132	\$ 654		
		I-5111BB	\$ 32	R-2633BB	\$ 198	R-2633BB	\$ 198	R-2633BB	\$ 198	SHC Total	\$ 521	SHC Total	\$ 521	SHC Total	\$ 798		
		STIP Total	\$ 778	R-2633CA	\$ 38	R-2633CA	\$ 38	R-2633CA	\$ 38	CU2 421w	\$ 40	ACC CU18	\$ 24	VA S164	\$ 16		
		SHC 139	\$ 198	UFSTIP 133	\$ 22	SHC 154	\$ 48	STIP Total	\$ 1,258	CU5 485	\$ 121	CU2 421w	\$ 40	CU1 40m	\$ 132		
		SHC 153	\$ 38	U-4738	\$ 1,031	SHC 158	\$ 127	SHC 139	\$ 198	SCP2 CU10	\$ 458	CU5 485	\$ 121	CU1 421w	\$ 252		
		SHC 154	\$ 48	STIP Total	\$ 2,311	SHC 220	\$ 144	SHC 153	\$ 38	SCP2 CU11	\$ 120	LCYorK CU2	\$ 17	CU1 85	\$ 593		
		SHC 158	\$ 127	SHC 139	\$ 198	SHC Total	\$ 555	SHC 154	\$ 48	SCP2 CU12	\$ 85	SCP2 CU10	\$ 458	CU2 421w	\$ 40		
		SHC 220	\$ 144	SHC 153	\$ 38	CU1 40m	\$ 132	SHC 158	\$ 127	SCP2 CU8	\$ 95	SCP2 CU8	\$ 95	VA U58 CU1	\$ 9		
		SHC Total	\$ 555	SHC 154	\$ 48	CU1 421w	\$ 252	SHC 220	\$ 144	SCP2 CU9	\$ 272	SCP2 CU9	\$ 272	VA U58 CU2	\$ 49		
		CU1 24	\$ 28	SHC 158	\$ 127	CU1 85	\$ 593	SHC 352	\$ 37	SCP4 CU10	\$ 99	SCP4 CU10	\$ 99	Conceptual Upgrade Total	\$ 1,093		
		CU1 40m	\$ 132	SHC 220	\$ 144	CU1 I-40	\$ 160	SHC353-354	\$ 88	SCP4 CU11	\$ 36	SCP4 CU11	\$ 36	Grand Total	\$ 3,294		
		CU1 421w	\$ 252	SHC Total	\$ 555	CU2 421w	\$ 40	SHC Total	\$ 680	SCP4 CU12	\$ 138	SCP4 CU12	\$ 138				
		CU1 85	\$ 593	CU1 40m	\$ 132	CU2I-40	\$ 72	CU1 40m	\$ 132	SCP4 CU13	\$ 45	SCP4 CU13	\$ 45				
		CU2 24	\$ 23	CU1 421w	\$ 252	Conceptual Upgrade Total	\$ 1,251	CU1 421w	\$ 252	SCP4 CU14	\$ 95	SCP4 CU14	\$ 95				
		CU2 258	\$ 38	CU1 85	\$ 593	Grand Total	\$ 2,532	CU1 85	\$ 593	SCP4 CU2	\$ 65	SCP4 CU2	\$ 65				
		CU2 421w	\$ 40	CU1 I-40	\$ 160			CU1 I-40	\$ 160	SCP4 CU3	\$ 33	SCP4 CU3	\$ 33				
		CU3 24	\$ 31	CU2 421w	\$ 40			CU1 S211	\$ 13	SCP4 CU4	\$ 36	SCP4 CU4	\$ 36				
		CU4 24	\$ 38	CU2 I-40	\$ 72			CU1 S87U17	\$ 41	SCP4 CU5	\$ 26	SCP4 CU5	\$ 26				
		Conceptual Upgrade Total	\$ 1,177	Conceptual Upgrade Total	\$ 1,251			CU2 421w	\$ 40	SCP4 CU6&7	\$ 154	SCP4 CU6&7	\$ 154				
		Grand Total	\$ 2,510	Grand Total	\$ 4,117			CU2 I-40	\$ 72	SCP4 CU8	\$ 116	SCP4 CU8	\$ 116				
								Conceptual Upgrade Total	\$ 1,304	SCP4 CU9	\$ 348	SCP4 CU9	\$ 348				
								Grand Total	\$ 3,242	SCP8 CU2	\$ 42	SCP6 CU5	\$ 1,131				
										SCP8 CU3	\$ 132	Conceptual Upgrade Total	\$ 3,349				
