
Statewide Logistics Plan for North Carolina

An Investigation of the Issues with Recommendations for Action

APPENDICES

By

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For the

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Appendices

Appendix A: Powerpoint Slide Sets

Presentations include:

Tompkins Associates

- North Carolina Statewide Logistics Proposal
- North Carolina Statewide Logistics Plan

Cambridge Systematics

- Freight Demand and Logistics – Trends and Issues
- Highway Freight Transportation – Trends and Issues
- Rail Freight Transportation – Trends and Issues
- Waterborne Freight Transportation – Trends and Issues
- State DOTs and Freight – Trends and Issues
- Virginia Statewide Multimodal Freight Study - Phase I Overview

Global Insight

- Shifts in Global Trade Patterns – Meaning for North Carolina



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North Carolina Statewide Logistics Proposal

Presented to:

**North Carolina State University
Project Team
Charlotte, NC**

March 13, 2008

Total Supply Chain Solutions
▪ Operations Consulting ▪ Technology Implementation ▪ Integration

Caveat...

This presentation and discussion is from the Shipper's perspective...

North American Port Report (1/08)

A majority of the Supply Chain Consortium respondents to the North American Port Report survey believe that their supply chain network is not optimal with respect to the ports used for their ocean freight. Significant opportunities exist from getting all aspects of the supply chain aligned to optimizing costs and customer service.

Consortium's North American Port Report (1/08)

Major points from study

- 55% of companies expect to shift the ports they use in the next 3 to 5 years.
- Ports most often noted for volume gains in the next 3 to 5 years are:
 - Charleston, SC; New York, NY; Savannah, GA; Seattle, WA; Long Beach, CA; Tacoma, WA; and Houston, TX
- 64% of respondents indicate that diversifying the number and location of ocean ports used in North America is important to reduce the possibility of disruption
- A systematic approach to global supply chains is mandatory

Agenda for Discussion

- Macro overview of lessons learned from goods movement studies from CA, OR, WA, TX and NY
 - Forecasts
 - Goods movement types and commodities
 - Capacity issues
 - Financing
 - Public-private partnerships
 - User's fee
 - State and federal funding
 - Legislative actions
 - Environmental
 - Federal security initiatives (FTZ's and in-bond)
 - Infrastructure
- Discussion on how each item above relates to this study

Goods Movement Studies

- General Observations
 - Forecasts are not gospel
 - Goods movement is inelastic until \$100 +/- per container
 - All of the studies had a strong political flavor
 - Jobs, jobs, jobs and economic development
 - Private interests should fund infrastructure
 - Create the infrastructure but not in my backyard (NIMBY)
 - Be careful what you ask for...
 - SF Bay Area Goods Movement Study
 - Highest and best use of land led to market imbalance
 - Existing infrastructure is failing and over-capacity
 - There are no guarantees

Goods Movement Lessons Learned

- **Goods Movement Forecasts**
 - Forecasts tend to be optimistic and often misunderstood
 - Commodity types were not forecasted separately nor in sufficient detail
 - Underlying assumptions for forecasts were not fully understood
- **Capacity Issues**
 - Misused term that didn't relate to the majority of the stakeholders
 - Used high level traffic engineering modeling
 - Quantified road, rail, port and air capacities but didn't provide trade-offs
 - Got caught up in the traditional financing structure

Goods Movement Lessons Learned

- **Financing**
 - Good discussion from all states on Public Private Partnering from a technical perspective
 - Did not represent the private interests very well and became somewhat unidirectional
 - PierPass- Industry told to fund improvements
 - WA Stampede Pass crowning- BNSF turned down public \$\$\$ because of strings attached
 - Every study cited the inelasticity to charge some amount “under \$200 per container” to fund infrastructure without the understanding of the impact to the system
 - Did not study the impact to local/regional economy due to diversion of cargo
 - California study indicated elasticity breakpoint was closer to \$400 per container due to population base

Goods Movement Lessons Learned

- Legislative lessons learned
 - You can't legislate prosperity
 - Industry viewed legislation as threat (PierPass)
 - Private investment slowed as a result of pending or proposed legislation
 - Security requirements are being funded with the same \$200 per container infrastructure fee
 - Environmental concerns, especially air quality are slowing or stopping projects
 - Environmental remediation legislation is targeting the same \$200 per container

North Carolina: Forecasts

- Cargo is coming to the USEC
 - Panama Canal expansion
 - Shifting manufacturing and assembly to India
 - Western intermodal costs are going up

	2008	2010	2015	2008-2015 CAGR (%)
Transatlantic	9,925	10,895	13,295	4.3
Transpacific	24,615	28,360	39,129	6.8
U.S. Atlantic/Asia	5,380	6,161	8,379	6.5
Europe/Asia	22,287	25,964	35,449	6.9
Intra-Asia	29,255	34,049	46,903	7.0
Total	117,837	137,074	185,120	6.7

Source: Global Insight by permission of author

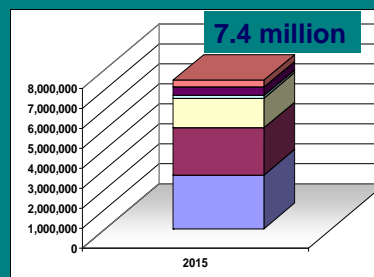
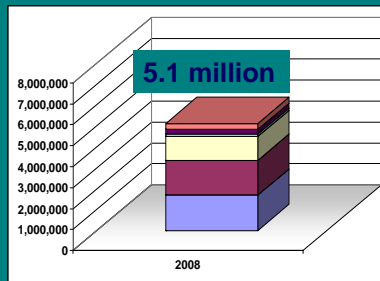
What are the Deciding Factors to Move Cargo through a Port?

- Time to market
- Service reliability
- Security of the supply chain
- Who is the BCO (Beneficial Cargo Owner)?
- What is effect of trans-loading (local vs. IPI)?
- International distribution point vs. distribution center
- Shipping strategies
 - Intermodal rates and service reliability
 - All-water routes (Panama Canal expansion 2014)
 - Mega-vessel economics

Southeast Ports Growth

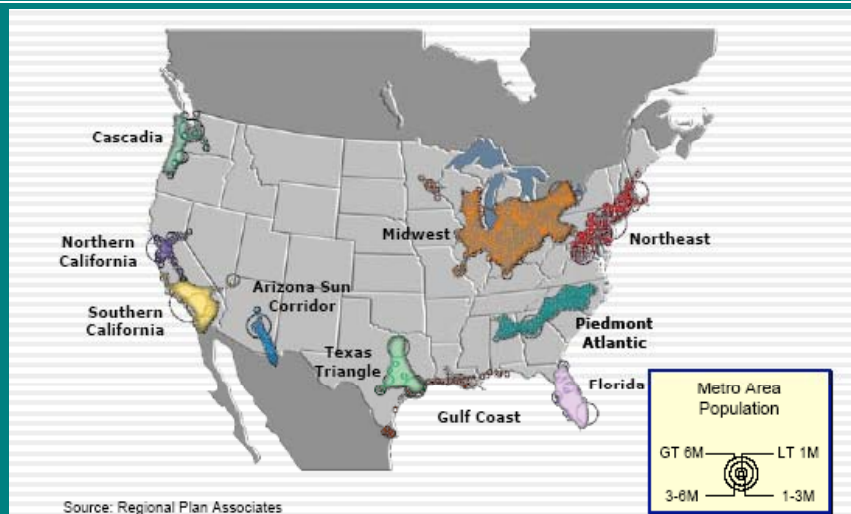
Growth rates: 2008-15

Far East	5.8%	Latin America	5.2%
Europe	3.8%	India	8.9%
Africa	3.2%	Rest of World	4.0%



Source: Global Insight by permission of author

Mega-regions will Continue to Grow



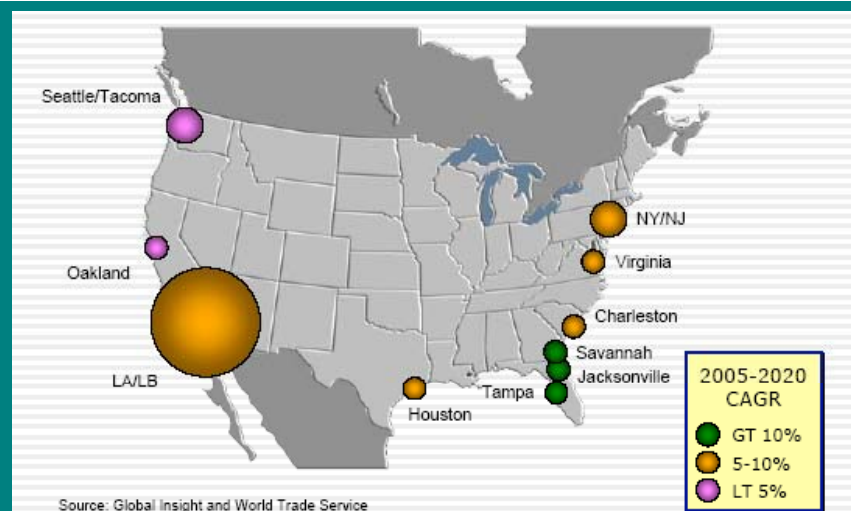
Source: Port of Tacoma by permission of author

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13

Gateways Continue to Grow



Source: Port of Tacoma by permission of author

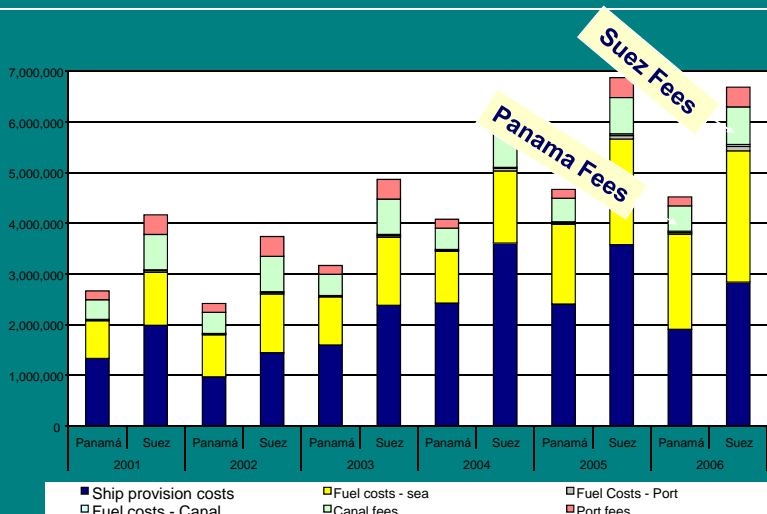
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14

Panama – Suez Route Cost Comparison

Northeast China to USEC



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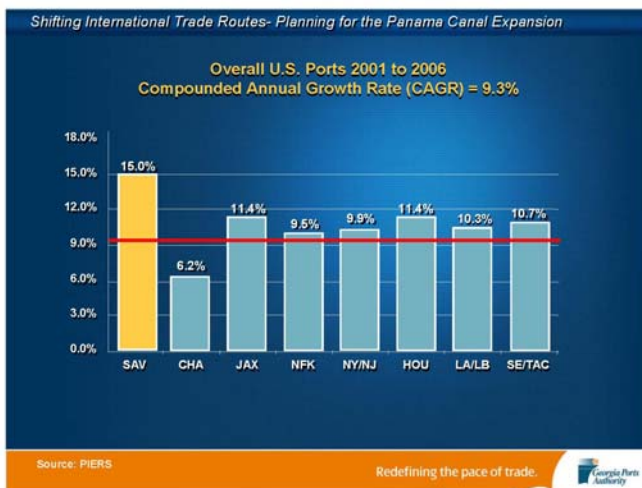
Source: Panama Canal Authority

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US Port Growth Rates



Source: PIERs

Redefining the pace of trade.



Source: AAPA and Georgia Ports Authority by permission of the author

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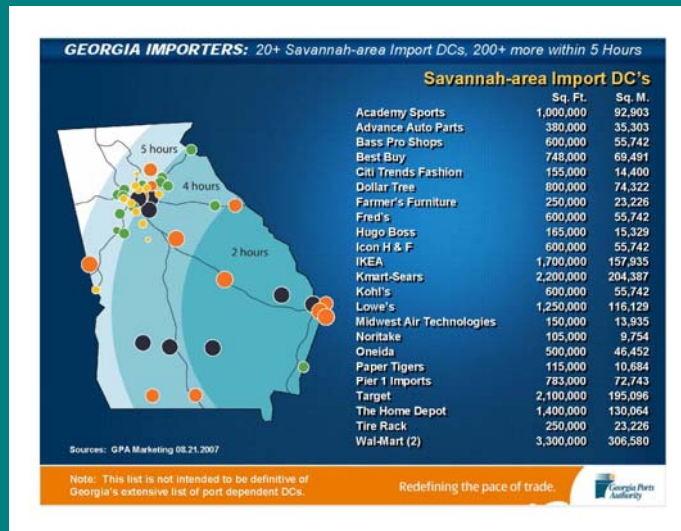
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16

Understanding the Potential

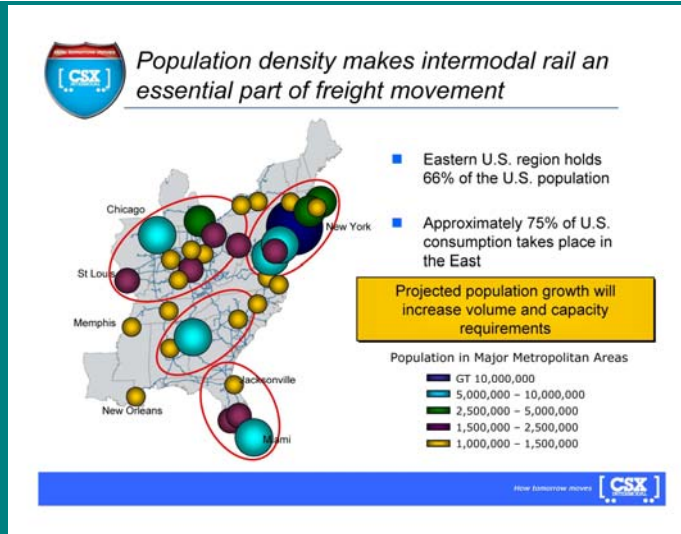
- Structure/Functional Types
 - Logistics centers- road, rail and air
 - International distribution centers
 - Distribution centers
 - Warehousing
 - Value added- manufacturing or assembly
 - Free trade zone
 - Bonded
 - Vendor Managed Inventory (VMI)
- All keyed to the logistics strategy of the goods owner

Where are Georgia's DC's



Source: AAPA and Georgia Ports Authority by permission of the author

Where are the Intermodal Population Centers?



Source: JOC and CSX by permission of the author

Understanding Capacity

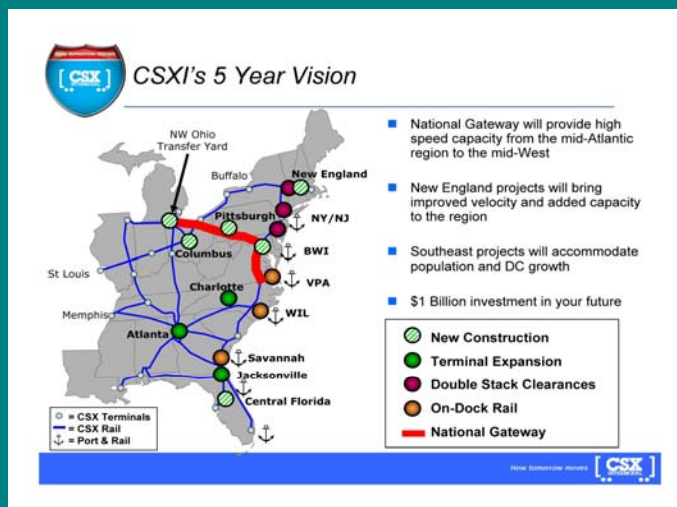
- Intermodal (Rail)
 - North Carolina is not an intermodal state
 - Primary traffic (rail) is north-south
 - Many shipper's moving their port of entry from USWC to USEC don't understand intermodal differences between NS/CSX and BNSF/UP

From CSX...



Source: JOC and CSX by permission of the author

CSX's Vision for the Future



Source: JOC and CSX by permission of the author

Norfolk Southern's System



Source: Norfolk Southern Railway

Heartland Corridor

- **Public Private Partnership \$300 million**
 - VA, WV, OH, NS, Maersk, VPA, Federal Gov't
- **Opened Rickenbacker Terminal in Columbus March 3, 2008**
- **Corridor completed in 2010**
- **Economic impact**
 - 20,000 new jobs
 - \$15 Billion to local economy



Road Infrastructure

- Congestion in and around urban areas
- Cost of transportation
 - Landed cost vs. delivered cost
 - Intermodal shuttle vs. dray
- Financing
 - Private
 - Federal
 - State/local
- Environmental
 - Air quality (USC Study)
 - Congestion
 - Safety

Infrastructure & Congestion



I-710 Under Normal Conditions



I-710 During Ports Shutdown

Result was Pier*Pass* for Southern California Ports

- Terminals open off peak hours (6 pm to 6 am)
 - 40% of mid-day traffic diverted to evening hours
- Cargo owners benefited with more visibility at less cost
- Truckers received more turns per day
- Less emissions per move resulted
- ILWU labor force increased in size substantially
- Ports were more secure
- Better data via cargo visibility
- Terminal operators recovered their costs
- Freeways in SoCal became less congested

Study and implementation estimated to be in excess of \$5 million.

Bottom Line

- Cargo is coming to SE region
- Economic opportunity is positive
- Region's port and rail system does not directly support a logistics strategy for North Carolina
- Innovative approaches will be needed to overcome infrastructure
 - Logistics centers w/airfields
 - Value added centers w/FTZ status
- Requires long-term political and legislative investment
- Need to understand and work with key shipper's, logistics providers and manufacture's



The cover image is a composite of three parts. On the left, a warehouse interior with yellow pallets and conveyor belts. In the center, a blue cargo ship docked at a port with cranes. On the right, the TOMPKINS ASSOCIATES logo in white text on a black background.

North Carolina Statewide Logistics Plan

Presented to:



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March 13, 2008

Total Supply Chain Solutions

- Operations Consulting
- Technology Implementation
- Integration

Agenda

- **Supply Chain Consortium Background** **3**
- **North Carolina Competitiveness** **8**
- **Decision Points and Selection Criteria** **9**
 - ❑ Port Selection
 - ❑ Transportation and Modal Choices
 - ❑ Warehousing Facilities
 - ❑ Strategic Distribution Network
- **Evaluation Conclusions from Consortium Data** **28**

Supply Chain Consortium

Supply Chain Consortium Background

- Tompkins Associates is a **global supply chain consulting firm** that manages, facilitates, and maintains the Benchmarking & Best Practices program for the **Supply Chain Consortium**.
- Tompkins has worked with the Consortium **since 2004**.
- The Consortium database consists of **over 5,500 questions, yielding 17,000 data points** in all elements of the international supply chain.
- The driving philosophy of Consortium members is to **identify gaps in company performance and implement initiatives** to improve supply chain practices and processes.
- There are currently **180 Consortium member companies** from retail, manufacturing and distribution/wholesale operations.

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Supply Chain Consortium

Supply Chain Consortium Background

1-800-flowers.com	Canon U.S.A Inc.	H.E. Butt Grocery Company
7-Eleven, Inc.	Casual Corner Group	Hallmark Cards Inc.
99 Cents Only Stores	CBRL Group, Inc. (Cracker Barrel)	Harcourt Trade Publishers
Ace Hardware Corporation	Celestica Inc.	Harris Teeter, Inc.
ACH Food Companies, Inc	Charming Shoppes, Inc.	Harry & David Holdings
Advance Auto Parts, Inc.	Chico's FAS, Inc.	Helzberg Diamonds
AJC International, Inc.	Coty, Inc	Henry Modell & Company, Inc.
Albertson's, Inc.	Crosskill, Inc.	Herbalife International of America, Inc.
American Gypsum Company	Dick's Sporting Goods, Inc.	Hewlett-Packard Company
Andrew Corporation	Dillard's, Inc.	Home Hardware Stores Limited
AnnTaylor Stores Corporation	Do It Best Corporation	Home Interiors & Gifts, Inc.
Aramark Corporation	Dollar General Corporation	Honeywell International Inc
Army and Air Force Exchange Service	Driscoll Strawberry Associates, Inc.	Hudson's Bay Company
AutoZone, Inc.	Ducati North America, Inc.	Ingram Micro Inc.
Avon Products, Inc.	Eddie Bauer Fulfillment Services	Insight Enterprises, Inc.
Barnes & Noble Inc.	Electrolux Home Products - North America	J.C. Penney Company, Inc.
Bar-S Foods Company	Euromarket Designs Inc. (Crate & Barrel)	Jo-Ann Stores, Inc.
Bealls Inc.	ExxonMobil Lubricants	Johnsonville Sausage LLC
Beiersdorf, Inc.	Family Dollar Stores, Inc.	Kerry, Inc.
Berwick Industries LLC	Famous Supply Companies	KI
Best Buy Co., Inc.	Faurecia Exhaust Systems, Inc.	Kimberly-Clark Corporation
Big Lots Inc.	Fingerhut Direct Marketing, Inc.	Kohl's Corporation
BJ's Wholesale Club, Inc.	Florida's Natural Growers	Kraft Foods, Inc.
Blair Corporation	Food City	Kwik Trip Stores
Borders Group, Inc.	Fred's, Inc.	Land's End
Bozzuto's, Inc.	Fresh Brands, Inc.	Levi Strauss & Co.
Brach's Confections, Inc.	Galyan's Trading Company, Inc.	Lifetime Brands Inc.
Burt's Bees, Inc.	Gap Inc.	Limited Brands, Inc.
Cabela's, Incorporated	Giant Eagle, Inc.	Liz Claiborne, Inc.
Campbell Soup Company		Loblaw Companies Limited

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Supply Chain Consortium

Supply Chain Consortium Background

<p>Longs Drug Stores Corporation Mannington Mills Inc. Marvin's Building Materials & Home Centers McAfee, Inc. Meijer, Inc. Mervyn's Metro-Richelieu, Inc. Michaels Stores, Inc. Miller Brewing Company Molson Coors Brewing Co. NAACO Materials Handling Group Nash Finch Company Nationwide Transportation New York & Company, Inc. Newark InOne Newegg.com NEX Nintendo of America Nordstrom, Inc. NYK Inc. OfficeMax, Inc. Oldcastle, Inc. O'Reilly Automotive, Inc. Orgill, Inc. Osram Sylvania Products, Inc. Pamida Holdings Corporation, Inc. Party City Corporation Perdue Farms Incorporated Philips Electronics North America Corp Polaris Industries, Inc.</p>	<p>Polo Ralph Lauren Corporation Price Chopper Publix Super Markets, Inc. Regis Corporation Retail Ventures, Inc. (Value City) Rite Aid Corporation Ross Stores, Inc. S.P. Richards Company Safeway, Inc. Saks Incorporated Samsung Electronics America, Inc. Schnuck Markets Inc. Shaw Industries, Inc. Shoe Carnival, Inc. Shopko Operating Company, LLC Simon & Schuster, Inc. Smart & Final, Inc. Sony Logistics America Standard Register Staples, Inc. Steelcase, Inc. Stihl Incorporated Stock Building Supply Stonyfield Farm, Inc. Supervalu Inc. Swagelok Company Target Corporation Tech Data Corporation Tempur-Pedic International Inc.</p>	<p>The Bombay Company, Inc. The Bon-Ton Stores, Inc. The Coca-Cola Company The Forzani Group, Ltd. The Home Depot, Inc. The J. M. Smucker Company The Men's Wearhouse, Inc. The North West Company, Inc. The Pep Boys - Manny, Moe & Jack The Timberland Company The TJX Companies, Inc. THQ, Inc. Too, Inc. Tootsie Roll Industries, Inc. Toys 'R' Us, Inc. Tractor Supply Co. Trans World Entertainment Corp Tree of Life, Inc. TrueValue Company Tyson Foods, Inc. Unilever Home & Personal Care USA United Supermarkets Vans, Inc. Von Maur W.W. Grainger, Inc. Walgreen Company West Marine, Inc. Whirlpool Corporation Winn-Dixie Stores, Inc. Wolverine World Wide, Inc.</p>
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Supply Chain Consortium

Supply Chain Consortium Companies in NC and the Region

- Consortium companies with headquarters and major facilities in NC. Includes companies such as:
 - Burt's Bees, Inc.
 - Coty, Inc.
 - Mannington Mills Inc.
 - Polo Ralph Lauren Corporation
 - Stock Building Supply

- Consortium companies that have distribution or manufacturing operations in NC. Includes companies such as:
 - Campbell's Soup Company
 - Dillard's, Inc.
 - Euromarket Designs Inc (Crate and Barrel)
 - Staples, Inc.
 - Tyson Foods, Inc.