										Conceptual Upgrade Total	\$ 2,557	Grand Total	\$ 5,281				
										Grand Total	\$ 4,488						
		West Fraser Timber Co.	Riegelwood, NC	FS-1002A	\$ 6	R-2561C	\$ 47	R-2561C	\$ 47	R-2561C	\$ 47	ACC CU9	\$ 350	FS-1106B	\$ 116	R-2235	\$ 115
				FS-1103A	\$ 46	R-2633	\$ 532	R-2633	\$ 532	R-2633	\$ 532	R-2561C	\$ 47	I-3801	\$ 106	R-2507	\$ 156
R-2561C	\$ 47			R-4462	\$ 200	R-2633BB	\$ 532	R-4462	\$ 200	R-3436	\$ 752	R-2561C	\$ 47	R-2561C	\$ 47		
R-2633	\$ 532			U-4738	\$ 1,031	R-4462	\$ 200	STIP Total	\$ 779	STIP Total	\$ 779	R-4462	\$ 200	R-2633	\$ 532		
R-2633BB	\$ 532			UFSTIP 133	\$ 22	STIP Total	\$ 779	SHC 352	\$ 37	STIP Total	\$ 1,349	STIP Total	\$ 469	R-2633BB	\$ 532		
R-2633CA	\$ 38			STIP Total	\$ 1,832	SHC Total	\$ -	SHC353-354	\$ 88	SHC Total	\$ -	SHC Total	\$ -	R-2633CA	\$ 38		
R-3300	\$ 220			SHC Total	\$ -	Conceptual Upgrade Total	\$ -	SHC Total	\$ 125	ACC CU1	\$ 25	ACC CU18	\$ 24	R-3300	\$ 220		
R-4462	\$ 200			Conceptual Upgrade Total	\$ -	Grand Total	\$ 779	CU1 S211	\$ 13	ACC CU11	\$ 57	CU3 95	\$ 120	R-4462	\$ 200		
STIP Total	\$ 1,052			Grand Total	\$ 1,832			CU1 S87U17	\$ 41	ACC CU2	\$ 62	LCYorK CU2	\$ 17	R-5311	\$ 73		
SHC Total	\$ -							Conceptual Upgrade Total	\$ 53	ACC CU3	\$ 62	SCP6 CU1	\$ 240	STIP Total	\$ 1,343		
CU1 17	\$ 124							Grand Total	\$ 957	ACC CU4	\$ 46	SCP6 CU2	\$ 96	SHC 344	\$ 107		
CU1 24	\$ 28									ACC CU5	\$ 55	SCP6 CU3	\$ 240	SHC 345	\$ 21		
CU2 24	\$ 23									ACC CU6	\$ 49	SCP6 CU4	\$ 313	SHC 346	\$ 60		
CU3 24	\$ 31									ACC CU7	\$ 39	SCP6 CU5	\$ 1,131	SHC 347	\$ 37		
Conceptual Upgrade Total	\$ 207									ACC CU8	\$ 10	Conceptual Upgrade Total	\$ 2,181	SHC 348	\$ 36		
Grand Total	\$ 1,258							SC U17	\$ 79	Grand Total	\$ 2,650	SHC 349	\$ 96				

Projects Included in Network Analyst Model (2040 STIP) - Container Cargo

Draft STIP Scenario Cost (in millions)

Container Cargo		Draft STIP Scenario Cost (in millions)													
2040 STIP Road Screening Criteria	Location	Site 3- Beaufort Inlet- Radio Island		Site 4- River Road		Site 5- Port of Wilmington		Site 6- Cape Fear River- Southport		Charleston, SC		Savannah, GA		Norfolk, VA	
		Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost
Charlotte NS Railyard	1914 N Tryon Street, Charlotte, NC 28206	R-3329	824	R-3329	824	R-3329	824	R-3329	824	SC U17	79	Total	-	R-2413C	214.82