- Companies with significant retail presence in NC. Includes companies such as:
 - Best Buy Co., Inc.
 - Dick's Sporting Goods
 - Hallmark Cards Inc.
 - J.C. Penney, Inc.
 - Target Corporation

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Supply Chain Consortium

Supply Chain Consortium Background

Retail, Consumer Products, Industrial Commercial Manufacturers, and Wholesale/Distributors						Service Providers	
Supply Chain Planning	Sourcing	Manu- facturing	International Trans.	Domestic Trans.	Distribution Center Operations	Ports / Terminal Operations	Carriers and 3PL's
Network Design	Supplier Management	Facility Design	Air	Parcel	Layout	Capacity and Throughput	
Network Planning	Vendor Collaboration	Quality Systems	Ocean	LTL	Operations	Services Provided	
Demand Planning	Order Control	Production Scheduling	Domestic Ports	Truck	Functional Practices	Emergency Preparedness	
Sales Forecasting	INCO Terms	Human Resources	Order Control	Fleet	Labor Management	Government Regulations	
Inventory Management		Information Tech	Third Party Services	Intermodal	Outsourced Distribution	Infrastructure	
		Product Design	Customs Brokers		Outsourced Pool		
			Domestic Trade Management		Direct to Consumer		
Core Supply Chain Benchmarks							
Key Company Financial Benchmarks							
Technology							
Security							
Environmental / Sustainability							

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North Carolina Competitiveness

Assumptions

- NC has the population centers and is growing rapidly enough that logistics competitiveness is a major issue to address
- Industrial and consumer markets are favorable to economic growth
- Physical or financial constraints are not so extensive that reasonable solutions are not possible
- Non freight demands on transportation are considered but put into context with the economic development needs of NC

Areas for Consideration

- NC ocean port capabilities for imports and exports compared to region
- Inland terminal capabilities
- Carriers/Transportation Service Providers capabilities serving NC (TL, LTL, Drayage, Ocean, Air cargo, Rail and Intermodal, Parcel, 3PL's)
- Distribution center current and potential future availability
- Transportation and distribution infrastructure in NC
- Industries and companies who are already here and others that we can attract to NC

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Decision Points and Selection Criteria

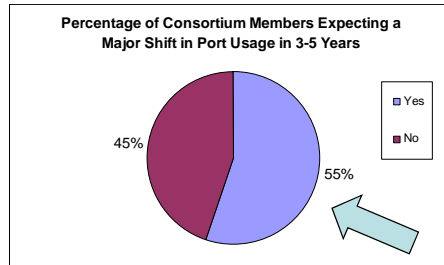
Port Selection – Consortium TEU Container Volumes

Current Consortium Port Ranking		Consortium Port Ranking - 3 Year Forecast	
Ranking Based on TEU Volume	Port	Ranking Based on TEU Volume	Port
1	Long Beach, CA	1	Long Beach, CA
2	Los Angeles, CA	2	Norfolk, VA
3	Seattle, WA	3	Los Angeles, CA
4	Norfolk, VA	4	Seattle, WA
5	Tacoma, WA	5	Tacoma, WA
6	New York, NY	6	New York, NY
7	Houston, TX	7	Wilmington, NC
8	Wilmington, NC	8	Vancouver, BC, Canada
9	Vancouver, BC, Canada	9	Houston, TX
10	Miami, FL	10	Baltimore, MD
11	Baltimore, MD	11	Oakland, CA
12	Charleston, SC	12	Savannah, GA
13	Oakland, CA	13	Halifax, NS, Canada
14	Savannah, GA	14	Miami, FL
15	Halifax, NS, Canada	15	Charleston, SC
16	Canaveral, FL	16	Canaveral, FL
17	Newark, NJ	17	Newark, NJ
18	San Pedro, CA	18	San Pedro, CA
19	Portland, OR	19	Portland, OR

Consortium data port by port varies some from published TEU volumes from sources such as the American Association of Port Authorities, but the trend is clearly toward increased east coast volume in the future. Who will get larger faster?

Decision Points and Selection Criteria

Port Selection – Extent of Consortium Company Port Shifts



3 to 5 Year Forecasted Increase for East Coast Ports	
Port	Average Increase in Companies Total US Volume
Norfolk, VA	232%
Savannah, GA	129%
Charleston, SC	100%
Baltimore, MD	40%
Wilmington, NC	30%

Ex. All companies currently average 6.8% of their US volume flowing through Norfolk, but project an increase by over 230% in 3 to 5 years

A majority of companies are seeing major shifts in which ports they use. Many east coast ports are forecasted by Consortium companies to see major increases in the next three to five years. These projected increases in regional ports indicates an opportunity for growth in North Carolina.

Decision Points and Selection Criteria

Port Selection – Company Strategy Importance (Rating 1 to 5)

Company Strategies to Address North American Port Issues	Average Importance Rating
Moving imports on trans-pacific lanes away from the ports at Los Angeles and Long Beach to other West Coast ports	3.5
Moving imports from the Indian sub-continent and Southeast Asia to East Coast and Gulf ports through the Suez canal.	3.0
Applying pressure on our carriers, terminal operators and cartage agents to implement or accept more efficient operating practices at ports (e.g. expanded hours of operation)	2.9
Moving imports on trans-pacific lanes to East Coast and Gulf ports through the Panama canal	2.8
Working with vendors, carriers, consolidators and ports in countries exporting to North America, so that sailings can be used that arrive in ports on non-peak days	2.3
Working with port authorities in an active role to implement more efficient operations	2.2
Lobbying local, state and federal agencies for funding for port, rail and road infrastructure improvements	2.1
Moving product, raw material and component sources back to North America or re-evaluating plans to move current sources from North America to Asia	1.8
Moving product, raw material and component sources to Eastern Europe, Central America or other regions outside of Asia	1.8

The most significant company strategies impacting North Carolina are volume shifts to east coast ports and working with port operators and transportation providers to improve the efficiency of the ports.

Decision Points and Selection Criteria

Port Selection – Congestion Causing Port Shifts

Primary Causes for North American Ports Congestion	Average Importance Rating
Lack of rail equipment and capacity serving ports	3.8
Vessel arrivals concentrated on certain days of the week (e.g. Thursdays, Fridays and Saturdays)	3.7
Inefficient port operating practices that limit trucking productivity and create driver shortages	3.6
Limited hours of operation for gates, terminals and local truck operations	3.4
Lack of adequate port and terminal operations metrics to pinpoint problems and identify where available capacity might exist.	3.3
Road congestion entering and leaving ports	3.2

In order for Port operations to be viewed positively and influence companies selection decisions improvements to reduce congestion are needed. Companies see increased congestion resulting from a lack of transportation infrastructure (rail and road) and port operation inefficiencies and practices that create bottlenecks.

Decision Points and Selection Criteria

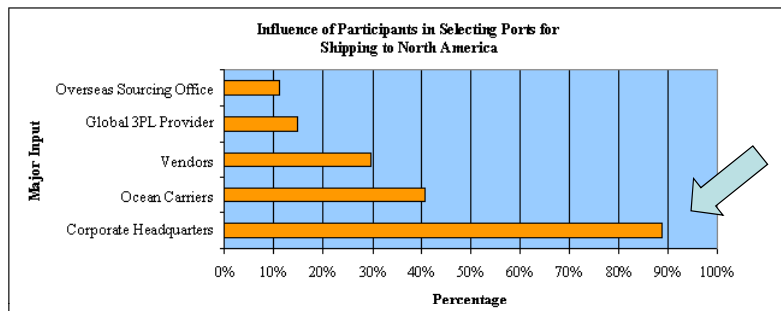
Port Selection – Concern for Disruptions Influencing Port Decisions

Strategies to Minimize Supply Chain Disruptions	Importance Rating (1 to 5)
Diversifying the Ocean Carrier Base	3.7
Diversifying the Number and Location of Ports	3.6
Developing Documented Contingency Plans.	3.5
Moving More Inbound Ocean Shipments Through East Coast Ports	3.4
Placing Orders Earlier	3.3
Using Air Freight	3.3

Concern over supply chain disruptions are a major factor impact all decisions made with respect to ports, transportation and distribution operations. Companies are ensuring they have a diverse ocean carrier base, have the flexibility to shift ports when disruptions occur, have well thought out contingency plans and use east coast ports that have not had recent disruptions.

Decision Points and Selection Criteria

Port Selection – Port Selection Decision Makers



Decisions regarding port selection are often driven by a companies corporate Headquarters, but with some companies can also be left up to the discretion of ocean carriers, vendors and Global 3PL's. All of these groups play a role in port selection decisions.

Decision Points and Selection Criteria

Port Selection – Port Investigation Techniques



Techniques To Investigate North American Ports	Always	Usually	Occasionally	Rarely/Never
Visit the port and terminal when evaluating new ports	26%	26%	18%	30%
Visit the port and terminal at operations start up	22%	26%	22%	30%
Visit the port and terminal annually	7%	33%	15%	45%
Visit the port and terminal when there are issues	4%	44%	26%	26%
Talk with port authorities	11%	22%	41%	26%
Talk to local terminal operators	15%	26%	18%	41%
Talk with local cartage agents	30%	11%	27%	31%

Investigations into which ports to use don't always entail a site visit and talking with port authorities and terminal operators. Surprisingly many companies make these important decisions without first-hand knowledge of port facilities. This is a clear indicator of the need to make services and capabilities known through web sites, publications and other means.

Decision Points and Selection Criteria

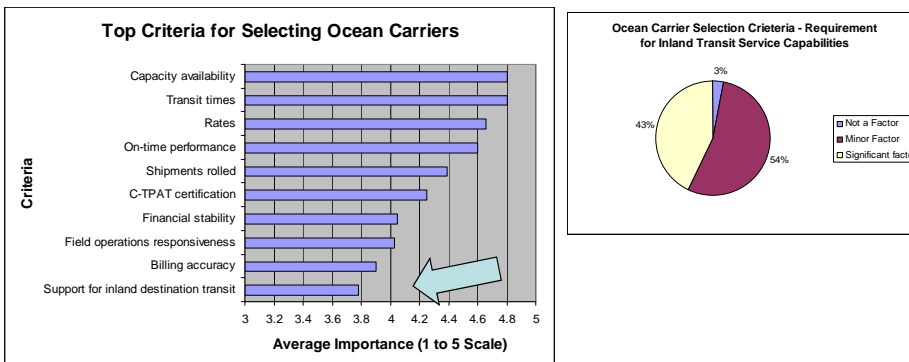
Transportation and Modal Choices - Ocean

Total Ocean Transportation Management and Control - Vendor to Destination			
Material Control	Company Managed Moves	3PL Provider Managed Moves	Total
Vendor Door to Destination Door	16.3%	4.3%	20.6%
Origin Port to Port and Separate Transportation to Destination Door	22.3%	14.1%	36.4%
Vendor Door to Destination Port and Separate Transportation to Destination Door	3.7%	5.2%	8.9%
Origin Port to Destination Door	21.8%	10.5%	32.3%
Other Flow to Destination Door	1.4%	0.4%	1.8%
Total	65.5%	34.5%	100.0%

Nearly two thirds of Consortium companies control the movement of their ocean materials versus having 3PL's control movement. The point where control transfers to the company or 3PL varies greatly as does the percent of companies who manage their materials once it arrives at a domestic Port.

Decision Points and Selection Criteria

Transportation and Modal Choices - Ocean



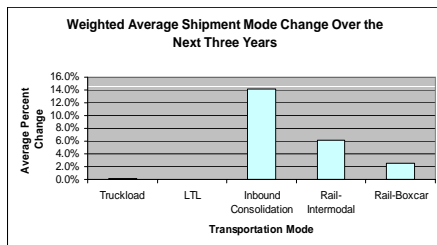
One of the key factors beyond the performance aspects of an ocean carrier selection that is relevant for the discussion of NC is what ports specific ocean carriers use and are the carriers open to using ports in NC and the region. As mentioned previously companies must balance the selection of ports and the selection of carriers so that there is a match.

Decision Points and Selection Criteria

Transportation and Modal Choices

Transportation Mode Selection Changes Forecast Next 3 Years - Percent of Responses

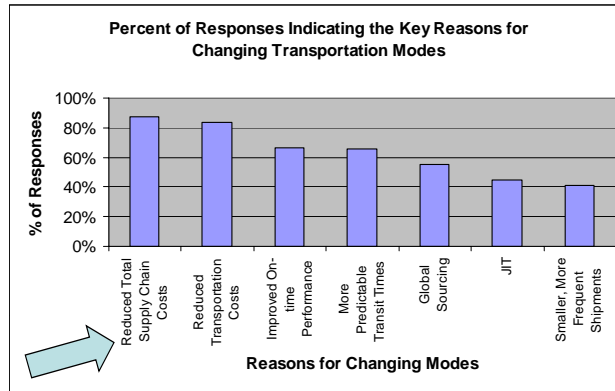
	Decreasing	Increasing	No Change	Weighted Average % Shipment Change
Truckload	28.6%	39.3%	32.1%	0.2%
LTL	31.0%	37.9%	31.0%	0.0%
Inbound Consolidation	7.2%	59.4%	33.4%	14.1%
Rail-Intermodal	7.4%	59.1%	33.3%	6.1%
Rail-Boxcar	7.7%	26.9%	65.4%	2.6%



Consortium members predict major changes to the transportation modes they plan to use in three years. Also more companies are predicting larger increasing shifts in inbound consolidation and intermodal than other any other modes. As a percent of shipments companies are seeing an average of a 14% increase in inbound consolidation.

Decision Points and Selection Criteria

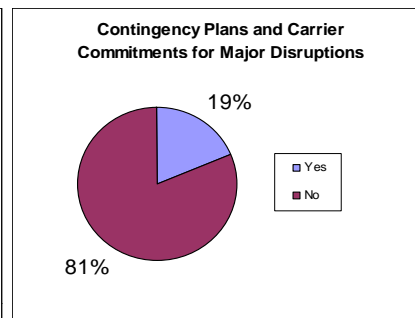
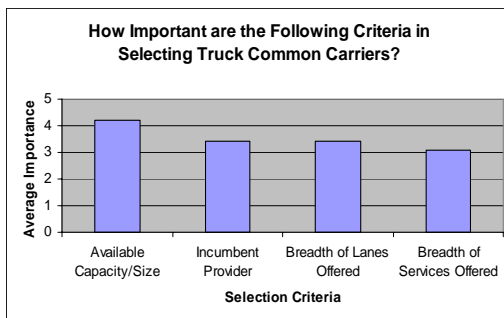
Transportation and Modal Choices



Companies are primarily looking to change transportation modes to reduce costs and secondarily to improve service delivery to customers. Companies are very focused on cost reductions.

Decision Points and Selection Criteria

Transportation and Modal Choices – TL and LTL



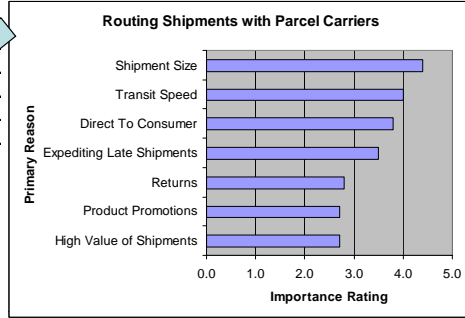
There are many factors that companies use to select truckload and LTL carriers but the above figure identifies the importance ratings related to the interests of NC. It is also very important to minimize disruptions caused by carriers and there are a growing number of companies who develop detailed contingency plans.

Decision Points and Selection Criteria

Transportation and Modal Choices - Parcel

Parcel Mode Usage	% of Total Parcel
Inbound Shipments	15%
Outbound Orders	71%
Internal Shipments	3%
Returns	11%

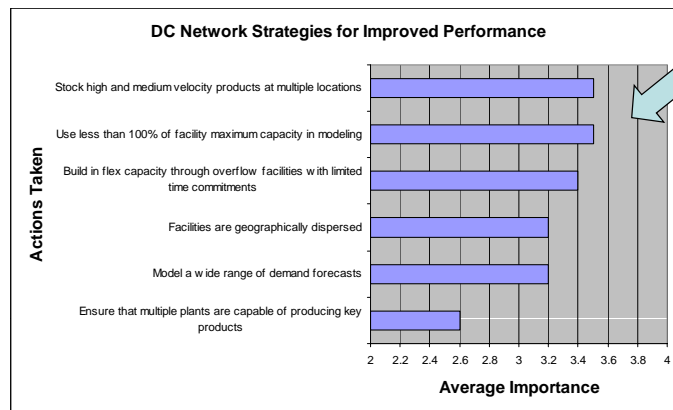
65% of Consortium Members see increasing use of Parcel services



Companies see increasing parcel order fulfillment to keep pace with the growing customer demand for overnight or next day delivery spurred by internet purchasing. This growing trend has increased consumer deliveries and reduced the size of store deliveries and overall increasing the number of vehicles on the roadways. Parcel deliveries are primarily displacing LTL freight.

Decision Points and Selection Criteria

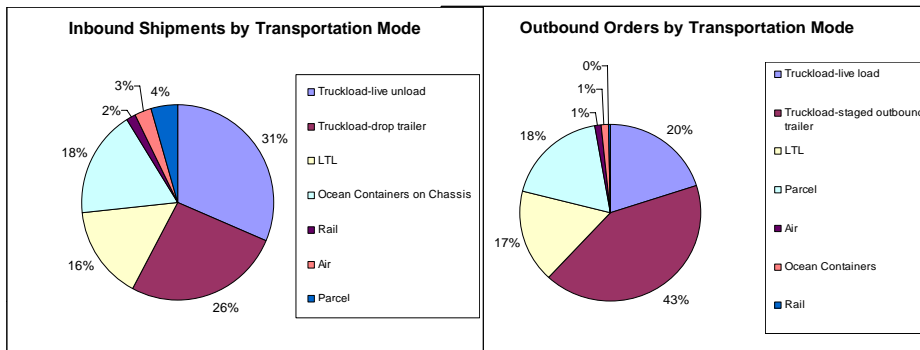
Warehouse Facilities



DC operations must be more flexible and there is an increase in regional DC's versus large master DC's. In order to not add build square feet distribution is also being done from manufacturing locations in increasing numbers.

Decision Points and Selection Criteria

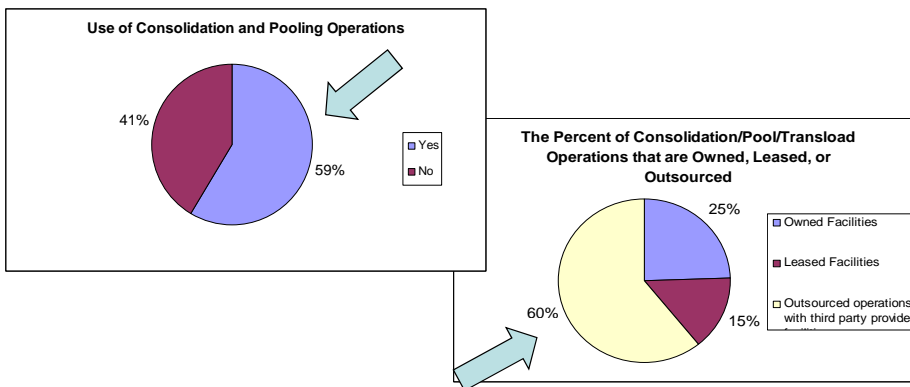
Warehouse Facilities



Live unloading of inbound shipment and live loading of outbound trailers at DC's is on the rise to improve transportation and DC efficiency. Companies are being driven toward improved technology to allow coordination of inbound and outbound materials.