		R-2559		R-2559		R-2559		R-2559		Total	79			I-3802A	177.96
		R-2303A		R-2633	532	R-2633	532	R-5021	76					I-3802B	
		R-2303B	191	R-2633BB		R-2633BB		Total	900					VA100937	67
		R-2303C		R-3601	22	Total	1,356							Total	460
		R-2303D		Total	1,378										
		Total	1,015												
Charlotte CSX Railyard	5430 Hovis Road, Charlotte, NC 28208	R-3329	824	R-3329	824	R-3329	824	R-3329	824	SC U17	79	Total	-	R-2413C	214.82
		R-2559		R-2559		R-2559		R-2559		Total	79			I-3802A	177.96
		R-2303A		R-2633	532	R-2633	532	R-5021	76					I-3802B	
		R-2303B	191	R-2633BB		R-2633BB		Total	900					VA100937	67
		R-2303C		R-3601	22	Total	1,356							Total	460
		R-2303D		Total	1,378										
		Total	1,015												
Charlotte Inland Port	1301 Exchange Street, Charlotte, NC 28208														
Greensboro NS Railyard	1105 Merritt Drive, Greensboro, NC 27407	R-2417AA	48	R-2633	532	R-2633	532	R-3421	220	R-3421	220	R-3421	220	VA100937	67
		Total	48	R-2633BB		R-2633BB		R-5021	76	SC U17	79	SC U52	24	Total	67
				R-3601	22	R-3421	220	Total	296	SC I73	59	Total	244		
				R-3421	220	Total	752			S41	5				
				Total	774					Total	362				
NCSA Greensboro NS Inland Port	505 Chimney Rock Rd, Greensboro, NC 27409	R-2417AA	48	R-2633	532	R-2633	532	R-3421	220	R-3421	220	R-3421	220	VA100937	67
		Total	48	R-2633BB		R-2633BB		R-5021	76	SC U17	79	SC U52	24	Total	67
				R-3601	22	R-3421	220	Total	296	SC I73	59	Total	244		
				R-3421	220	Total	752			S41	5				
				Total	774					Total	362				
Raleigh: CSX	860 Semart Drive, Raleigh, NC 27604	Total	-	R-2633	532	Total	-	R-2633		SC U17	79	SC I73	59	VA100937	67
				R-2633CA				R-2633CA	532	SC I73	59	U-2901	26	Total	67
				R-3601	22			R-2633BB		U-2901	26	R-2501C	19		
				Total	554			Total	532	R-2501C	19	SC U52	24		
										S41	5	Total	128		
										Total	188				

Projects Included in Network Analyst Model (2040 STIP) - RoRo and Oversized Cargo

Ro-Ro and Oversized Cargo															
2040 STIP Road Screening Criteria	Location	Site 3- Beaufort Inlet- Radio Island		Site 4- River Road		Site 5- Port of Wilmington		Site 6- Cape Fear River- Southport		Charleston, SC		Savannah, GA		Norfolk, VA	
		Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost
Spirit AeroSystems	GTP, Kinston	Total	\$ -	R-2633	\$ 532	Total	\$ -	R-2633	\$ 532	SC U17	\$ 79	SC U378	\$ 122	Total	\$ -