Decision Points and Selection Criteria

Warehouse Facilities – Consolidation and Pooling Operations



Nearly 60% of Consortium companies use consolidation/pooling operations for inbound shipments. Most of these facilities are operated by third parties or are leased facilities. Few companies are interested in investing in new facilities.

Decision Points and Selection Criteria

Strategic Distribution Network – Time to Add a Facility

Average Time in Months for Your Facility and Staff		
Type of Facility	Utilize an Existing Facility	Build a New Facility
Master DC	10	22
Regional DC	7	17
Product Manufacturing Plant	20	33
Component Manufacturing Plant	24	31
Inbound Consolidation Operation	7	13
Transload Operation	5	9

Average Time in Months Using a Third Party		
Type of Facility	Utilize an Existing Facility	Build a New Facility
Master DC	8	17
Regional DC	5	14
Product Manufacturing Plant	16	28
Component Manufacturing Plant	28	36
Inbound Consolidation Operation	5	9
Transload Operation	4	8

The time to start up a new operation utilizing an existing building and a third party is considerably less than building a new facility with a companies resources. The time differential, capital investment required and flexibility for change is clearly impacting decision makers plans.

Decision Points and Selection Criteria

Strategic Distribution Network – Supply Chain Disruptions

Supply Chain Network Disruption Considerations		
Disruptions	Not Considered in Decisions	Considered Subjectively in Decisions
Labor disruptions at plants or DC's	44%	56%
Natural disasters at plants or DC's	53%	47%
Mechanical or systems breakdowns internal or external	59%	41%
Labor disruptions at ports or carriers	59%	41%
Capacity shortages at carriers or ports	61%	39%
Natural disasters impacting ports or carriers	79%	21%
Political unrest or conflict in sourcing country	86%	14%
Political unrest or conflict in destination market	93%	7%

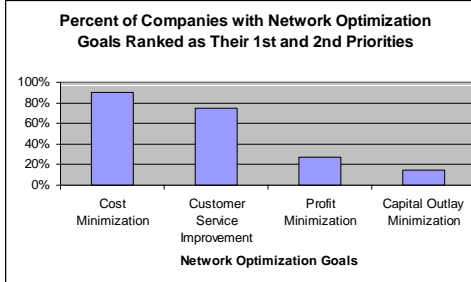
Supply chain disruptions from labor issues, natural disasters and systems failures are the biggest concerns of Consortium companies. The locations that companies will gravitate to in the future will be where the risks of these disruptions occurring is less.

Decision Points and Selection Criteria

Strategic Distribution Network – Optimization

Operations	Network Close to		
	Network Optimized	Optimum	Not Optimized
Master DC's	7%	52%	40%
Regional DC's	3%	40%	57%
Inbound Consolidation Operations	4%	29%	67%
Inland Ports	4%	25%	71%
Outbound Pool Distribution Operations	3%	21%	76%
Ocean Ports	0%	23%	77%
Transload Operations	3%	17%	80%
Product Manufacturing Operations	0%	17%	83%
Component Manufacturing Operations	0%	7%	93%

Very few companies believe their supply chain networks are optimal in an operating area. They feel that their DC's are closest to being optimized and their manufacturing operations are the least optimized. Companies goals for their network changes are to minimize their costs, improve customer service and drive profit enhancement.



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Evaluation Conclusions From Consortium Data

- East coast ports will see significantly increased volumes in the next 3 to 5 years as companies continue to shift which ports they use and overall import volume grows.
- Which ports will be the beneficiaries of the growth depends on a number of criteria, including:
 - o Port efficiency
 - o Carrier effectiveness
 - o Infrastructure improvements
 - o Removal of capacity and congestion as constraints
 - o Reductions in the risk of major disruptions in service and solid contingency planning
- Companies are key decision makers with respect to ports, transportation and distribution centers, but we can't ignore the impact that carriers, vendors and 3PL operations have on those decisions. The trend is toward companies managing less supply chain functions than in the past.
- Companies do not always do as thorough a job with their port selection due diligence as we might believe. Active marketing is needed to sell them.

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Evaluation Conclusions From Consortium Data

- Consideration must also be given to the export side of the supply chain. The imbalance of material flow is an obstacle to growth.
- There is an increasing trend toward pool consolidation centers as a major part of companies supply chain strategies. This must be a part of the package
- More companies are relying on smaller faster regional distribution centers which crossdock products instead of large master distribution centers which stock all products.
- Attracting major parcel carrier operations to the state will be favorable for growing number of companies who use parcel for product shipments.
- The trend is for companies to outsource distribution and/or lease facilities to improve flexibility and reduce their asset base. This trend is also a strategy employed to keep the overall supply chain network in balance with changing customer needs,
- Issues such as shipment security and theft loss are major factors in decisions to locate any kind of operation to low crime states.
- Most companies do not feel that their logistics networks are optimized which indicates major opportunities for improvement if a well thought out strategy is employed.

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29

Freight Demand and Logistics

Trends and Issues

presented to

**North Carolina Statewide Logistics Plan
Working Group**

presented by

**Lance R. Grenzeback
Alan P. Meyers
Cambridge Systematics, Inc.**

March 25, 2007

Transportation leadership you can trust.



Elements of the Freight Transportation System

Economic Structure
Type of Businesses, Number of Households

Industry Logistics Patterns
Supply Chains, Distribution Networks

Freight Infrastructure
Highways, Rail Lines, Ports, Airports...

Commodity/Vehicle Traffic Flows
Trucks, Planes, Rail Cars, Ships...

Organization and Public Policy
Ownership, Regulation, Pricing...

Freight Demand and Logistics Trends and Issues

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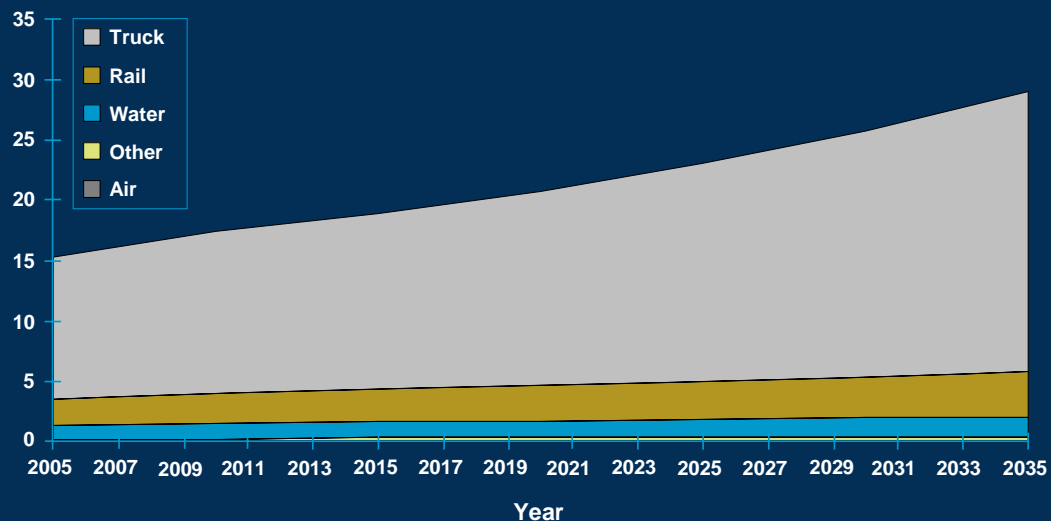
Transportation leadership you can trust.



Freight Tonnage by Mode, 2004-2035

With moderate economic growth at about 2.8 percent CAGR,
freight tonnage will nearly double by 2035

Net Tons (in Billions)



Source: Global Insight 2004 TRANSEARCH data and economic forecasts.

Freight Demand

The four major drivers behind the increasing freight demand are –

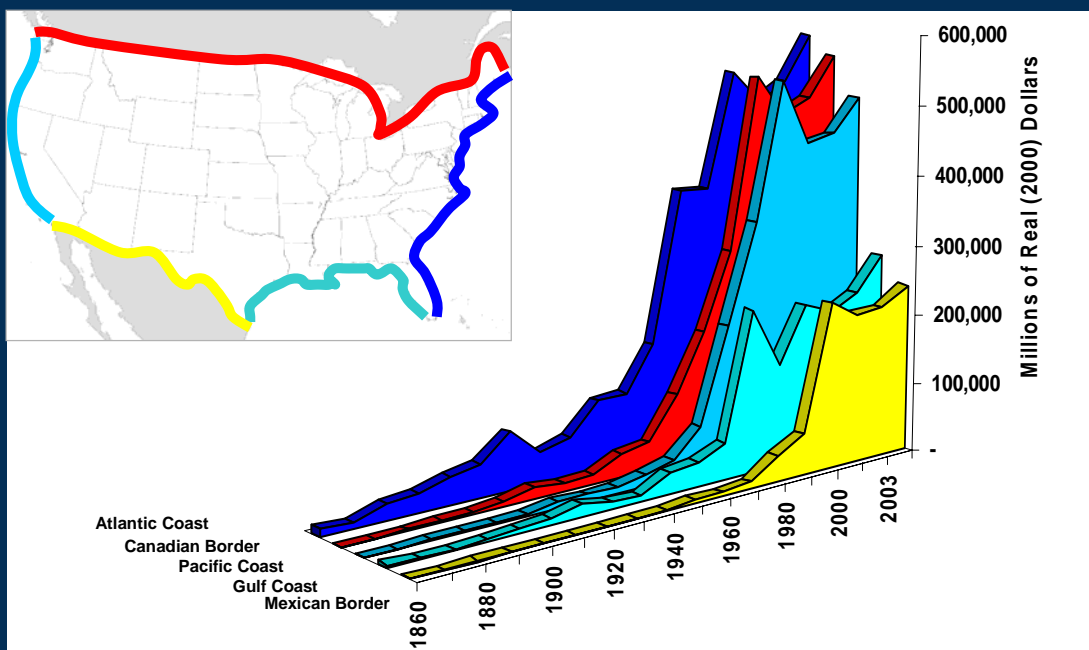
- Consumption
 - Population growth
- Production
 - Expanding durable and non-durable goods manufacturing
- Trade
 - Import and export growth
- Supply Chain Practices
 - Changing logistics strategies

2

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Trade Growth, 1860 to 2005

The value of U.S. trade—measured in constant dollars by coast and land border—has grown rapidly over the last 30 years



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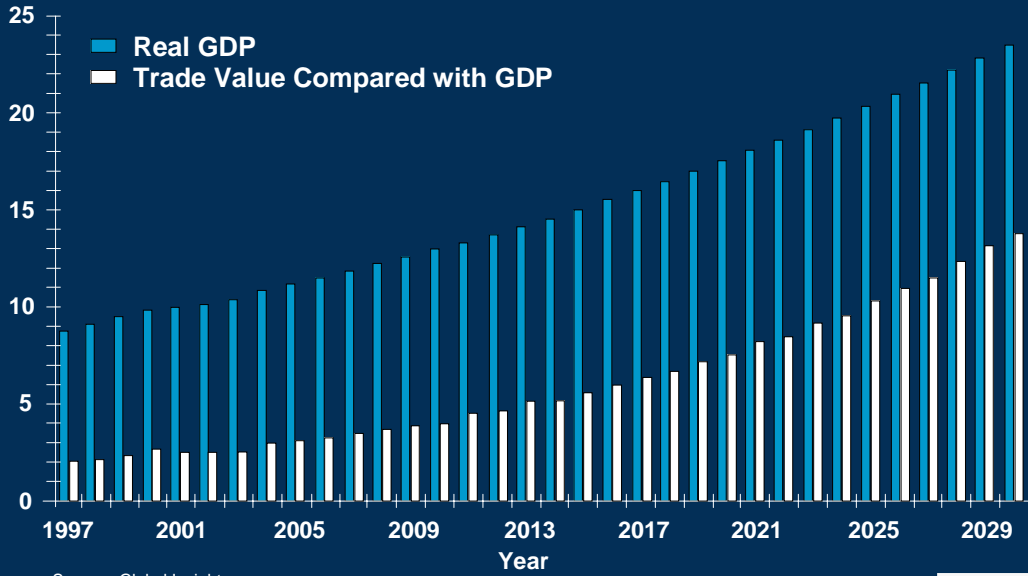
Source: Cambridge Systematics, Inc

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Trade Growth, 1997 to 2030

The forecast is for continued trade growth; the value of U.S. imports and exports is expected to be equivalent to 60 percent of GDP by 2030; this trade will concentrate at our major international freight gateways

Real GDP

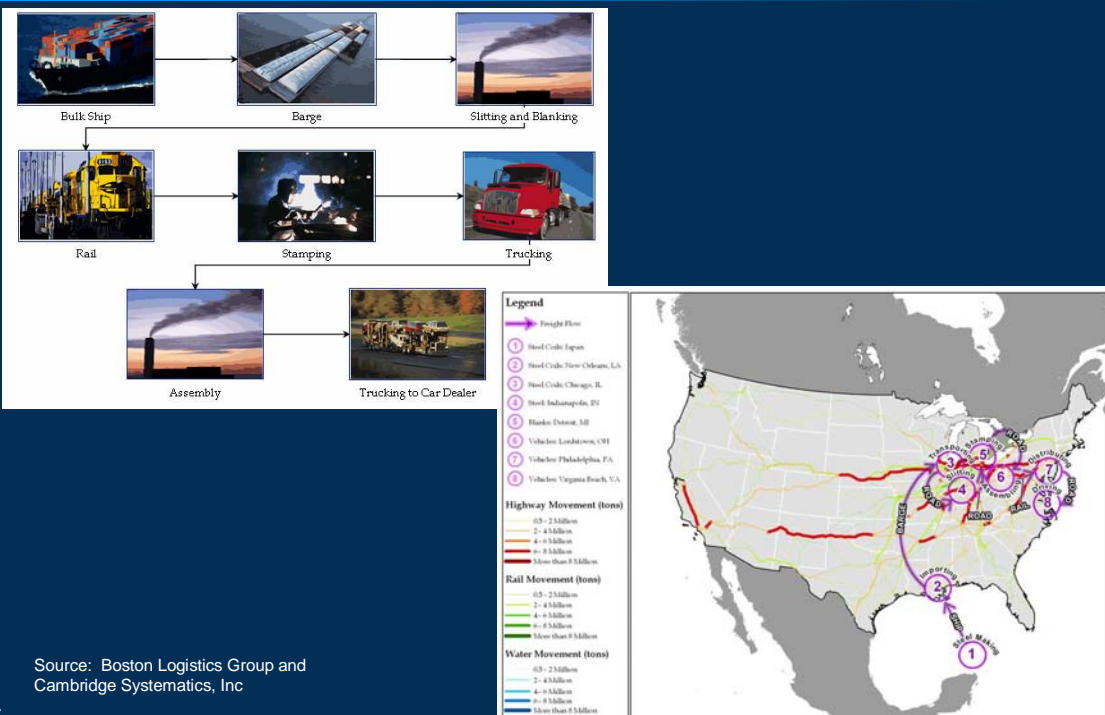


Source: Global Insight

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Supply Chain: New Automobiles

Many supply chains depend on tightly integrated international and domestic freight moves to keep inventory and product costs down



Source: Boston Logistics Group and Cambridge Systematics, Inc

Supply Chain: Retail Toys

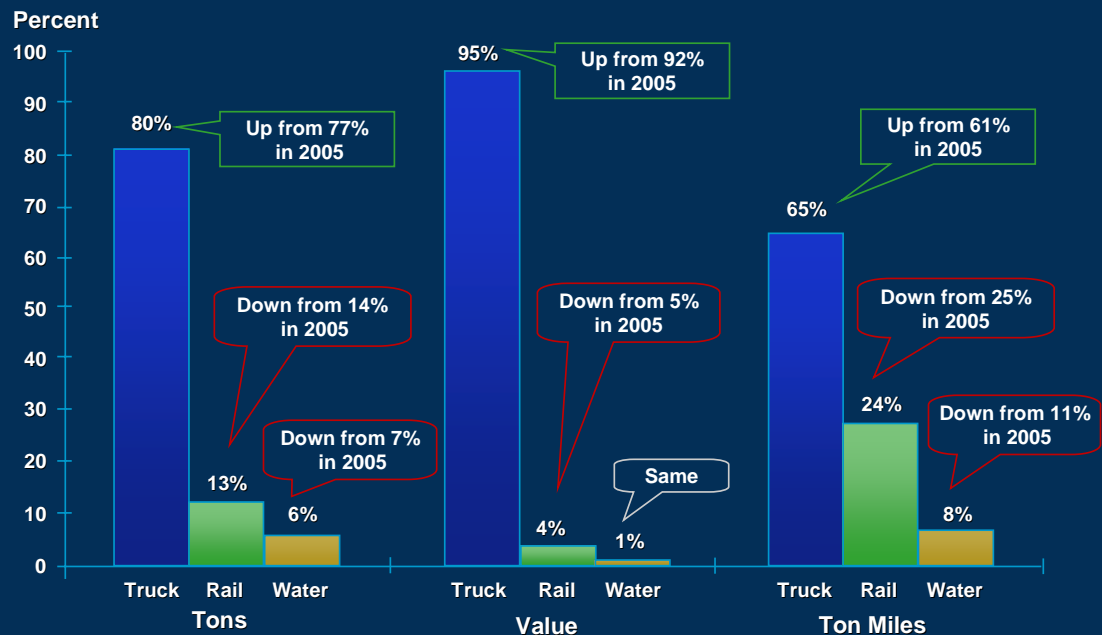
Retailers, trying to capture market share by ensuring that they can always meet customer demand, are pushing up-stream suppliers to produce and deliver "on demand," ratcheting up the standard for reliable and cost-effective freight transportation



Source: Boston Logistics Group and Cambridge Systematics, Inc

Freight Tons, Value, Ton-Miles by Mode, 2035

As the structure of the u.s. economy changes, generating higher-value, lighter, and more time-sensitive shipments, more freight will likely go by truck and air, less by rail and water

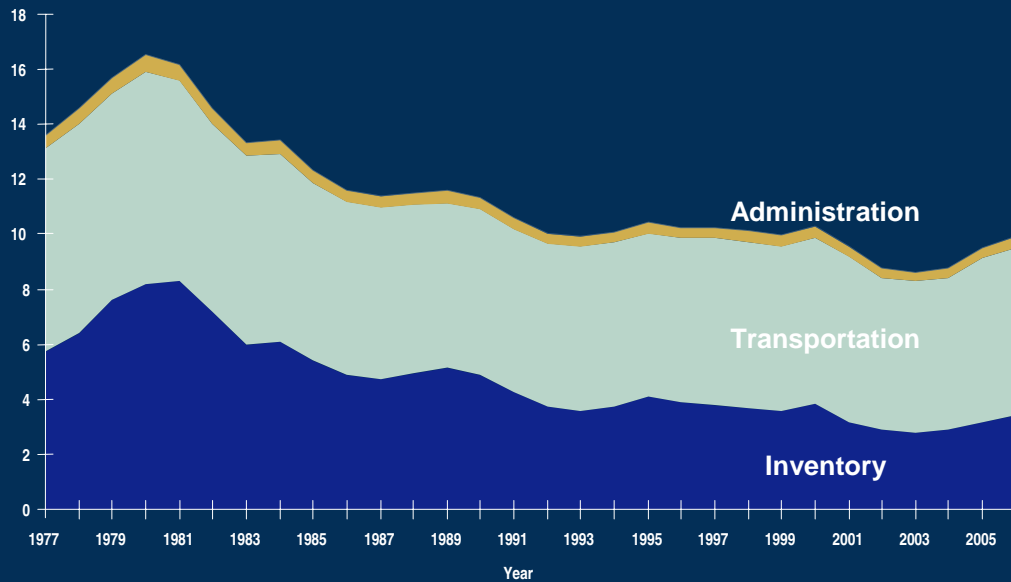


Source: Global Insight 2004 TRANSEARCH data and economic forecasts.

Total Logistics Cost

Greater supply chain productivity and lower logistics costs have been critical to U.S. economic growth; but logistics costs are rising, driven by increasing fuel costs and congestion

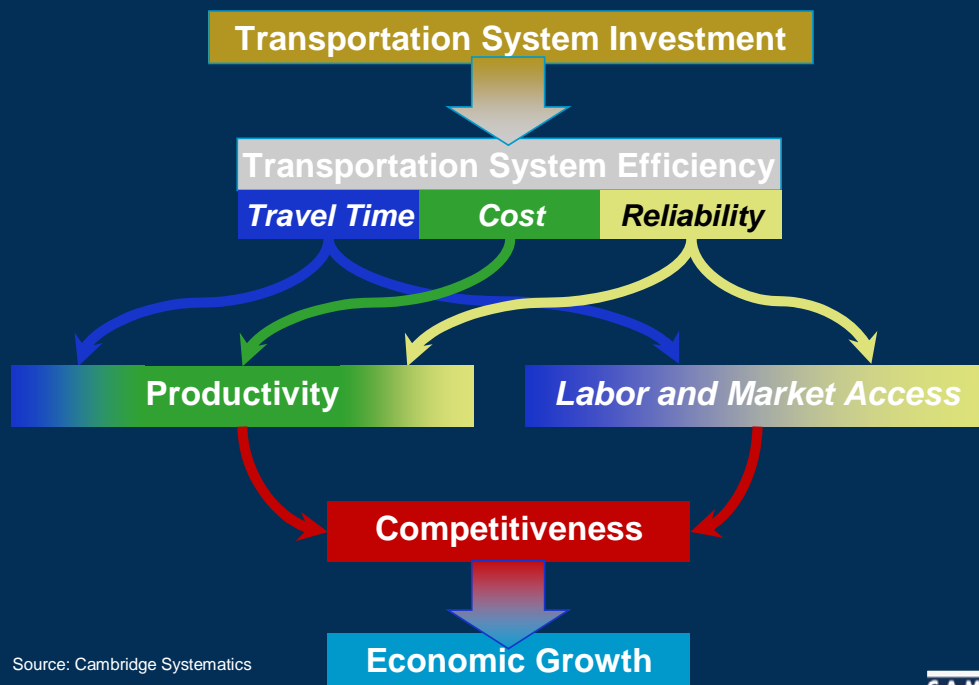
Percentage of U.S. Gross Domestic Product



Source: Rosalyn A. Wilson, *State of Logistics Report*, Council of Logistics Management, 2007.