				R-2633CA				R-2633BB		S41	\$ 5	Total	\$ 122		
				R-3601	\$ 22			R-2633CA		Total	\$ 84				
				Total	\$ 554			Total	\$ 532						
Camp LeJeune	US 17/NC 24, Jacksonville	Total	\$ -	R-2633	\$ 532	R-5023C	\$ 2	R-2633	\$ 532	R-5023B	\$ 2	SC U378	\$ 122	Total	\$ -
				R-2633CA		R-5023B	\$ 2	R-2633BB		R-5023C	\$ 2	R-5023C	\$ 2		
				R-3601	\$ 22	Total	\$ 4	R-2633CA		S41	\$ 5	R-5023B	\$ 2		
				R-5023C	\$ 2			R-5023C	\$ 2	SC U17	\$ 79	Total	\$ 126		
				R-5023B	\$ 2			R-5023B	\$ 2	Total	\$ 88				
				Total	\$ 558			Total	\$ 536						
Fort Bragg	NC 210/NC 24, Fayetteville	R-2303A		R-2633	\$ 532	R-2633	\$ 532	R-5021	\$ 76	X-0002B	\$ 89	X-0002B	\$ 89	X-0002CA	\$ 89
		R-2303B		R-2633BB		R-2633BB		Total	\$ 76	SC U17	\$ 79	SC I73	\$ 59	X-0002CB	\$ 89
		R-2303C	\$ 191	R-2561C	\$ 47	R-2561C	\$ 47	SC I73	\$ 59	SC U52	\$ 24	X-0002B	\$ 89		
		R-2303D		R-3601	\$ 22	Total	\$ 579	U-3423	\$ 19	U-3423	\$ 19	Total	\$ 89		
		Total	\$ 191	Total	\$ 601			S41	\$ 5	Total	\$ 191				
								Total	\$ 250						
Caterpillar (Triad)	Intersection of Union Cross and Dell Blvd, Winston-Salem	R-3421	\$ 220	R-2633	\$ 532	R-2633	\$ 532	R-3421	\$ 220	R-3421	\$ 220	R-3421	\$ 220	R-2413C	\$ 215
		R-2606	\$ 207	R-2633BB		R-2633BB		R-2606	\$ 207	R-2606	\$ 207	R-2606	\$ 207	VA 100937	\$ 67
		R-2303A		R-3421	\$ 220	R-3421	\$ 220	R-5021	\$ 76	SC U17	\$ 79	SC U52	\$ 24	Total	\$ 282
		R-2303B		R-2606	\$ 207	R-2606	\$ 207	Total	\$ 503	SC I73	\$ 59	Total	\$ 452		
		R-2303C	\$ 191	R-3601	\$ 22	Total	\$ 959	S41	\$ 5						
		R-2303D		Total	\$ 981			Total	\$ 570						
		Total	\$ 619												
Daimler Buses	6012-B High Point Road, Greensboro	R-3421	\$ 220	R-2633	\$ 532	R-2633	\$ 532	R-3421	\$ 220	R-3421	\$ 220	R-3421	\$ 220	R-2413C	\$ 215
		R-2606	\$ 207	R-2633BB		R-2633BB		R-2606	\$ 207	R-2606	\$ 207	R-2606	\$ 207	VA 100937	\$ 67
		R-2303A		R-3421	\$ 220	R-3421	\$ 220	R-5021	\$ 76	SC U17	\$ 79	U-2412	\$ 44	U-2412	\$ 44
		R-2303B		R-2606	\$ 207	R-2606	\$ 207	U-2412	\$ 44	SC I73	\$ 59	SC U52	\$ 24	Total	\$ 326
		R-2303C	\$ 191	U-2412	\$ 44	U-2412	\$ 44	Total	\$ 547	U-2412	\$ 44	Total	\$ 496		
		R-2303D		R-3601	\$ 22	Total	\$ 1,004	S41	\$ 5						
		U-2412	\$ 44	Total	\$ 1,026			Total	\$ 614						
		Total	\$ 663												