Economic Effects of Transportation

Transportation investments improve industry productivity and access to markets, resulting in greater competitiveness and growth



Source: Cambridge Systematics

Highway Freight Transportation *Trends and Issues*

presented to

**North Carolina Statewide Logistics Plan
Working Group**

presented by

**Lance R. Grenzeback
Alan P. Meyers
Cambridge Systematics, Inc.**

March 25, 2007

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Highway Freight Networks

**Interstate Highway System
46,837 route miles**



**National Highway System
162,158 miles**



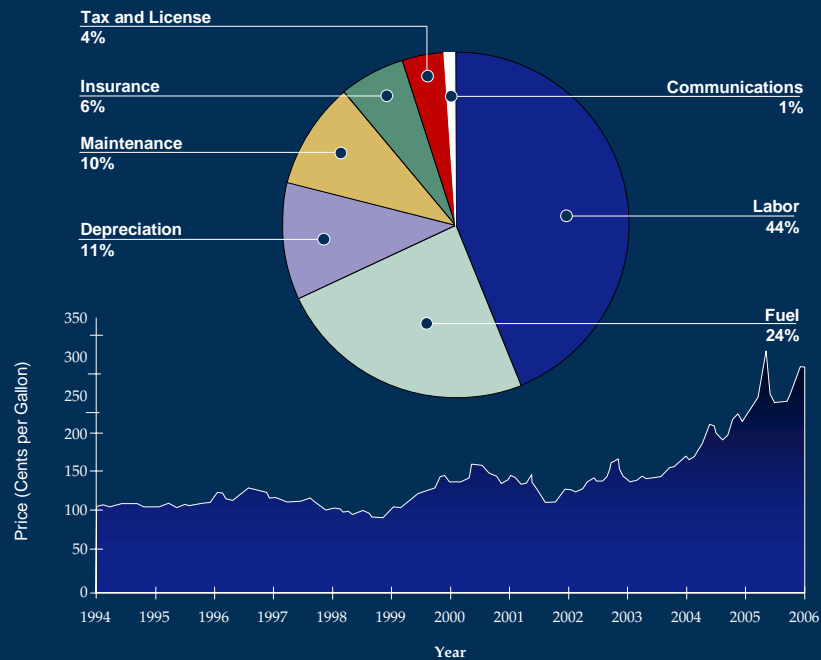
**Other State/Local Systems
3,325,304 route miles**



Source: Federal Highway Administration and Bureau of Transportation Statistics data

Trucking Issue: Rising Costs

Truckload Carrier Operating Expenses and Fuel Prices



2

Trucking Issue: Truck Size and Weight Capacity

● Railroads

- Doublestacks
- Carloads – 220,000 to 263,000 to 286,000+ lb loads

● Ocean Carriers

- 3,000 to 6,000 to 8,000 to 12,000 TEUs

● Trucks

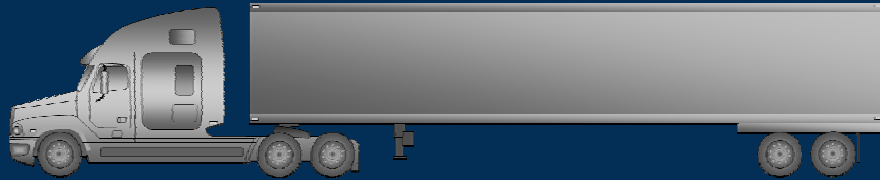
- Capped at 53', 80,000 pounds, and the LCV network?



3

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Trucking Issue: Deteriorating Trip Reliability



Computer Aided Routing and Dispatching Software

Mobile Communications Technologies

Automatic Vehicle Location

Automatic Vehicle and Equipment Identification

On-Board and Hand-Held Computers

Diagnostic and Maintenance Support Systems

Weather

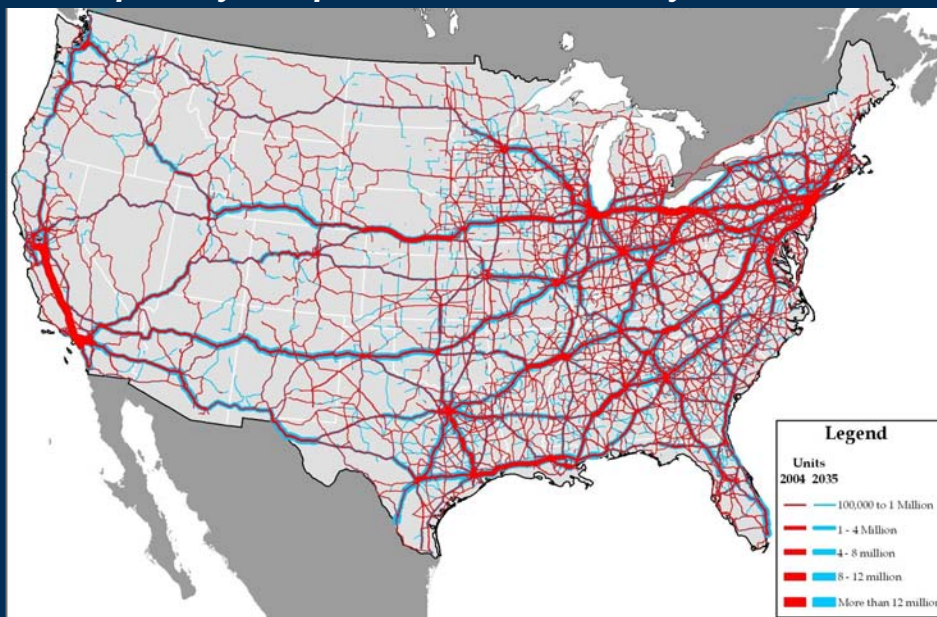
Traffic Information??

4

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Highway Issue: National Interest Network?

*Truck-Freight Highway Flows in 2005 and 2035 Trucks per Year –
By 2035, every freight truck on the road today will have one more
truck behind it; 2,500 miles of interstate will be carrying >50,000
trucks per day compared to 30 miles today*



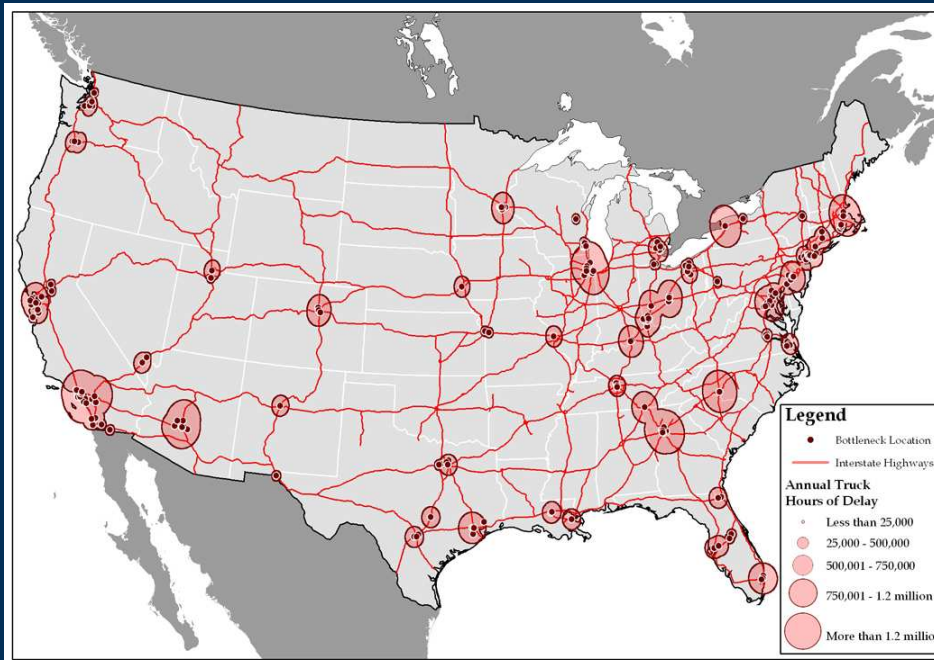
Source: Cambridge Systematics based on Global Insight 2004 TRANSEARCH data and economic forecasts.

5

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Highway Issue: Managing Congestion

Major highway bottlenecks for trucks (primarily at Interstate interchanges)



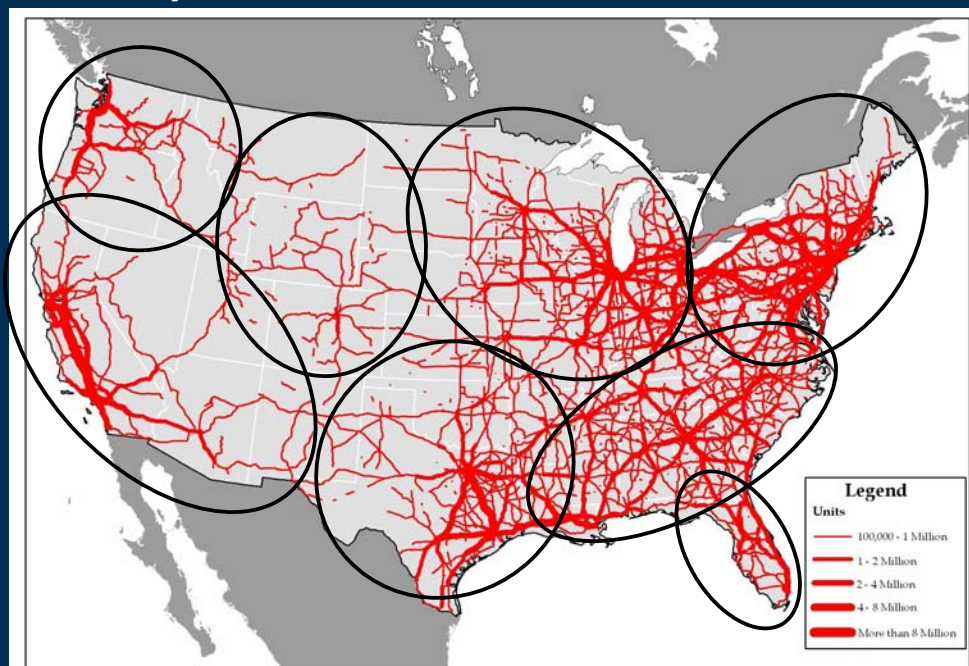
6

Source: Cambridge Systematics, Inc, "An Initial Assessment of Freight Bottlenecks on Highways," prepared for Federal Highway Administration, October 2005

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Highway Issue: Coordinating across Multi-State Freightsheds and Freight Corridors

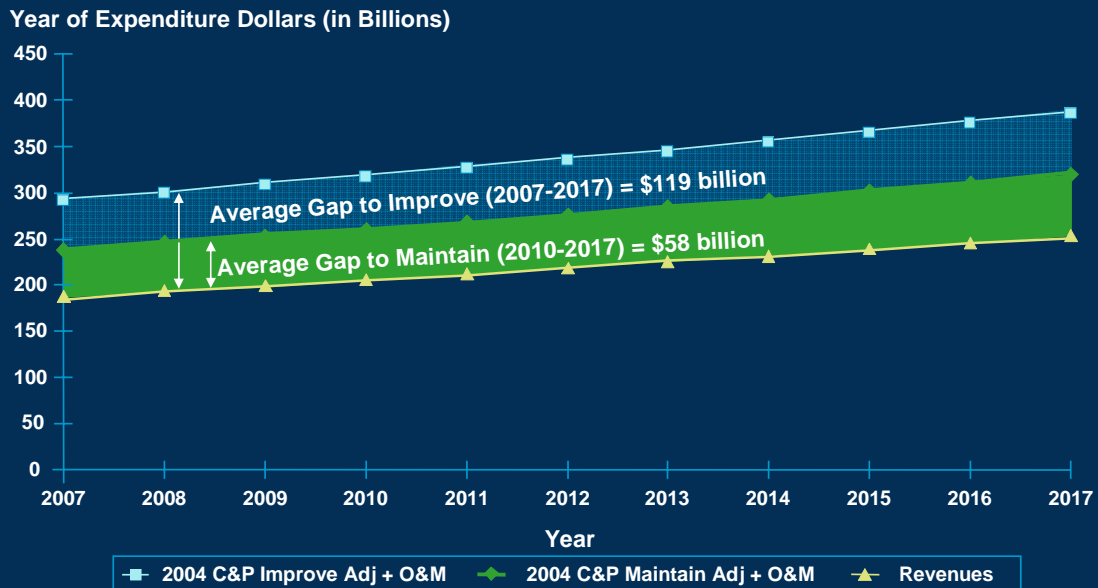
Truck Trips Between 100 and 500 Miles



7

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Highway Issue: Funding to Maintain and Improve the Highway Freight System

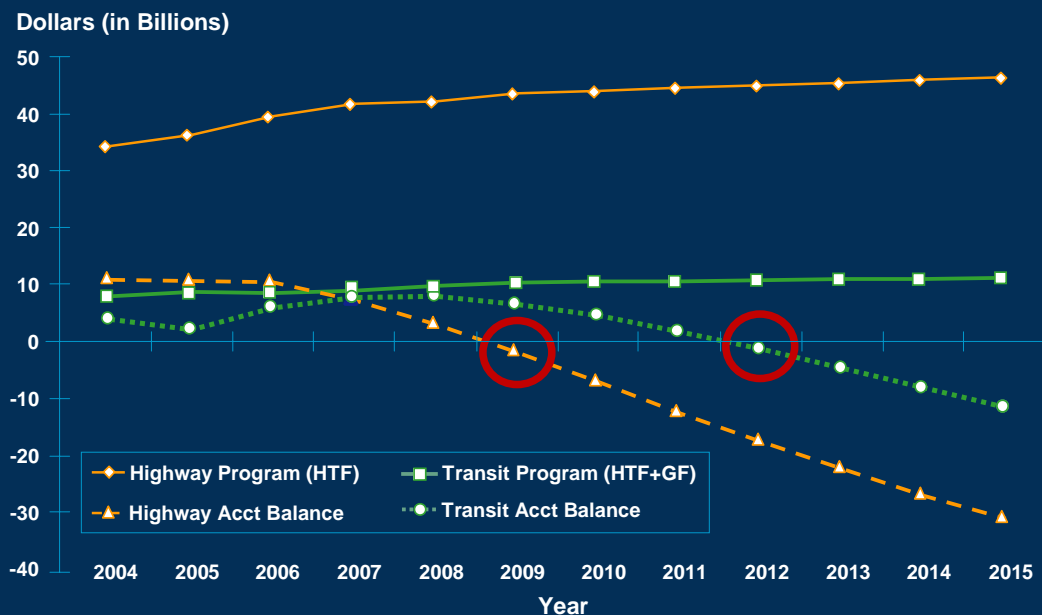


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Highway Issues: Sustaining the Federal Highway Trust Fund

Anticipated balances assuming level funding after 2009



Source: Mercator Advisors, LLC for Cambridge Systematics, Inc., *Future Financing Options to Meet Highway and Transit Needs*, Final Report, NCHRP 20-24 (49), December 2006.

9

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Rail Freight Transportation *Trends and Issues*

presented to

**North Carolina Statewide Logistics Plan
Working Group**

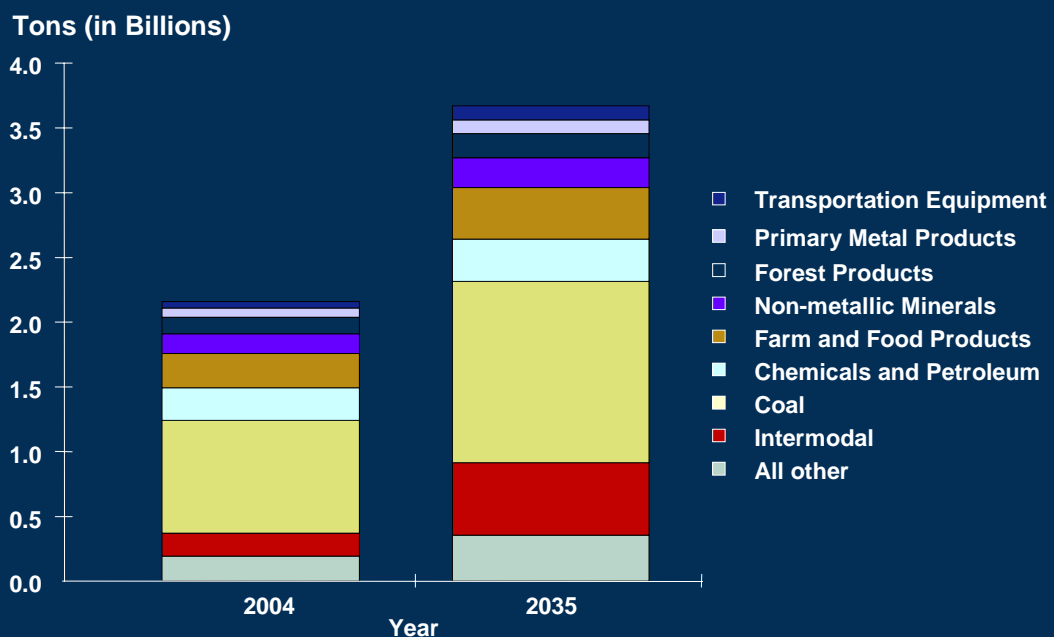
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**Lance R. Grenzeback
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March 25, 2007

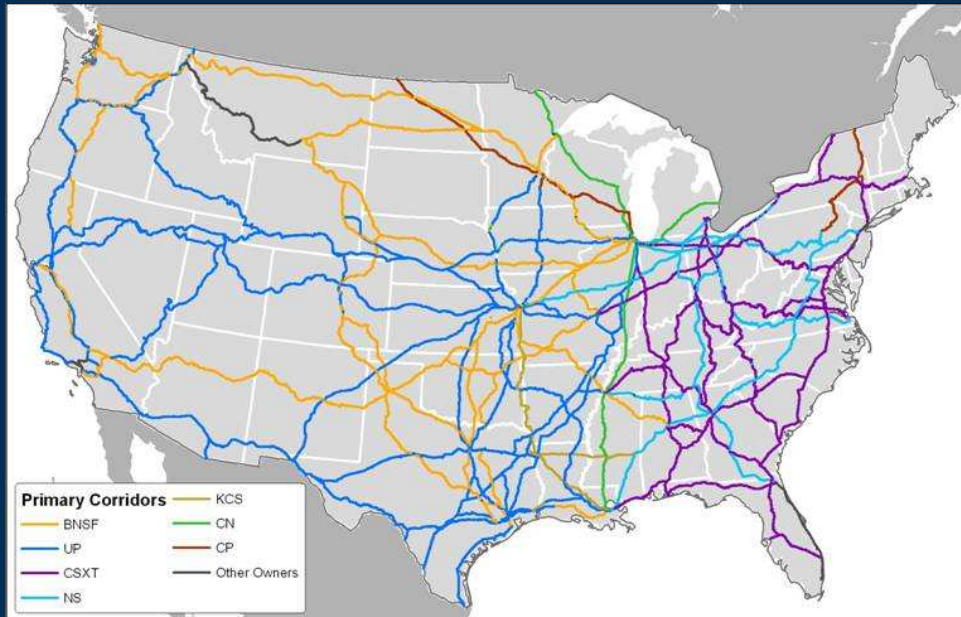


Major Rail-Freight Commodities *Tonnage, 2005 and 2035*



Source: Global Insight 2004 TRANSEARCH data and economic forecasts.