Thomas Build Buses	1408 Courtesy Road, High Point	R-3421	\$ 220	R-2633	\$ 532	R-2633	\$ 532	R-3421	\$ 220	R-3421	\$ 220	R-3421	\$ 220	R-2413C	\$ 215
		R-2606	\$ 207	R-2633BB		R-2633BB		R-2606	\$ 207	R-2606	\$ 207	R-2606	\$ 207	VA 100937	\$ 67
		R-2303A		R-3421	\$ 220	R-3421	\$ 220	R-5021	\$ 76	SC U17	\$ 79	SC U52	\$ 24	Total	\$ 282
		R-2303B		R-2606	\$ 207	R-2606	\$ 207	Total	\$ 503	SC I73	\$ 59	Total	\$ 452		
		R-2303C	\$ 191	R-3601	\$ 22	Total	\$ 959	S41	\$ 5						
		R-2303D		Total	\$ 981			Total	\$ 570						
		Total	\$ 619												
Honda	3601 S. Hwy 119, Haw River	I-3306A	\$ 72	R-2633	\$ 532	I-3306A	\$ 72	R-3421	\$ 220	R-3421	\$ 220	R-3421	\$ 220	VA 100937	\$ 67
		U-2901	\$ 26	R-2633CA		U-2901	\$ 26	R-5021	\$ 76	SC U17	\$ 79	SC U52	\$ 24	Total	\$ 67
		Total	\$ 99	I-3306A	\$ 72	Total	\$ 99	Total	\$ 296	SC I73	\$ 59	Total	\$ 244		
				U-2901	\$ 26			S41	\$ 5						
				R-3601	\$ 22			Total	\$ 362						
				Total	\$ 653										
Deere-Hitachi	1000 Deere-Hitachi Road, Kernersville	R-3421	\$ 220	R-2633	\$ 532	R-2633	\$ 532	R-3421	\$ 220	R-3421	\$ 220	R-3421	\$ 220	R-2413C	\$ 215
		R-2606	\$ 207	R-2633BB		R-2633BB		R-2606	\$ 207	R-2606	\$ 207	R-2606	\$ 207	VA 100937	\$ 67
		R-2303A		R-3421	\$ 220	R-3421	\$ 220	R-5021	\$ 76	SC U17	\$ 79	R-2611	\$ 32	R-2611	\$ 32
		R-2303B		R-2606	\$ 207	R-2606	\$ 207	R-2611	\$ 32	SC I73	\$ 59	SC U52	\$ 24	Total	\$ 314
		R-2303C	\$ 191	R-2611	\$ 32	R-2611	\$ 32	Total	\$ 535	R-2611	\$ 32	Total	\$ 484		
		R-2303D		R-3601	\$ 22	Total	\$ 991	S41	\$ 5						
		R-2611	\$ 32	Total	\$ 1,013			Total	\$ 602						
		Total	\$ 650												
GE Aviation	3701 S. Miami Blvd, Durham	U-2901	\$ 26	R-2633	\$ 532	U-2901	\$ 26	R-2633	\$ 532	SC U17	\$ 79	SC I73	\$ 59	I-3306A	\$ 72
		Total	\$ 26	R-2633CA		Total	\$ 26	R-2633BB		SC I73	\$ 59	U-2901	\$ 26	VA 100937	\$ 67
				U-2901	\$ 26			R-2633CA		U-2901	\$ 26	SC U52	\$ 24	Total	\$ 139
				R-3601	\$ 22			U-2901	\$ 26	R-2501C	\$ 19	R-2501C	\$ 19		
				Total	\$ 580			Total	\$ 558	S41	\$ 5	Total	\$ 128		
								Total	\$ 188						
John Deere	6501 NC 55 East, Fuquay Varina	Total	\$ -	R-2633	\$ 532	Total	\$ -	R-2633	\$ 532	SC U17	\$ 79	SC U378	\$ 122	Total	\$ -
				R-2633CA				R-2633BB		S41	\$ 5	Total	\$ 122		
				R-3601	\$ 22			R-2633CA		Total	\$ 84				
				Total	\$ 554			Total	\$ 532						