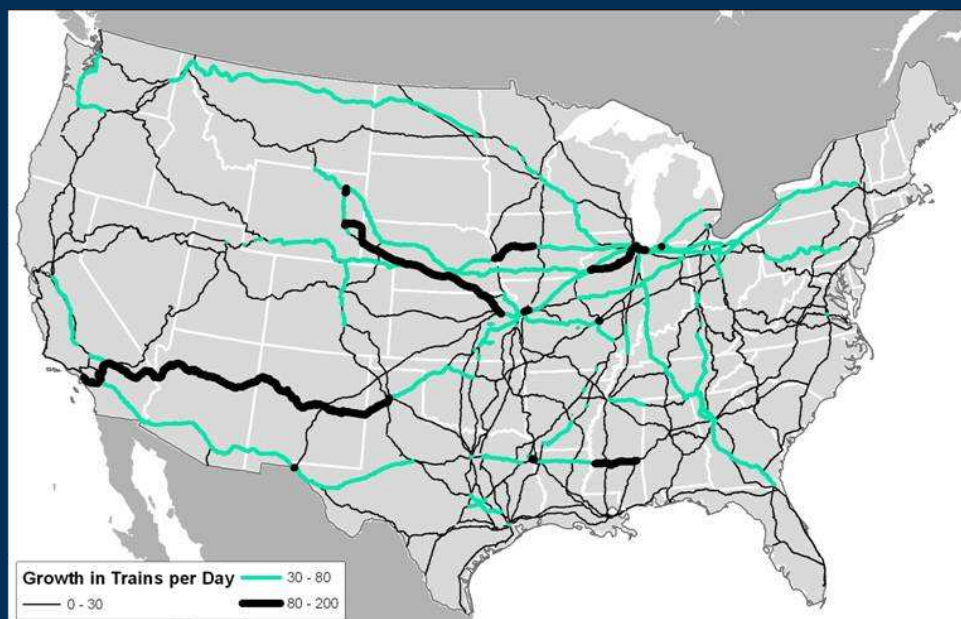
Primary Rail Freight Corridors



2

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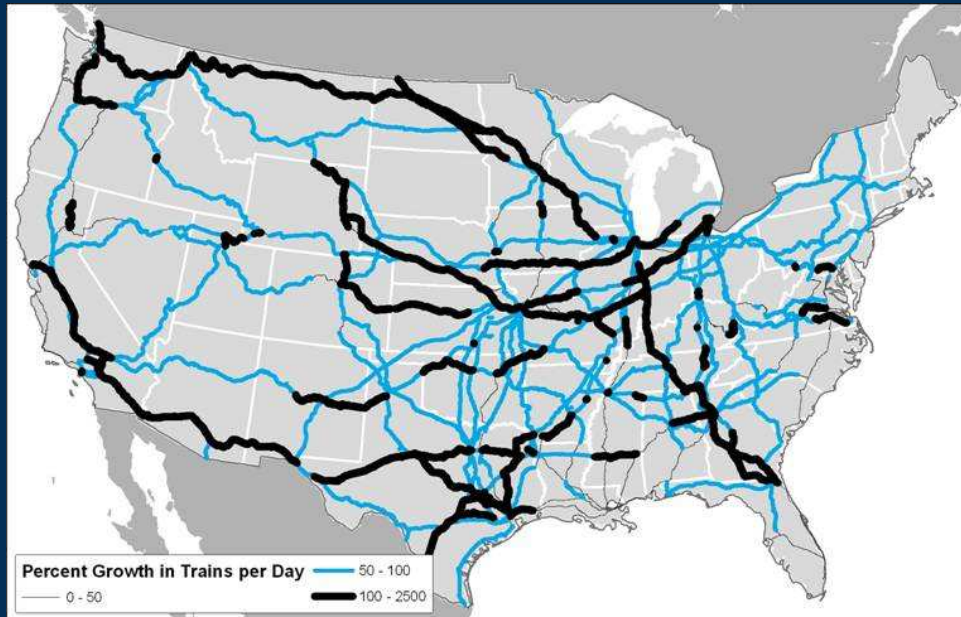
Growth in Trains per Day 2005 to 2035



3

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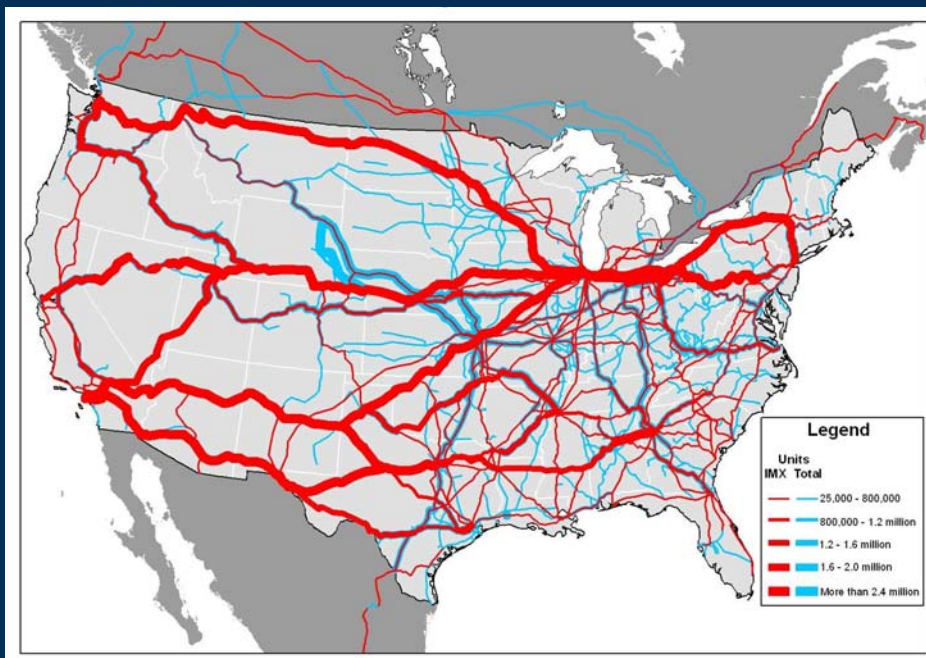
Percentage Growth in Trains per Day 2005 to 2035



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Intermodal Service Car Volumes, 2035

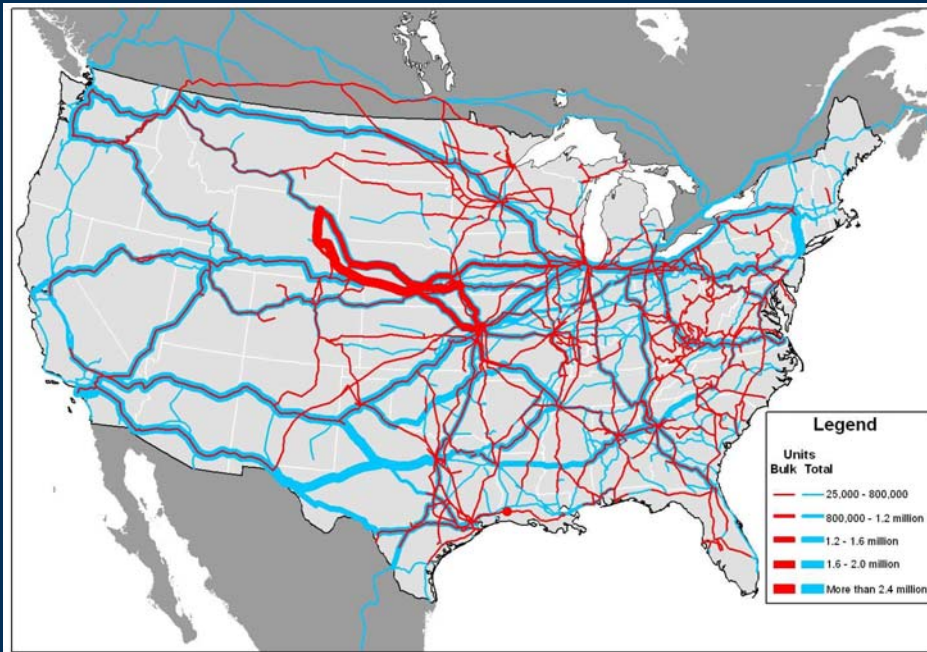


5

Source: Global Insight 2004 TRANSEARCH data and economic forecasts.

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Bulk Unit-Train Service Car Volumes, 2035



Source: Global Insight 2004 TRANSEARCH data and economic forecasts.

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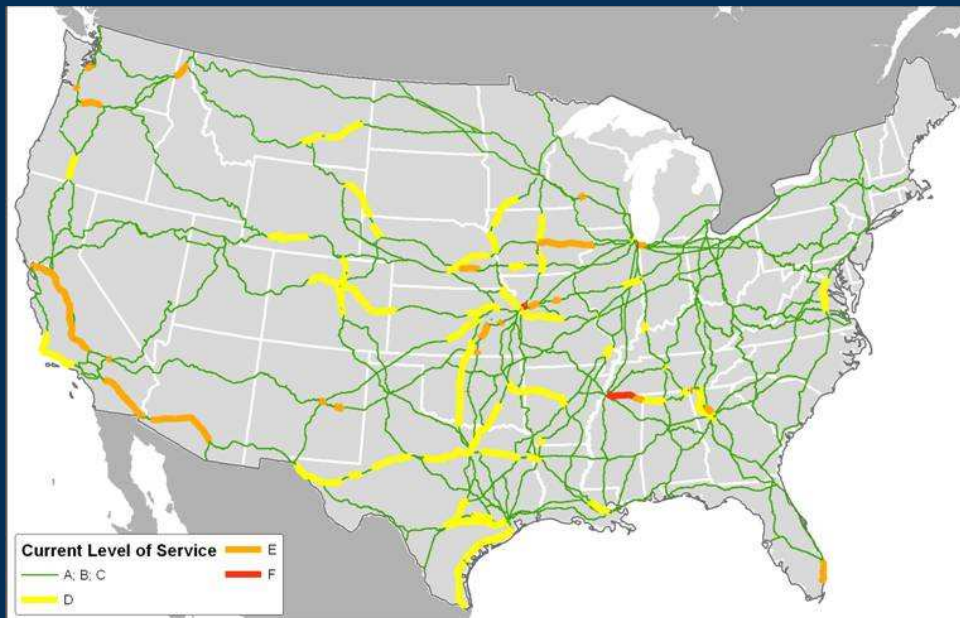
Volume-to-Capacity Ratios and Level of Service (LOS) Grades

LOS Grade	Description		Volume/Capacity Ratio
A	Below Capacity	Low to moderate train flows with capacity to accommodate maintenance and recover from incidents	0.0 to 0.2
B			0.2 to 0.4
C			0.4 to 0.7
D	Near Capacity	Heavy train flow with moderate capacity to accommodate maintenance and recover from incidents	0.7 to 0.8
E	At Capacity	Very heavy train flow with very limited capacity to accommodate maintenance and recover from incidents	0.8 to 1.0
F	Above Capacity	Unstable flows; service break-down conditions	> 1.00

7

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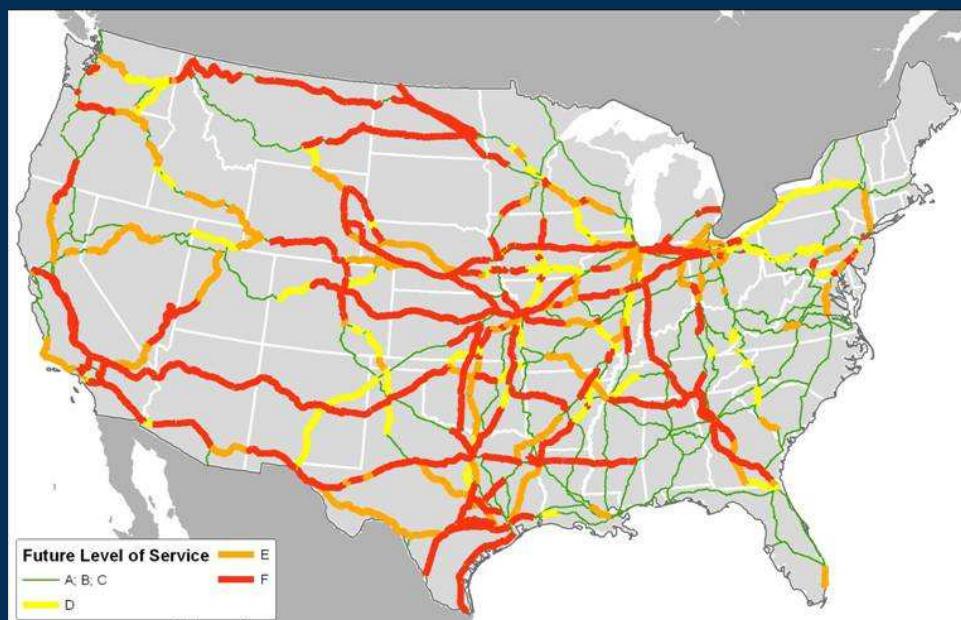
Current Train Volumes Compared to Current Train Capacity



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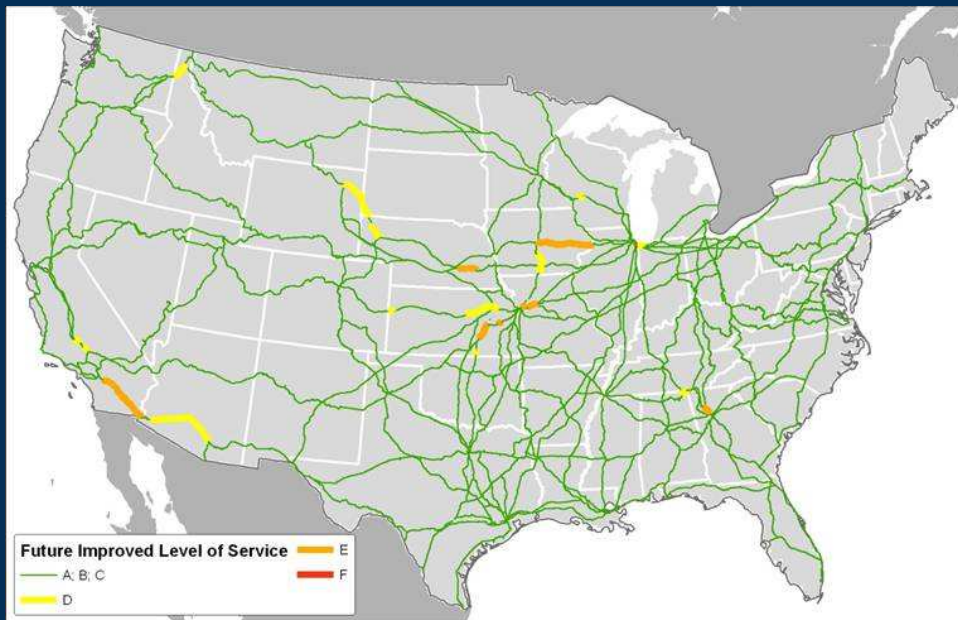
Future Corridor Volumes Compared to Current Corridor Capacity *2035 without Improvements*



9

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Future Train Volumes Compared to Future Train Capacity 2035 with Improvements

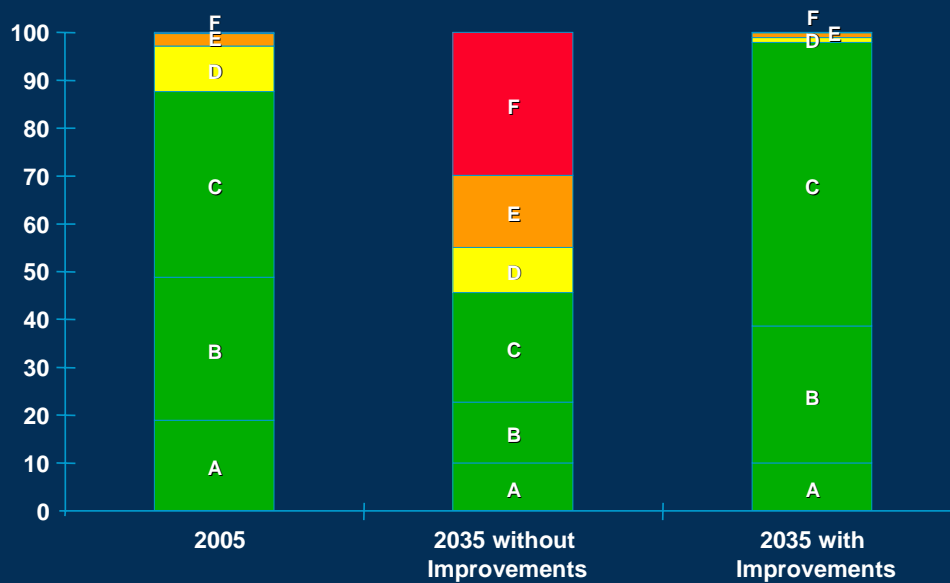


10

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Percentage of Rail-Freight Primary Corridor Route-Miles by Level of Service Grade

Percentage of Primary Corridor Route-Miles



11

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Railroad Investment Capacity

- **Total Investment Needed**
 - \$148 billion
- **Class I Investment Capacity**
 - \$96 billion
- **Balance**
 - \$39 billion or ~\$1.4 billion per year

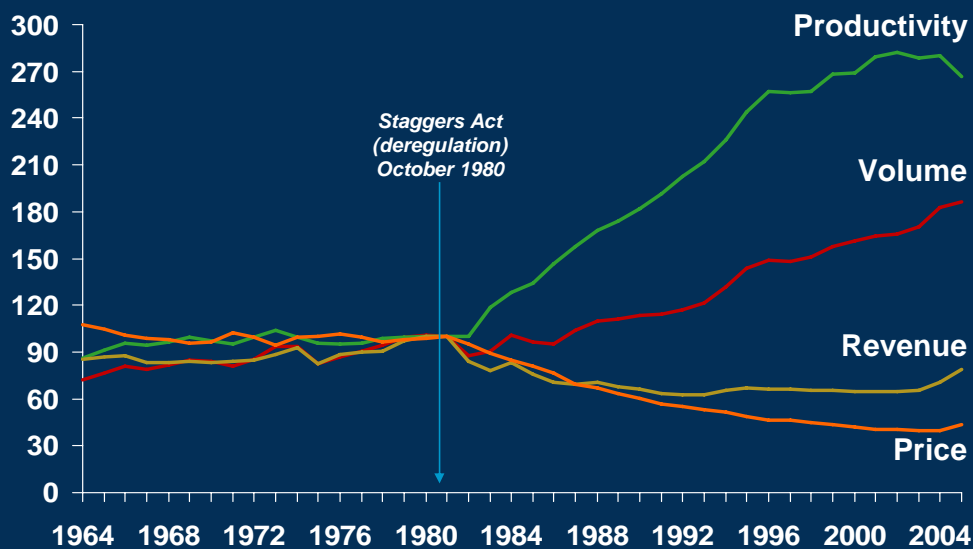
12

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U.S. Railroad Performance, 1964 to 2005

Rail industry today is stable, productive, and competitive with enough business and profit to operate, but it is not attracting capital fast enough to replenish its infrastructure quickly or keep pace with demand and public expectations

Class I Railroads (Index 1981 = 100)



Source: American Association of Railroads

13

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Class I Railroad Business Model

From Retail to Wholesale

- Price to manage demand and encourage larger lots, especially merchandise/carload demand
 - Impact on small volume carload shippers
- Increase train length and throughput
 - Impact on operations (scheduled trains) and communities
- Consolidate terminals (Integrated Logistics Centers)
 - Impact on truck VMT in urban areas and short line feeders
- Expand physical capacity where financial risk is manageable

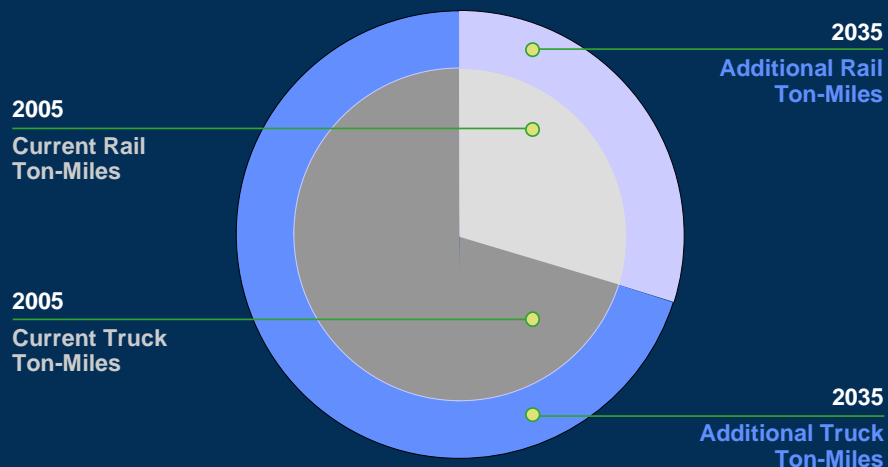
14

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Truck and Rail Market Shares in Ton-Miles

2005 and 2035

Will the highway and rail freight systems have the capacity to accommodate future demand even if current modal shares remain the same?



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Waterborne Freight Transportation Trends and Issues

presented to

North Carolina Statewide Logistics Plan Working Group

presented by

Lance R. Grenzeback
Alan P. Meyers
Cambridge Systematics, Inc.

March 25, 2007

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National Waterway Network

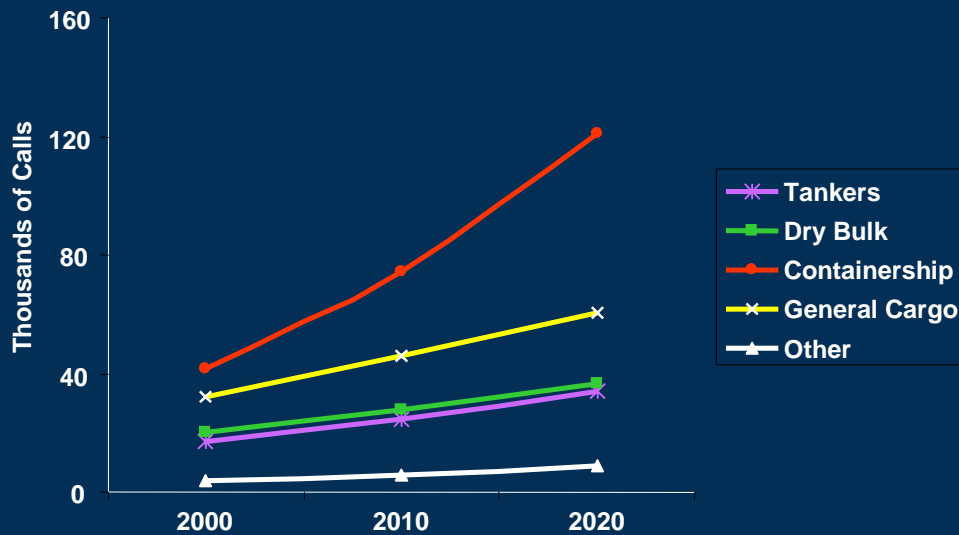


Source: U.S. Army Corps of Engineers,
National Waterway Network

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Cargo Growth

Projected Number of Annual Calls to and from U.S. Ports by Ship Type, Year 2000-2020



Source: National Dredging Needs Study, USACE

U.S. Ports by Container (TEU) Volume, 2005

U.S. international container traffic is forecast to triple over the next 20 years, growing from 24 million loaded containers in 2004 to 72 million loaded containers by 2025

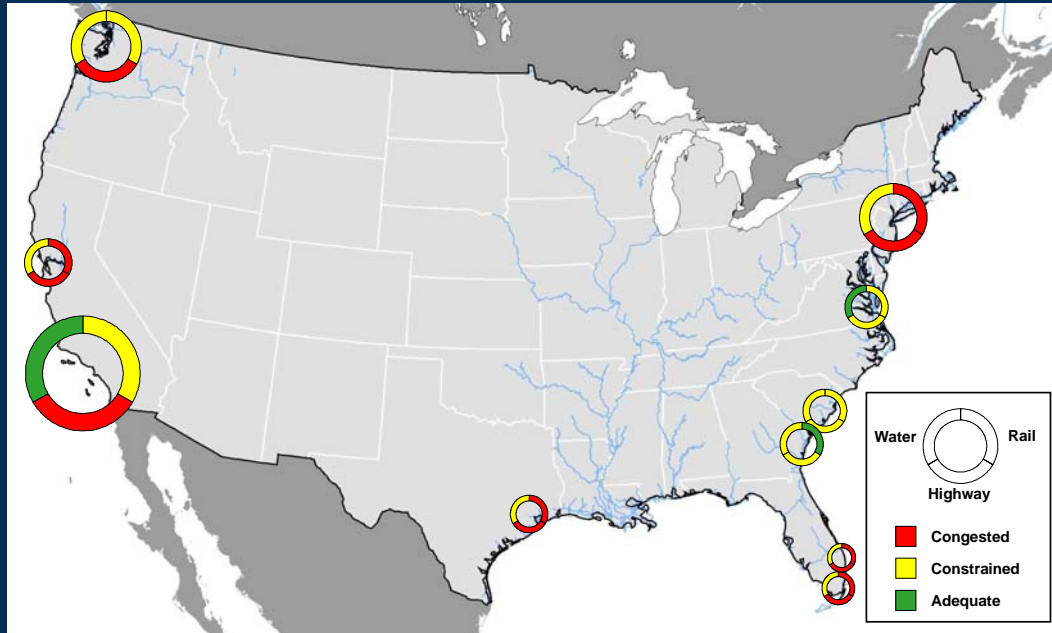


TEU totals combined for the Ports of Los Angeles/Long Beach and Seattle/Tacoma.

Source: Cambridge Systematics based on American Association of Port Authorities data.

Approximate Water, Rail, and Highway Access Conditions at Top U.S. Container Ports

Increasing volumes at container ports will put intense pressure on landside rail and highway links



Source: Cambridge Systematics

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Issue: Maintaining and Improving Waterways



5

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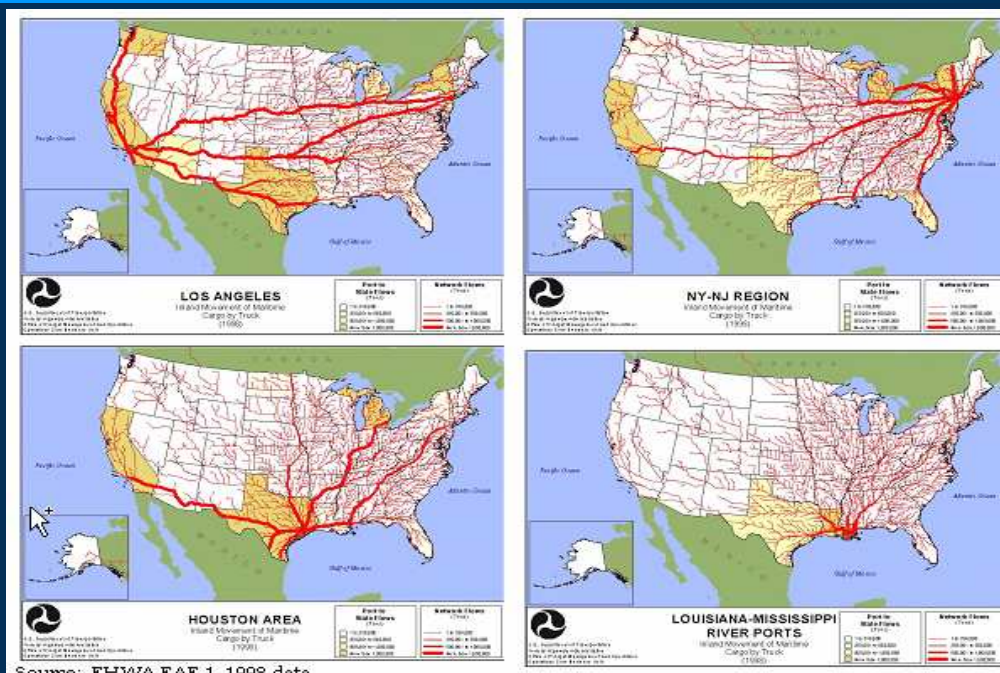
Issue: Adapting Ports And Terminals To Meet Emerging Needs

- Higher demand
- Greater efficiency and productivity
- More acreage
- Different operations
- Different financing

6

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Issue: Land-Side Access and Congestion



7

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Issue: Community Impacts

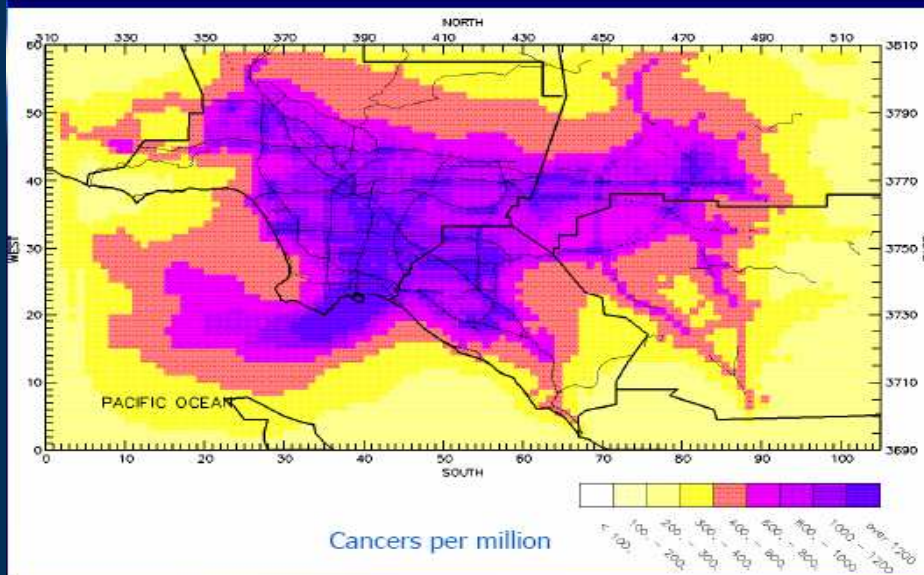


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Managing Risk Factors: Air Quality Impacts

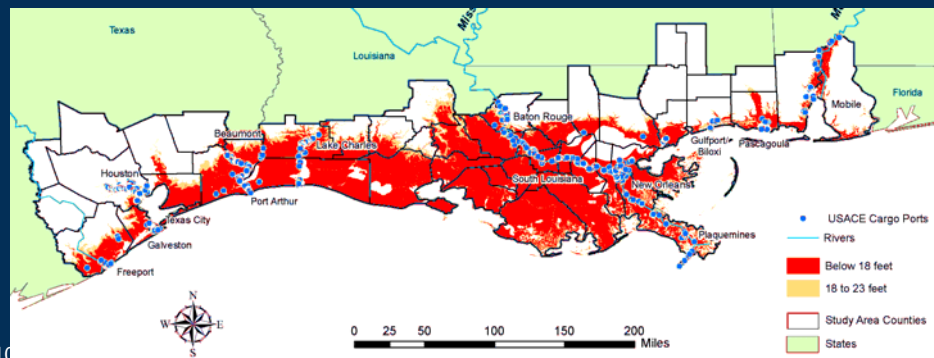
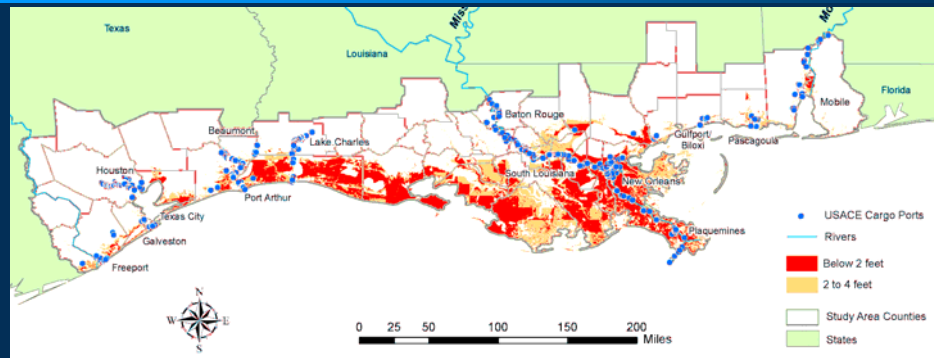
Estimated Risk of Cancer from Air Toxics: All Emission Sources



9 Source: SCAQMD, Multiple Air Toxics Exposure Study II, March 2000

CAMBRIDGE
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Managing Risk Factors: Climate



CAMBRIDGE
SYSTEMATICS

10

Issue: Sufficient and Reliable Funding

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11

CAMBRIDGE
SYSTEMATICS

State DOTs and Freight *Trends and Issues*

presented to

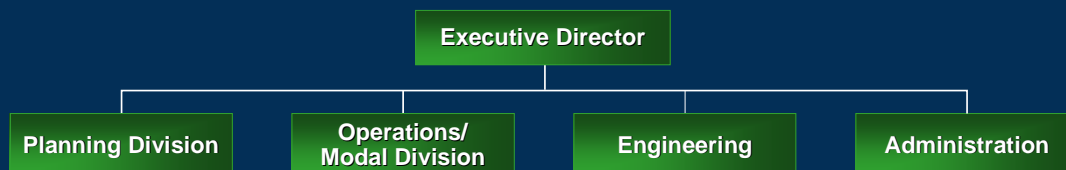
**North Carolina Statewide Logistics Plan
Working Group**

presented by

**Lance R. Grenzeback
Alan P. Meyers
Cambridge Systematics, Inc.**

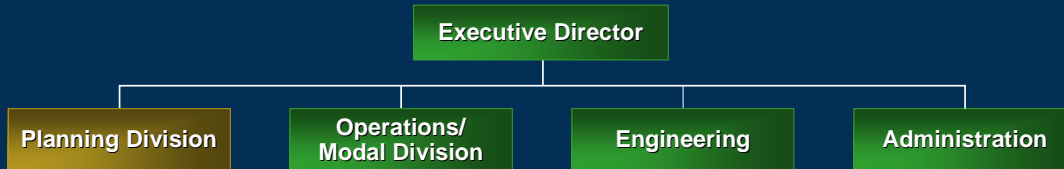
March 25, 2007

Typical State DOT Organizational Structure

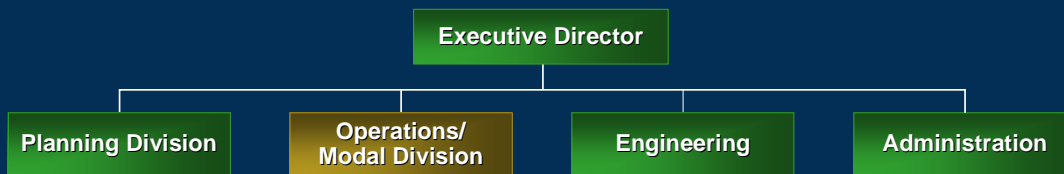


Two Existing Organizational Models for Managing Freight Policy and Programs

Freight within Planning Division



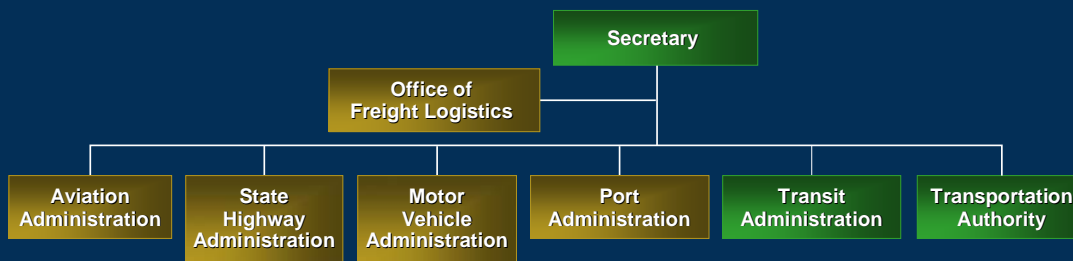
Freight within Operations Division



2

New Models: Create State DOT-Level Freight Office

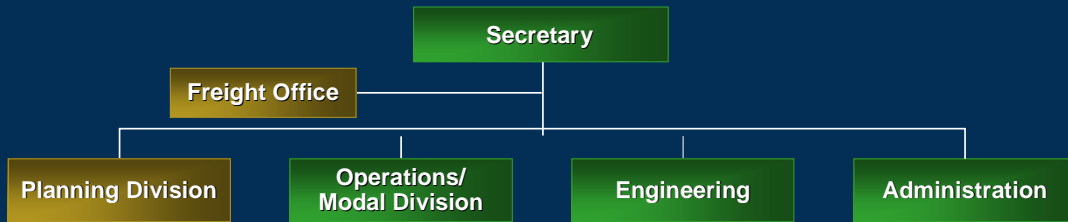
Maryland DOT Example



3

New Models: Create State DOT-Level Freight Office

Maine DOT Example



Virginia Statewide Multimodal Freight Study Phase I Overview

Presented to the

Commonwealth Transportation Board

October 17, 2007



2

About the Statewide Multimodal Freight Study

- **Virginia is one of the nation's leading states for freight movement**
 - Major truck, rail, seaport, air cargo, warehouse/distribution activity
 - Much of Virginia's economy depends on freight movement
 - Freight movement impacts – and is impacted by – constraints and chokepoints in Virginia's transportation system
- **Commonwealth Multimodal Planning office has undertaken the Statewide Multimodal Freight Study**
 - Builds on VTrans and Virginia's modal system plans
 - Coordinated with other Commonwealth efforts, including purchase of freight database and truck origin-destination surveys on I-81
 - Informed by MPO-level freight planning and participation
 - Guided by Freight Advisory Committee (environmental, industry, public sector representatives)

Freight Study Process

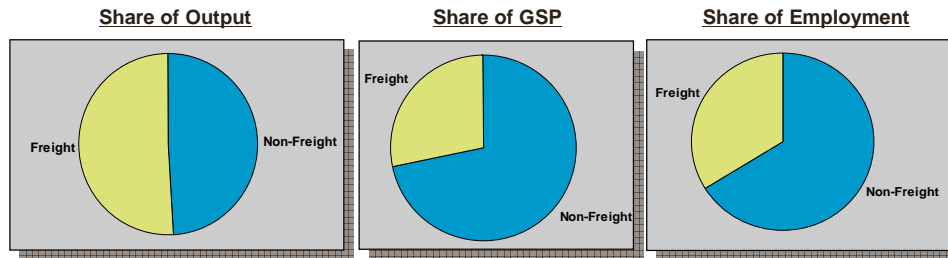
- **Statewide Multimodal Freight Study is an effort to:**
 - Look comprehensively at Virginia freight issues – all modes, all levels (statewide, regional, corridor), all types (local, through)
 - Take a multimodal perspective on where we are, where we are going
 - Develop state-of-the-art freight transportation and economic data and analysis tools
 - Identify critical needs and recommendations
- **Two-phase process**
 - Phase I started October 2006, documents being finalized
 - Phase II to start soon and conclude by September 2008

Freight Study Phase I Work Plan

- **Phase I scope of work**
 - Outreach interviews with Virginia freight stakeholders
 - Status review and near-term action
 - Data collection (Federal, Virginia, commercial sources)
 - Economic and transportation profiling
 - Forecasting to year 2035
 - Multimodal system condition and performance
 - Analytical and data needs
 - I-81 truck-rail diversion analysis
 - Conclusions and next steps

Virginia's Economy Depends on Freight Movement

- Virginia's economy – ranked 21st in the world (2005)
 - 7.6 million residents and 3.7 million employees
 - \$658 billion in state output¹
 - \$352 billion in gross state product²
 - A leading international gateway with \$14 billion in export value
- Around 50% of Virginia's output, 28% of its gross state product, and 34% of its employment, is from industries that depend heavily on the movement of raw materials, intermediate goods, and/or finished products

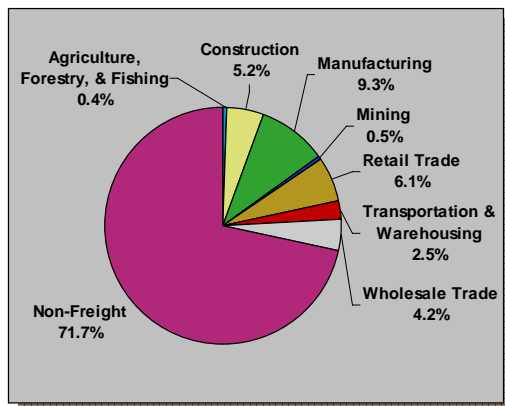


1 – "State Output" measures the gross value of Virginia activity – sales, receipts, operating income, etc.

2 – "Gross State Product" measures the value added of Virginia activity – represents gross value minus intermediate inputs (goods and services purchased from other industries). Freight industries tend to rely heavily on intermediate inputs.

Virginia Has Many Different Freight-Dependent Industries -- and They Are Growing

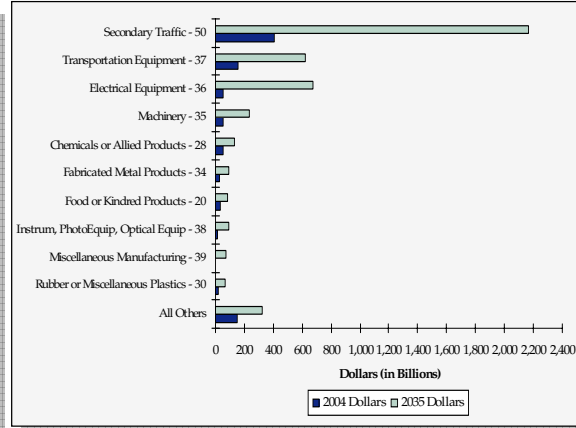
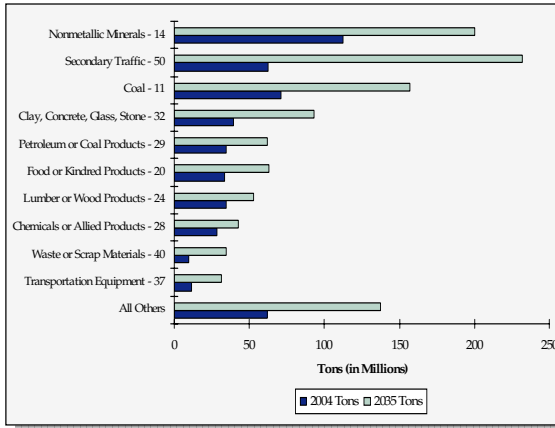
Contribution of Freight-Dependent Industries to Virginia GSP



- Current freight "clusters"
 - "Goods Movement" -- wholesale, air cargo, rail freight, trucking, ocean and river ports and terminals, and warehouse/distribution -- 7% of GSP
 - "Freight Intensive Industries" -- food, tobacco, agriculture, construction, wood and paper, machinery, transportation equipment, energy, chemical products, minerals – 15% of GSP
 - Retail – 6% of GSP
- Future growth
 - Virginia population to grow 30% through 2030 (VEC projection)
 - Freight employment to increase 20%, freight GSP to increase 70%, freight output to increase 100% through 2035 (Global Insight forecast)

Freight Tonnage Will Grow as Freight Industries Grow – But the Commodity Mix Will Change

- Virginia freight tonnage to grow in proportion to freight industry output
 - Today, highest tonnage commodities are minerals, coal, and “secondary traffic” (secondary traffic represents mixed freight shipments, usually higher-value finished goods moving in containers or “dry van” trucks)
 - Tonnage moving into, out of, and within Virginia will roughly double by 2035
 - Secondary traffic will become the tonnage leader, remain the value leader

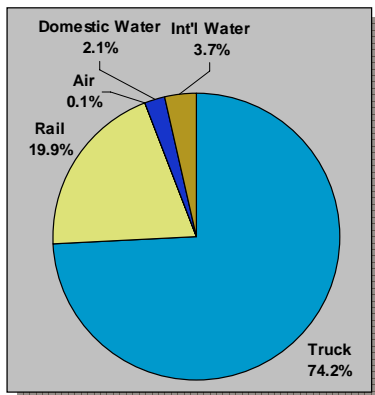


Note: This data does not include international waterborne commodities or municipal waste.