Caterpillar (Sanford)	5000 Womack Road, Sanford	Total	\$ -	R-2633	\$ 532	Total	\$ -	R-5021	\$ 76	SC U17	\$ 79	SC I73	\$ 59	Total	\$ -
				R-2633CA				Total	\$ 76	SC I73	\$ 59	SC U52	\$ 24		
				R-3601	\$ 22			R-2501C	\$ 19	R-2501C	\$ 19	Total	\$ 102		
				Total	\$ 554			Total	\$ 161						
Caterpillar (Clayton)	954 NC 42 East, Clayton	Total	\$ -	R-2633	\$ 532	Total	\$ -	R-2633	\$ 532	SC U17	\$ 79	SC U378	\$ 122	Total	\$ -
				R-2633CA				R-2633BB		S41	\$ 5	Total	\$ 122		
				R-3601	\$ 22			R-2633CA		Total	\$ 84				
				Total	\$ 554			Total	\$ 532						

**Projects Included in Network Analyst Model (2040 STIP) - RoRo and Oversized Cargo**

<b>Caterpillar (Smithfield)</b>	<b>1685 S. Brightleaf Blvd</b>	<b>Total</b>	\$ -	R-2633	\$ 532	<b>Total</b>	\$ -	R-2633	\$ 532	SC U17	\$ 79	SC U378	\$ 122	<b>Total</b>	\$ -
				R-2633CA				R-2633BB		S41	\$ 5	<b>Total</b>	\$ 122		
				R-3601	\$ 22			R-2633CA		<b>Total</b>	\$ 84				
				<b>Total</b>	\$ 554			<b>Total</b>	\$ 532						
<b>Daimler - Gastonia Components and Log.</b>	<b>1400 Tulip Drive, Gastonia</b>	R-2559	\$ 824	R-2559	\$ 824	R-2559	\$ 824	R-2559	\$ 824	SC U17	\$ 79	<b>Total</b>	\$ -	R-2413C	\$ 215
		R-3329		R-3329		R-3329		R-3329		<b>Total</b>	\$ 79			I-3802A	\$ 178
		R-2303A		R-2633	\$ 532	R-2633	\$ 532	R-5021	\$ 76					I-3802B	\$ 67
		R-2303B		R-2633BB		R-2633BB		<b>Total</b>	\$ 900					VA 100937	\$ 67
		R-2303C	\$ 191	R-3601	\$ 22	<b>Total</b>	\$ 1,356							<b>Total</b>	\$ 460
		R-2303D		<b>Total</b>	\$ 1,378										
		<b>Total</b>	\$ 1,015												
<b>Daimler - Truck Plant</b>	<b>1800 N. Main Street, Mount Holly</b>	R-2559	\$ 824	R-2559	\$ 824	R-2559	\$ 824	R-2559	\$ 824	U-3633	\$ 15	U-3633	\$ 15	R-2413C	\$ 215
		R-3329		R-3329		R-3329		R-3329		SC U17	\$ 79	<b>Total</b>	\$ 15	I-3802A	\$ 178
		R-2303A		R-2633	\$ 532	R-2633	\$ 532	R-5021	\$ 76	<b>Total</b>	\$ 94			I-3802B	\$ 67
		R-2303B		R-2633BB		R-2633BB		U-3633	\$ 15					VA 100937	\$ 67
		R-2303C	\$ 191	R-3601	\$ 22	U-3633	\$ 15	<b>Total</b>	\$ 915					U-3633	\$ 15
		R-2303D		U-3633	\$ 15	<b>Total</b>	\$ 1,371							<b>Total</b>	\$ 474
		U-3633	\$ 15	<b>Total</b>	\$ 1,393										
		<b>Total</b>	\$ 1,030												
<b>Daimler - Cleveland Truck Plant</b>	<b>11550 Statesville Blvd., Cleveland</b>	R-3421	\$ 220	R-2633	\$ 532	R-2633	\$ 532	R-3421	\$ 220	R-3421	\$ 220	I-3802A	\$ 178	R-2413C	\$ 215