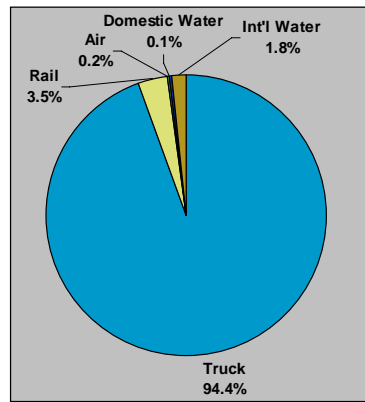
Freight Uses All Elements of Virginia’s Multimodal Transportation System

- In 2004, Virginia’s multimodal transportation system handled 915 million tons of freight worth more than \$2.1 trillion dollars
 - Includes truck, rail, air, domestic water, international water
 - Includes freight inbound to, outbound from, moving within, and passing through VA
 - Reflects transfers among and between modes – most air, water, rail traffic also involves one or more truck moves -- each leg of trip counted separately
 - Equivalent to 46 million truckloads; end to end, would go around the world 20+ times

Tonnage by Mode

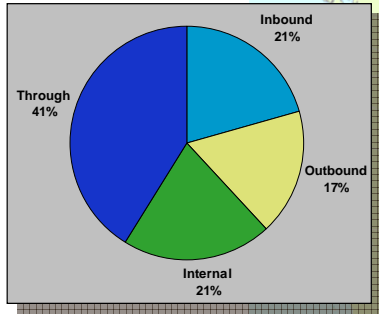


Value by Mode

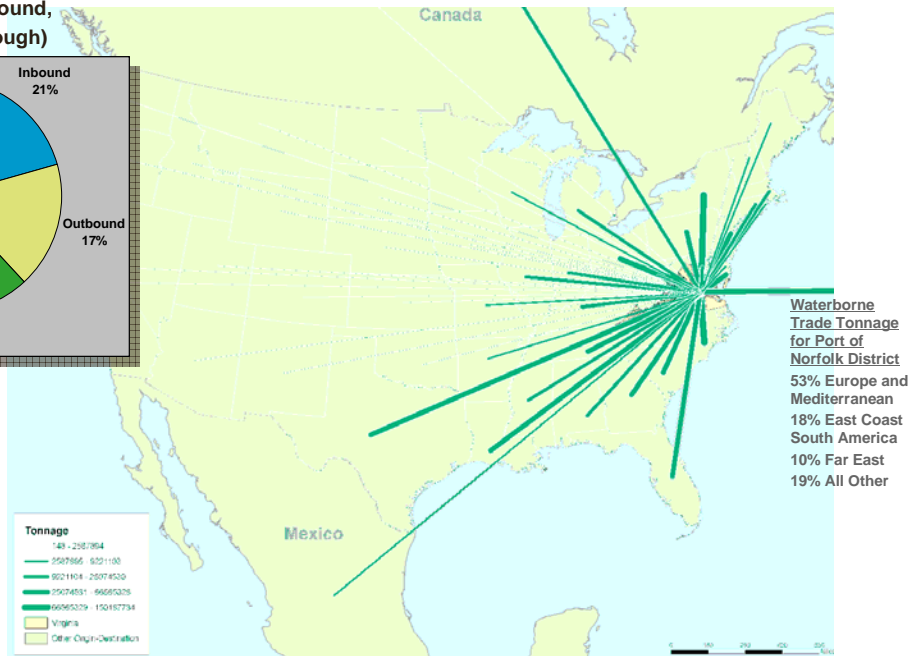


Virginia Trade is Greatest With the Mid-Atlantic, But Covers North America and the World

Tonnage by Type
(Inbound, Outbound, Within VA, Through)

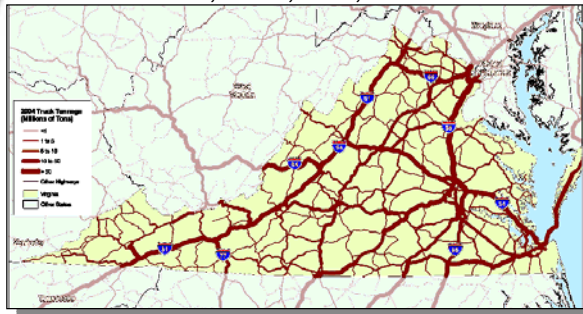


Distribution of Inbound and Outbound Tonnage, All Modes

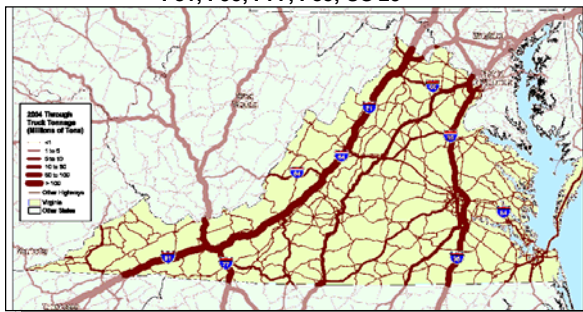


How Freight Uses Virginia's Roads

Virginia Tonnage (Inbound, Outbound, Internal)
I-81, I-95, I-64, I-66, I-77, I-85, I-295, US 29, US 360, US 460, US 58, US 13



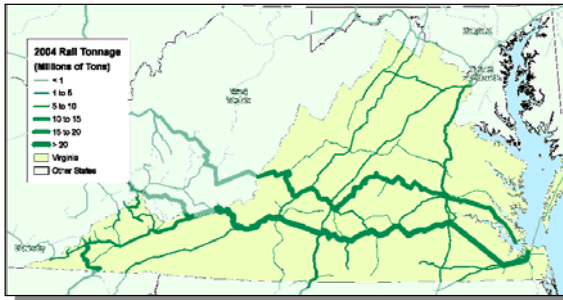
Pass-Through Tonnage
I-81, I-95, I-77, I-85, US 29



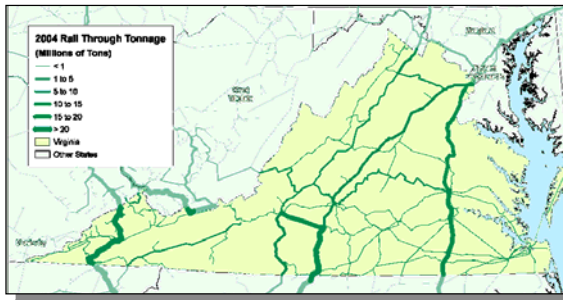
- **Virginia's Truck Network**
 - 1,100 miles of interstate; 8,000 miles of primary; 47,500 miles of secondary
 - 680 million tons, 55 million loaded units, 200 billion ton-miles (2004)
- **Critical issues today**
 - Roadway and bridge condition
 - Capacity, congestion, speed, and reliability, especially for critical corridors and urban areas
 - Safety and emergency response
 - Environment (emissions, noise, neighborhoods, fuel consumption)
 - Intermodal connectivity for ports, rail, air
 - Truck rest areas
 - Driver retention and recruitment
 - Advanced two-way information systems
 - Mode-shift strategies
 - Time-shift strategies
 - Funding
- **Critical issues by 2035**
 - How to deal with a projected doubling of truck tonnage, along with growing urban congestion?

How Freight Uses Virginia's Railroads

Virginia Tonnage (Inbound, Outbound, Internal)
NS and CSX east-west lines

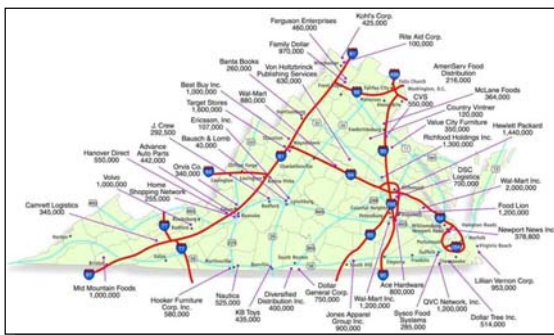
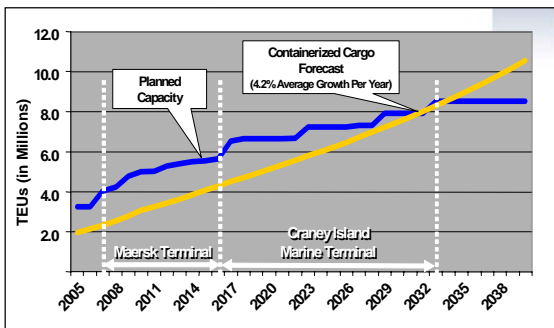


Pass-Through Tonnage
NS and CSX north-south lines



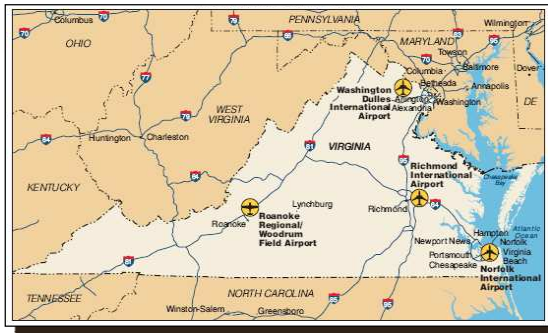
- **Virginia's Freight Rail Network**
 - 12 freight, 2 passenger railroads
 - 3,500 system miles – 2,100 for Norfolk Southern and 1,051 for CSX
 - 182 million tons (2005)
- **Critical issues today**
 - System preservation and maintenance (lines, bridges, tunnels)
 - Modernizing historic, aging infrastructure to handle heavier, larger railcars in faster and/or scheduled services
 - Port accessibility and quality of service
 - Inland ports, intermodal yards, "integrated logistics centers"
 - Shared access with passengers
 - Diversion of long haul trucks to rail
 - East-west and north-south corridors
 - Multistate coordination
- **Critical issues by 2035**
 - How to handle a doubling of rail traffic, while offsetting investment needs in other modes?

How Freight Uses Virginia's Ports and Warehouse/Distribution Facilities



- **Virginia's Ports**
 - Mix of public and private facilities
 - Hampton Roads ranks 2nd/3rd among Atlantic container ports, 15th among US ports on tonnage
 - Facilities on the James (Richmond, Hopewell), York and Appomattox rivers
- **Warehouse/distribution facilities**
 - Essential for modern import-export logistics and port growth
 - Development of private facilities in Hampton Roads, along major corridors
- **Critical issues today**
 - Port capacity, terminal expansion, truck and rail access
 - Warehouse sites (large parcels, truck/rail access, limited impact)
 - "Marine Highway" initiatives
 - Advanced operations and information
- **Critical issues through 2035**
 - How to handle a quadrupling of container traffic and a doubling of total tonnage by improving port facilities and operations, while managing transportation and environmental impacts?

How Freight Uses Virginia's Airports



OPERATIONAL CHARACTERISTICS OF VIRGINIA CARGO AIRPORTS

Airport	2005 Total air cargo (tonnes)	Airline Service/ Capacity (a)	Number of commercial length runways	Length of longest runway (feet)	Distance to connecting transport (b)	Cargo warehouse (sq. feet)	On-site customs & agriculture inspections	FTZ access	Average customs clearance time required
IAD	303,012	40, 5	3	11,500	14, 35, 60, 50	1,229,128	Yes	Yes	1 hour
RIC	49,614	8, 3	2	9,000	5, 5, 30, 25	142,000	Yes	Yes	2 hours
ORF	31,791	7, 3	2	9,000	5, 5, 5, 5	88,000	No	Yes	2 hours
ROA	14,333	5, 3	2	6,800	5, 10, 150, 20	n.a.	No	No	Unknown

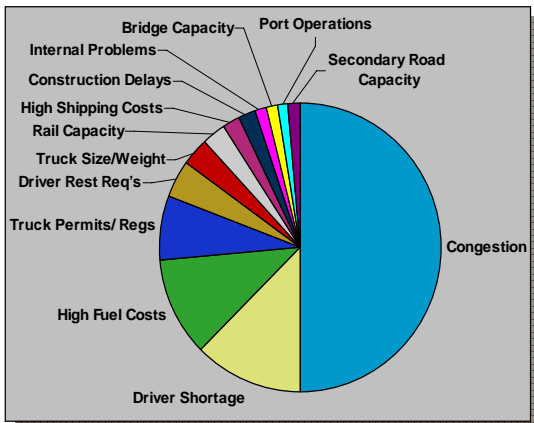
* - Indicates that facilities are on airport property.
 (a) First number is total carriers and second is all-cargo (including integrated) carriers.
 (b) Numbers, in order, are distance, in miles, to major highway, truck terminal, major water port (inland), intermodal center.
 Source: 2005 Airport Directory, Air Cargo World, 2006.

- **Virginia's Airports**
 - Unique market niche -- high-value, time-sensitive commodities -- critical service for many industries
 - Just 0.1% of tonnage, but more than 4 billion dollars in shipment value
 - Four major cargo airports (Dulles, Richmond, Norfolk, Roanoke) ranking 23rd, 72nd, 86th, 112th in US tonnage
- **Critical issues today**
 - Air freight through Virginia does not suffer from significant bottlenecks -- good facilities, good ground access
 - Competition from out of state airports for international service -- shippers will truck to JFK, O'Hare, other airports because of more frequent wide-body services
- **Critical issues through 2035**
 - Air tonnage is expected to triple by the year 2035 -- second-fastest growing segment of freight industry
 - Facility capacity and ground access need to keep pace, seems achievable
 - Could Virginia be more competitive for international services? Does Virginia need more domestic options?

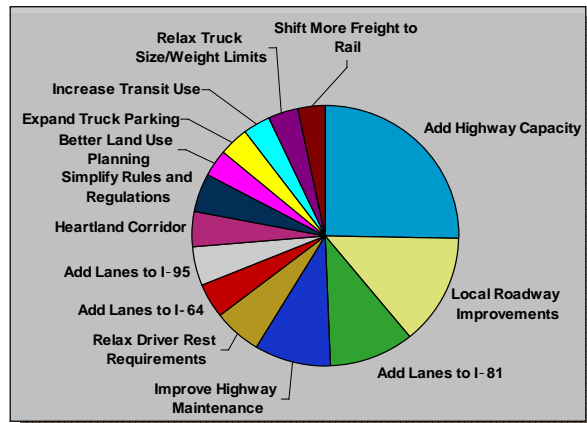
What do Virginia's Freight Users Think?

- **Nearly 200 freight shippers, receivers, carriers interviewed by Virginia MPOs, Commonwealth and consultant**
 - Overall, 63% of respondents say Virginia's system is adequate; high of 86% in Harrisonburg, low of 25% in Northern Virginia
 - Highway congestion is the number one freight concern, especially in Northern Virginia, Hampton Roads, I-81 Corridor, I-95 Corridor
 - Most recommend adding highway capacity, improving rail options

Reported Problems



Recommendations

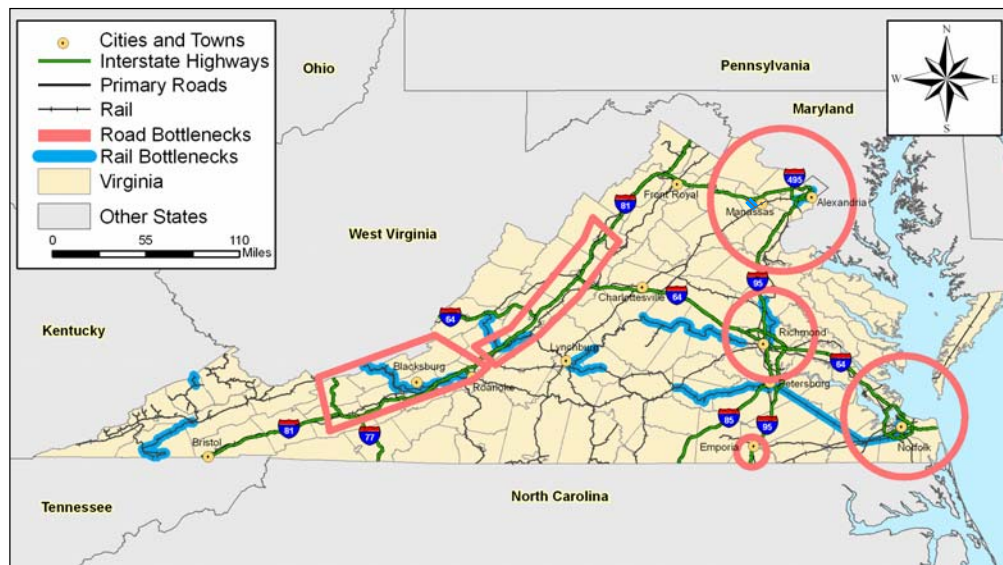


Why do Freight Users Care About Congestion?

- **National data**
 - Congestion adds \$7 billion per year to shipper inventory costs (source: FHWA) ... “Unpredictability of pickup or delivery can increase load cost by 50% to 250%” (source: Cowan Systems)
 - Truck operations cost an average of \$77.10 (source: TTI) ... “Idled trucks cost the trucking industry \$7.8 billion and 243 million hours in 2004” (source: Cowan Systems) ... in MD, the average UPS truck delivery is delayed 36 minutes, costing \$1.1 million annually (source: UPS)
- **Virginia data (source: FHWA HERS model)**
 - In 2005, trucks on Virginia’s roads experienced an estimated 8.4 million hours of delay, costing \$278 million
 - VDOT’s FY 2007 budget calls for \$2.6 billion in road maintenance and highway construction; with average expenditures of \$2.7 billion annually (current dollars) through 2035, Virginia truck delay will increase to an estimated 14.0 million hours, costing \$466 million, in year 2035

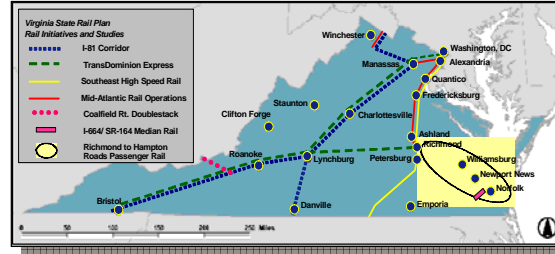
Where are the Most Pressing Needs?

- **Urban congestion** – Northern Virginia, Hampton Roads, Richmond, Roanoke
- **Critical multimodal corridors** – interstate and state highways, rail routes
- **Port capacity and port access**



Many Commonwealth, Regional, and Public/Private Initiatives are Addressing Freight

- **Highway plans/studies**
 - I-81 Near-Term Safety Improvements and Corridor Improvement Study, I-81 Truck-Rail Diversion Study
 - I-95/I-395/Capitol Beltway improvement projects; I-66 Improvements; Route 460 Location Study; I-64 Improvements; I-564 Port Connector; Route 29 Corridor
 - Hampton Roads Third Crossing concept
- **Rail plans/studies**
 - Heartland Corridor
 - Crescent Corridor
 - Mid Atlantic Rail Operations
 - Route 164/664 Median Rail
 - Other Virginia State Rail Plan and Rail Enhancement Fund projects
- **Port plans/studies**
 - Maersk Terminal and on-dock rail
 - Craney Island development
 - VPA Master Plan initiatives
- **Other**
 - Airport CIPs and Dulles Rail
 - Private warehouse/distribution development



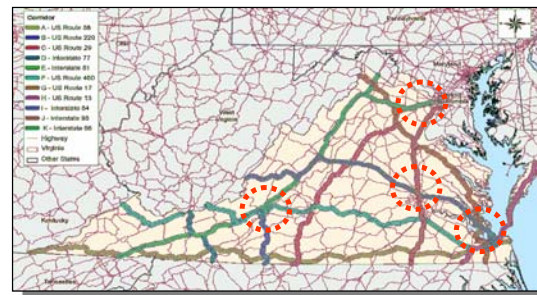
Phase I Conclusions

- **Currently, Virginia's freight system is generally performing at a high level, but it faces increasing pressure to maintain performance and keep pace with growing demand.**
- **Maintaining and improving freight system performance will enhance Virginia's competitiveness and attractiveness as a business economic location, as a preferred gateway for global trade, and as one of the nation's best places to live and work.**
- **Virginia has significant freight needs, with large dollar costs, and very constrained funding for improvements. It is critical to make the most efficient use of Commonwealth resources, public-private partnership opportunities, and innovation. This requires a multimodal approach to freight transportation planning and programming, supported by the best available data and analytical tools, and informed by meaningful input from public and private interests.**
- **Phase I was designed to collect data and inventory conditions and needs. The next step is to develop freight policy and infrastructure recommendations, along with the transportation and economic analyses to support them.**

Key Questions to be Addressed in Phase II

- Given Virginia's projected freight needs, and given the improvements that are already in the planning stages, is it enough? Or will there still be critical deficiencies?
- What are the economic and transportation costs to Virginia of these deficiencies? Conversely, what are the economic benefits of addressing them?
- What additional improvements – whether infrastructure, policy, or institutional – will be needed to meet Virginia's emerging and future needs? How will critical corridors and regions be affected? What are the key scenarios and variables for growth, the environment, and other critical factors?
- How will needed improvements be funded? What are the fair and appropriate contributions of governments, and of the private sector?
- How should the Commonwealth approach freight planning on a consistent institutional basis, with its public and private sector partners, in Virginia and other states?

Multimodal Corridors and Subregions for Phase II Analysis



Shifts in Global Trade Patterns - Meaning for North Carolina

Presented to:
North Carolina

February 28, 2008
Raleigh, NC

Presented by:
Robert West
Managing Director
Global Trade & Transportation
Global Insight
781-301-9078
robert.west@globalinsight.com

Agenda

- 
- **The weakening economic outlook**
 - **Shifts in trade patterns after the Canal expansion**
 - **Outlook for North Carolina in the midst of the world picture**
 - **Conclusions**

World Outlook – Looking very shaky all of a sudden

The Topic

- Subprime crisis
- Oil prices
- U.S.
- U.S. dollar
- Europe

- China
- India
- Other emerging markets

- World recession risk
- Implications for trade

The Outlook

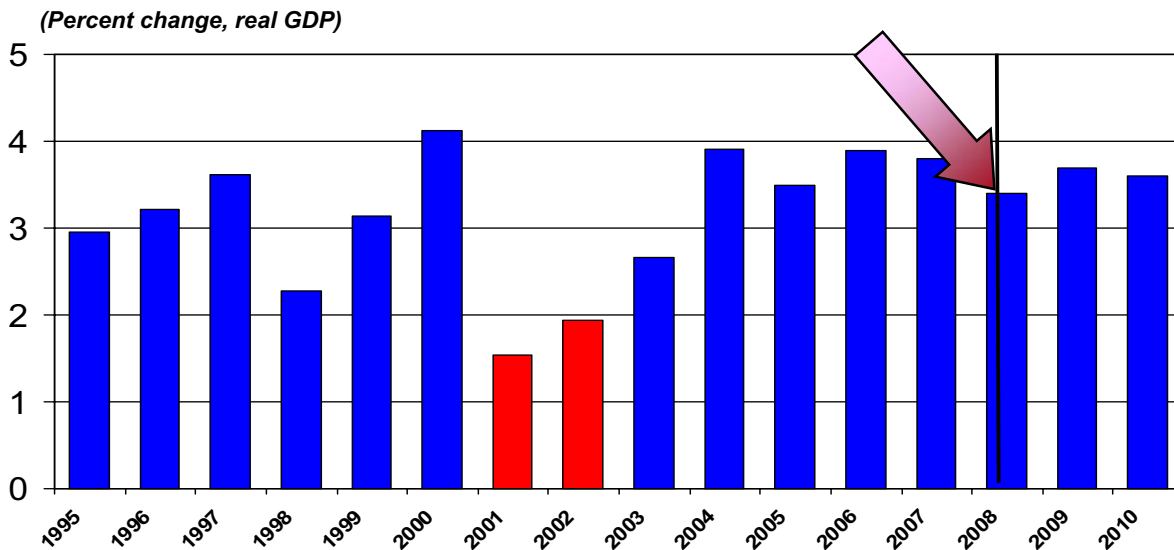
- A global problem
- How big of a threat? \$100+
- We are in a recession
- Still headed down
- No longer immune to U.S. economic problems

- Risk of a hard landing after the Olympics
- Relatively insulated from global shocks
- Happy days may finally be over, LA looks strong

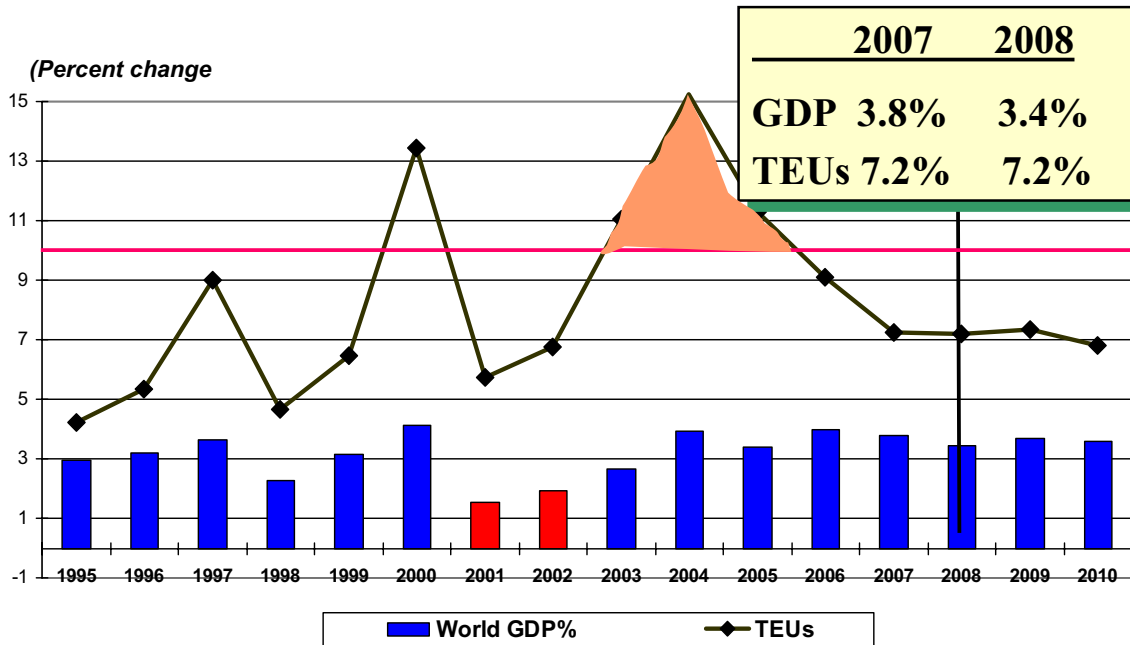
- Still fairly low
- Not too negative & shift to exports in the U.S. and no China hard landing

World economic growth has peaked and is slowing . . .