		R-2606	\$ 207	R-2633BB		R-2633BB		R-2606	\$ 207	R-2606	\$ 207	I-3802B		VA 100937	\$ 67
		R-2303A		R-3421	\$ 220	R-3421	\$ 220	R-5021	\$ 76	SC U17	\$ 79	R-2911	\$ 26	R-2911	\$ 26
		R-2303B		R-2606	\$ 207	R-2606	\$ 207	R-2911	\$ 26	SC 173	\$ 59	<b>Total</b>	\$ 203	<b>Total</b>	\$ 307
		R-2303C	\$ 191	R-2911	\$ 26	R-2911	\$ 26	<b>Total</b>	\$ 529	R-2911	\$ 26				
		R-2303D		R-3601	\$ 22	<b>Total</b>	\$ 985			S41	\$ 5				
		R-2911	\$ 26	<b>Total</b>	\$ 1,007					<b>Total</b>	\$ 595				
		<b>Total</b>	\$ 644												

**Projects Included in Network Analyst Model (2040 STIP) - Grain Market**

Grain Market															
2040 STIP Road Screening Criteria	Location	Site 3- Beafort Inlet- Radio Island		Site 4- River Road		Site 5- Port of Wilmington		Site 6- Cape Fear River- Southport		Charleston, SC		Savannah, GA		Norfolk, VA	
		Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost
Iredell County Grain Elevator	Statesville, NC	R-3421	\$ 220	R-2633	\$ 532	R-2633	\$ 532	R-3421	\$ 220	R-3421	\$ 220	R-2233	\$ 325	VA 10093	\$ 67
		R-2606	\$ 207	R-2633BB		R-2633BB		R-2606	\$ 207	R-2606	\$ 207	Total	\$ 325	VA	\$ 36
		R-2303A		R-3421	\$ 220	R-3421	\$ 220	R-5021	\$ 76	SC U17	\$ 79			Total	\$ 103
		R-2303B		R-2606	\$ 207	R-2606	\$ 207	R-2911	\$ 26	SC I73	\$ 59				
		R-2303C	\$ 191	R-2911	\$ 26	R-2911	\$ 26	Total	\$ 529	R-2911	\$ 26				
		R-2303D		R-3601	\$ 22	Total	\$ 985			S41	\$ 5				
		R-2911	\$ 26	Total	\$ 1,007					Total	\$ 595				
		Total	\$ 644												
Lenoir County Grain Elevator	GTP, Kinston, NC														
Robeson County Grain Elevator	Lumberton, NC														

Projects Included in Network Analyst Model (2040 STIP) - Wood Pellet

Wood Pellet															
2040 STIP Road Screening Criteria	Location	Site 3- Beaufort Inlet- Radio Island		Site 4- River Road		Site 5- Port of Wilmington		Site 6- Cape Fear River- Southport		Charleston, SC		Savannah, GA		Norfolk, VA	
		Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost	Project	Cost
International Paper Co.	Lumberton, NC	R-2633		R-2633	\$ 532	R-2633	\$ 532	R-5021	\$ 76	SC U17	\$ 79	SC U378	\$ 122	X-0002B	
		R-2633BB	\$ 532	R-2633BB	\$ 532	R-2633BB	\$ 532	Total	\$ 76	S41	\$ 5	Total	\$ 122	X-0002CA	\$ 89
		R-2633CA		R-3601	\$ 22	Total	\$ 532			Total	\$ 84			X-0002CB	
		R-3300	\$ 220	Total	\$ 554									U-3423	\$ 19
		Total	\$ 752											Total	\$ 108
KapStone Kraft Paper Corp.	Roanoke Rapids, NC	R-2582	\$ 126	R-2633	\$ 532	R-2582	\$ 126	R-2633		R-2582	\$ 126	R-2582	\$ 126	R-2582	\$ 126
		Total	\$ 126	R-2633CA		U-3330	\$ 37	R-2633BB	\$ 532	SC U17	\$ 79	SC U378	\$ 122	R-2584A	\$ 105
				R-2582	\$ 126	Total	\$ 163	R-2633CA		U-3330	\$ 37	U-3330	\$ 37	R-2584B	
				U-3330	\$ 37			R-2582	\$ 126	S41	\$ 5	Total	\$ 286	Total	\$ 232
				R-3601	\$ 22			U-3330	\$ 37	Total	\$ 247				
				Total	\$ 717			Total	\$ 695						
Blue Ridge Paper Products, Inc.	Canton, NC	R-2303A		R-2633	\$ 532	R-2633	\$ 532	I-4400	\$ 113	I-4400	\$ 113	I-4400	\$ 113	VA 10093	\$ 67
		R-2303B	\$ 191	R-2633BB	\$ 532	R-2633BB	\$ 532	I-4700	\$ 99	I-4700	\$ 99	I-4700	\$ 99	VA	\$ 36
		R-2303C		I-4400	\$ 113	I-4400	\$ 113	R-5021	\$ 76	SC U17	\$ 79	Total	\$ 212	U-3301	\$ 30
		R-2303D		I-4700	\$ 99	I-4700	\$ 99	Total	\$ 288	Total	\$ 291			Total	\$ 133
		I-4400	\$ 113	R-3601	\$ 22	Total	\$ 744								
		I-4700	\$ 99	Total	\$ 766										
		Total	\$ 403												
Church & Church Lumber LLC	Wilkesboro, NC	R-3421	\$ 220	R-2633	\$ 532	R-2633	\$ 532	R-3421	\$ 220	R-2233	\$ 325	R-2233	\$ 325	VA 10093	\$ 67
		U-2524C	\$ 216	R-2633BB	\$ 532	R-2633BB	\$ 532	U-2524C	\$ 216	SC U17	\$ 79	R-0204	\$ 71	VA	\$ 36
		R-2413C	\$ 215	R-3421	\$ 220	R-3421	\$ 220	R-2413C	\$ 215	R-0204	\$ 71	Total	\$ 397	Total	\$ 103
		R-2606	\$ 207	U-2524C	\$ 216	U-2524C	\$ 216	R-2606	\$ 207	Total	\$ 476				
		R-2303A		R-2413C	\$ 215	R-2413C	\$ 215	I-5110	\$ 123						
		R-2303B	\$ 191	R-2606	\$ 207	R-2606	\$ 207	R-5021	\$ 76						
		R-2303C		I-5110	\$ 123	I-5110	\$ 123	VA	\$ 36						
		R-2303D		VA	\$ 36	VA	\$ 36	Total	\$ 1,094						
		I-5110	\$ 123	R-3601	\$ 22	Total	\$ 1,550								
		VA	\$ 36	Total	\$ 1,572										
		Total	\$ 1,209												
West Fraser Timber Co.	Riegelwood, NC	R-2633		R-2633	\$ 532	R-2633	\$ 532	R-5021	\$ 76	SC U17	\$ 79	SC U378	\$ 122	R-2561C	\$ 47
		R-2633BB	\$ 532	R-2633BB	\$ 532	R-2633BB	\$ 532	R-2561C	\$ 47	R-2561C	\$ 47	R-2561C	\$ 47	Total	\$ 47
		R-2633CA		R-2633CA		R-2633CA		Total	\$ 123	S41	\$ 5	Total	\$ 169		
		R-3300	\$ 220	R-2561C	\$ 47	R-2561C	\$ 47			Total	\$ 131				
		R-2561C	\$ 47	R-3601	\$ 22	Total	\$ 579								
		Total	\$ 799	Total	\$ 601										