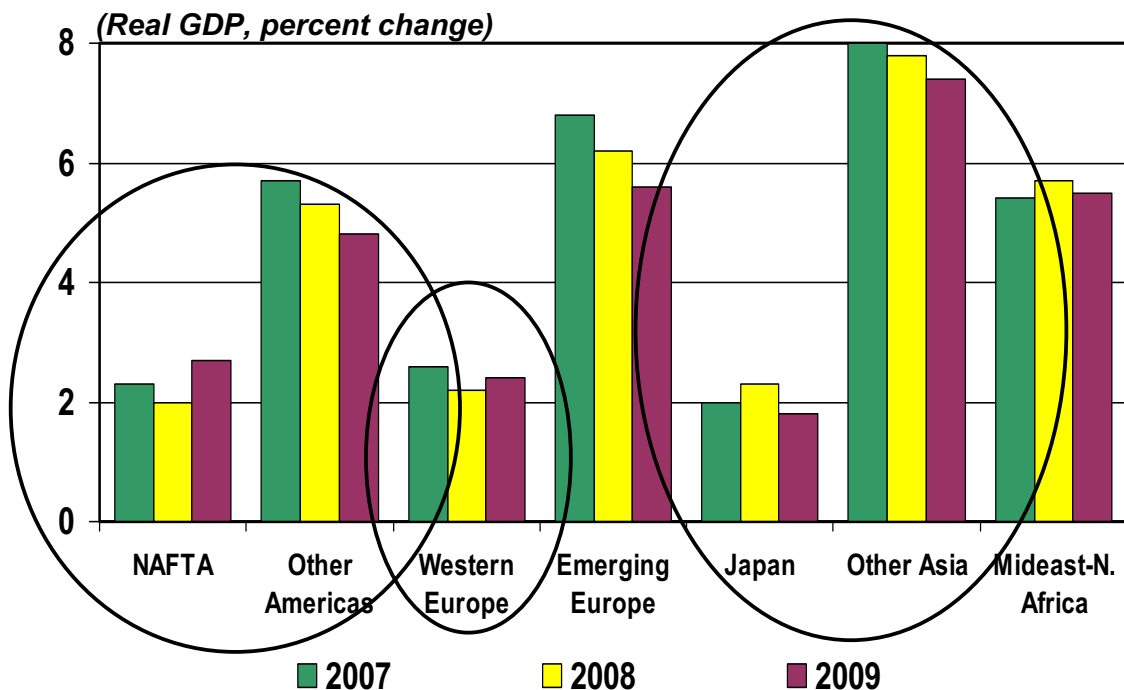
The world economy is in recession when real GDP growth is below 2%.



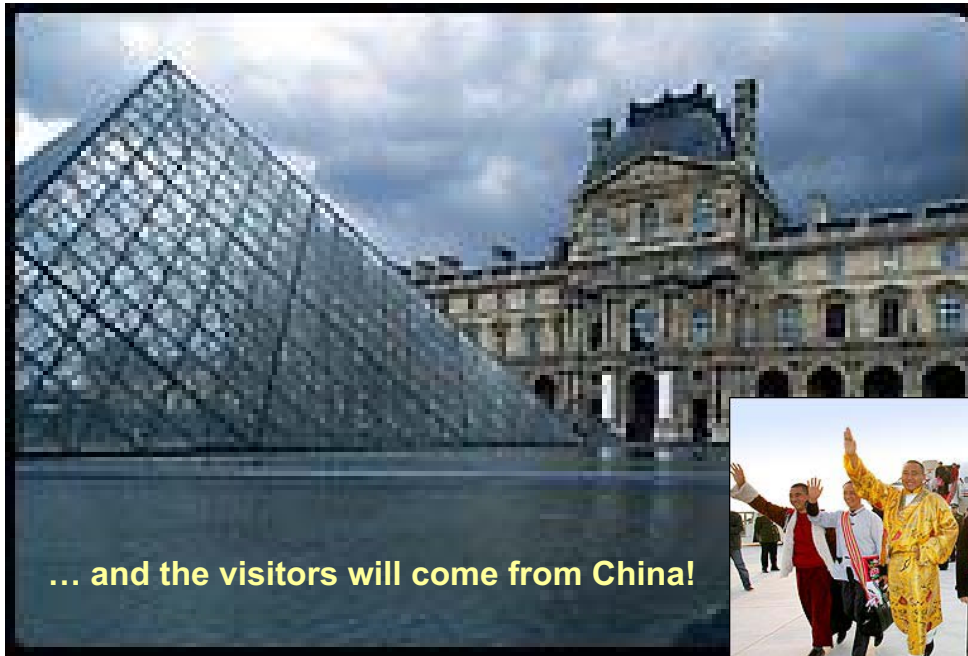
Container trade normally grows faster than the world economy. The age of double-digit growth is over.



Trade is linked to real GDP growth - uneven across the world – and emerging markets grow fastest.



Europe in the long term – a great museum?



... and the visitors will come from China!



Growth is not uniform: Market shifts are coming and will affect U.S. trade and transportation

(Country GDP Rank in Billions of Real (2003) U.S. Dollars)

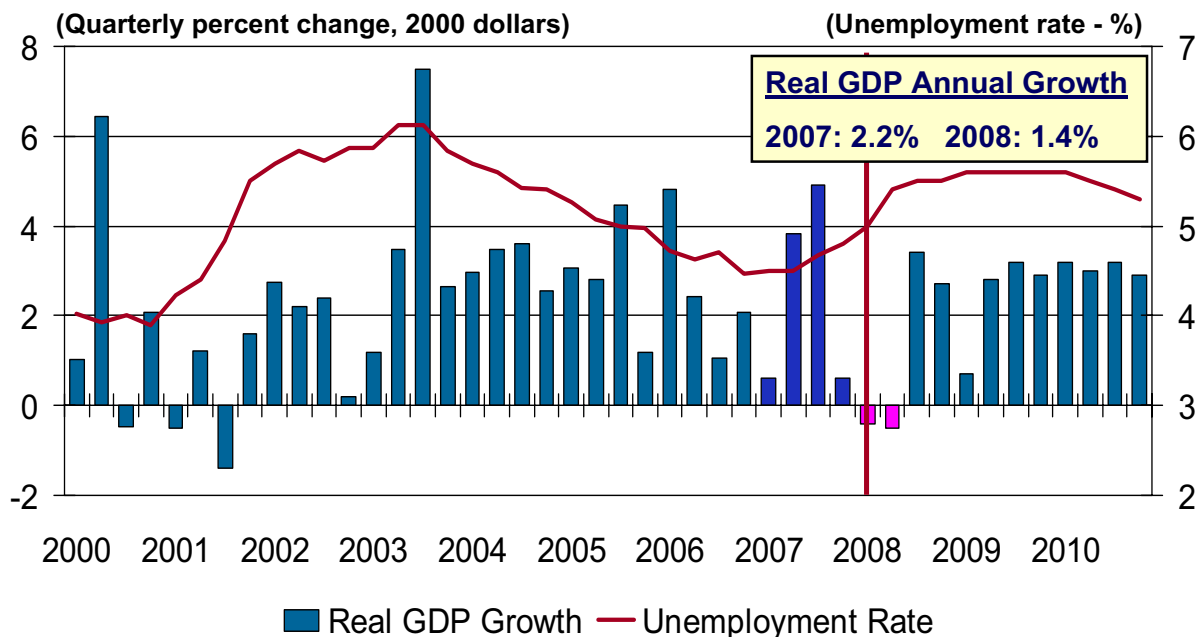
2000	2010	2020	2030	2040	2050
U.S.	U.S.	U.S.	U.S.	U.S.	China
Japan	Japan	China	China	China	U.S.
Germany	Germany	Japan	Japan	India	India
U.K.	U.K.	Germany	India	Japan	Japan
France	China	U.K.	Russia	Russia	Brazil
Italy	France	India	U.K.	Brazil	Russia
China	Italy	France	Germany	U.K.	U.K.
Brazil	India	Russia	France	Germany	Germany
India	Russia	Italy	Brazil	France	France
Russia	Brazil	Brazil	Italy	Italy	Italy

Source: Global Insight World Service and Goldman Sachs

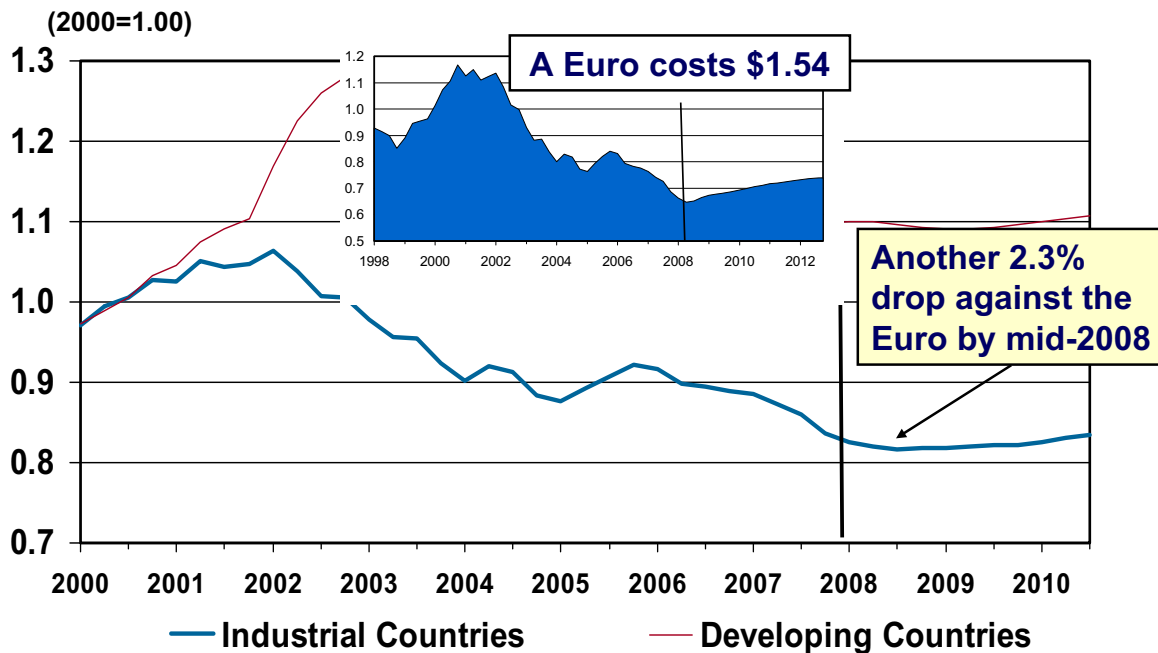
A mild U.S. recession is here.

- U.S. growth in 2008 is likely to come in between 1% and 1.5%
- The main culprits are still the housing/subprime crisis and high oil prices – the “double-shock” economy
- Consumer spending will slow significantly, as employment growth grinds down
- Capital spending growth will be lackluster
- The only saving grace will be **net exports**
- We are in a mild, saucer-shaped recession in the first half of this year, with a high vulnerability to another shock
- The Fed will have to cut rates by another 50 basis points on March 18, and then another 25-50 points thereafter
- **Bottom line: we are decreasing our economic output now, but will turn the corner in the second half, thanks to the Fed and Government stimuli**

We are in a recession now.



The U.S. dollar will depreciate further – steady declines through mid-2008, due to the huge trade deficits (\$800 billion).



Agenda

- The weakening economic outlook
- ➔ • Shifts in trade patterns after the Canal expansion
- Outlook for North Carolina in the midst of the world picture
- Conclusions

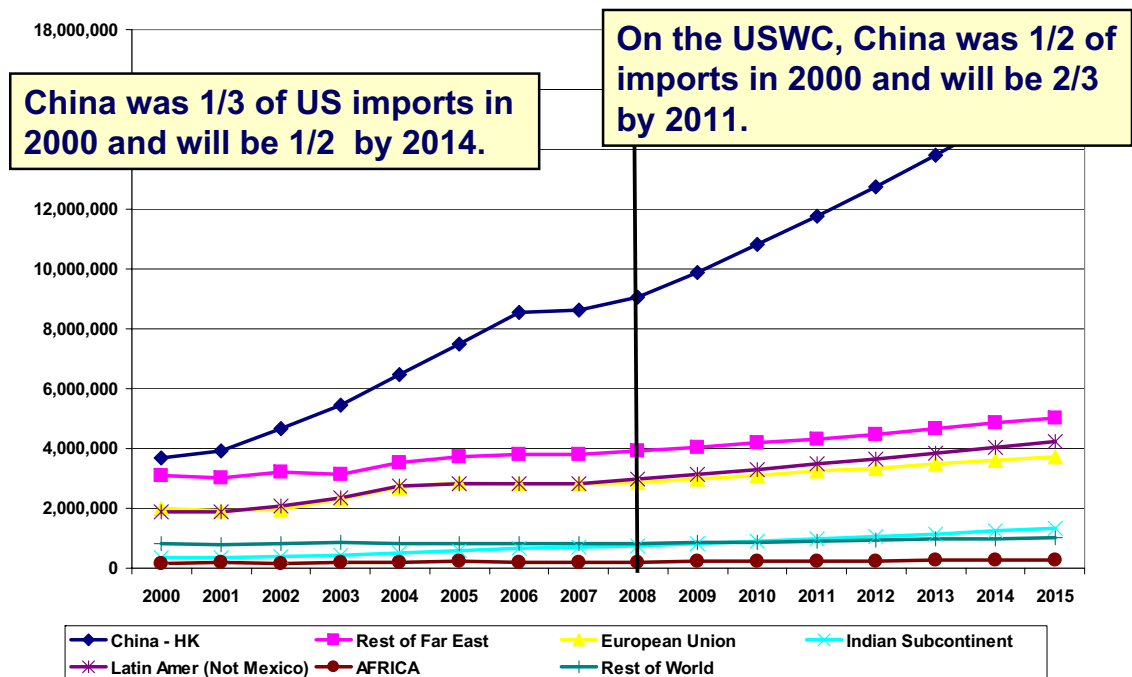
Containerized Trade Movements

(Thousands of TEUs)

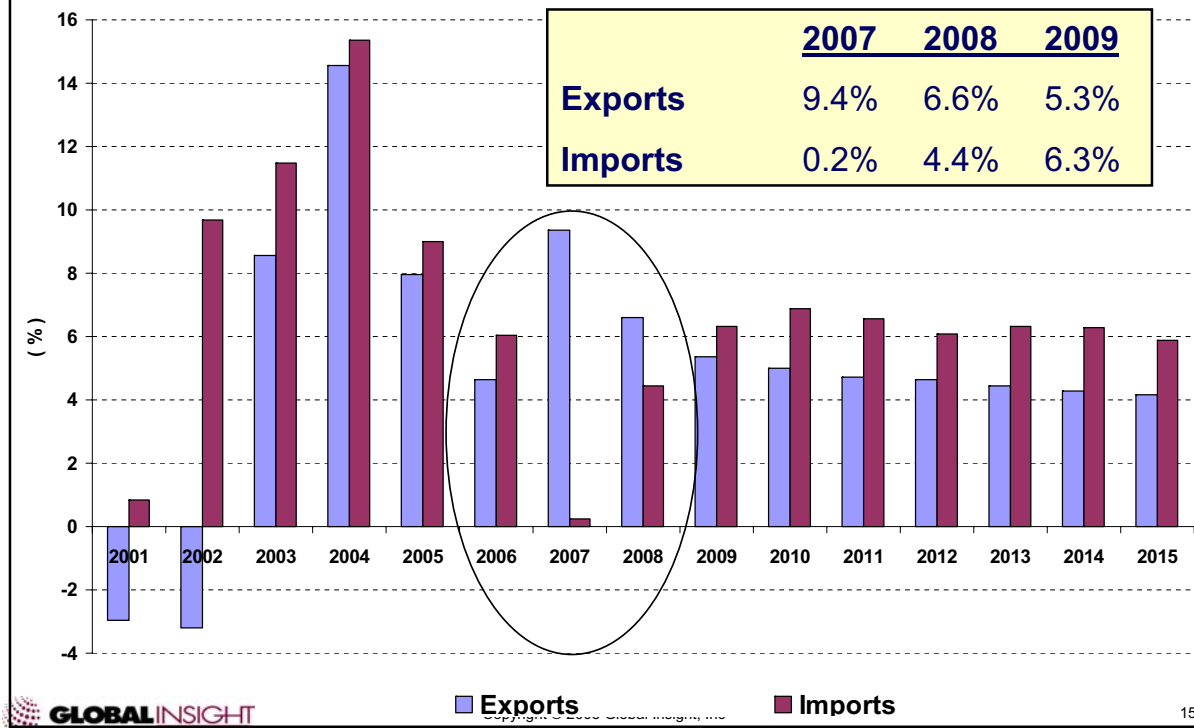
	2008	2010	2015	2008-2015 CAGR (%)
Transatlantic	9,925	10,895	13,295	4.3
Transpacific	24,615	28,360	39,129	6.8
U.S. Atlantic/Asia	5,380	6,161	8,379	6.5
Europe/Asia	22,287	25,964	35,449	6.9
Total	117,837	137,074	185,120	6.7

1/3 of world TEUs are Intra-Asia

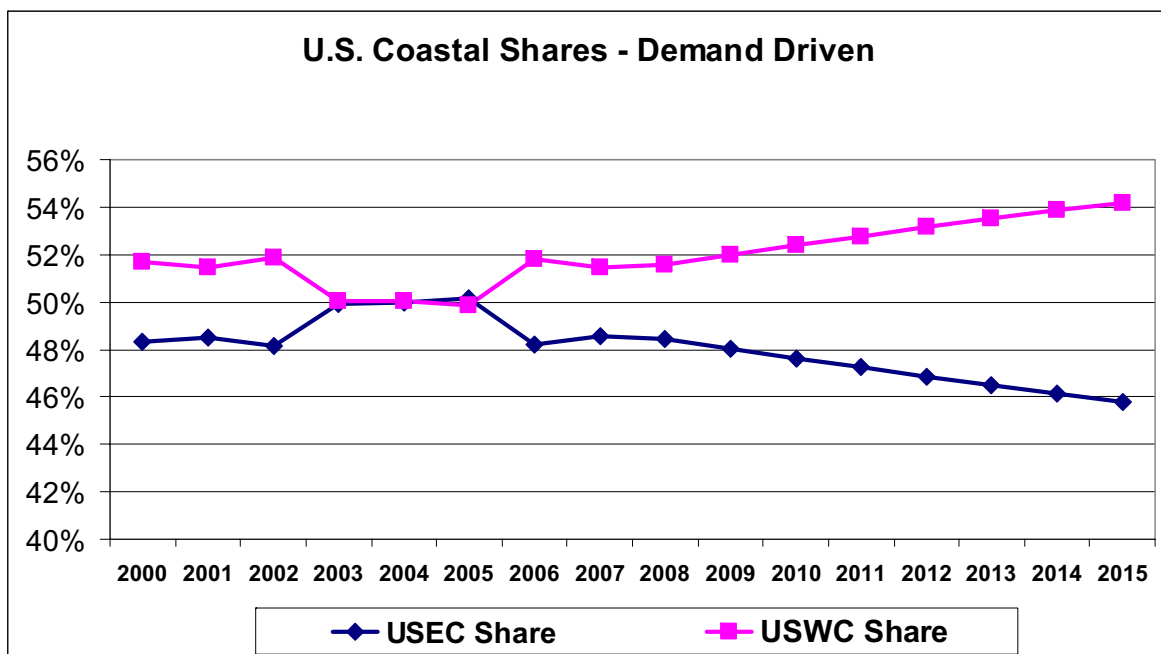
U.S. TEU imports slowed in 2007 to 0.2%, but should grow 4.4% in 2008. Chinese imports will grow fastest (8% on average through 2015).



For the U.S., TEU growth has shifted to exports.



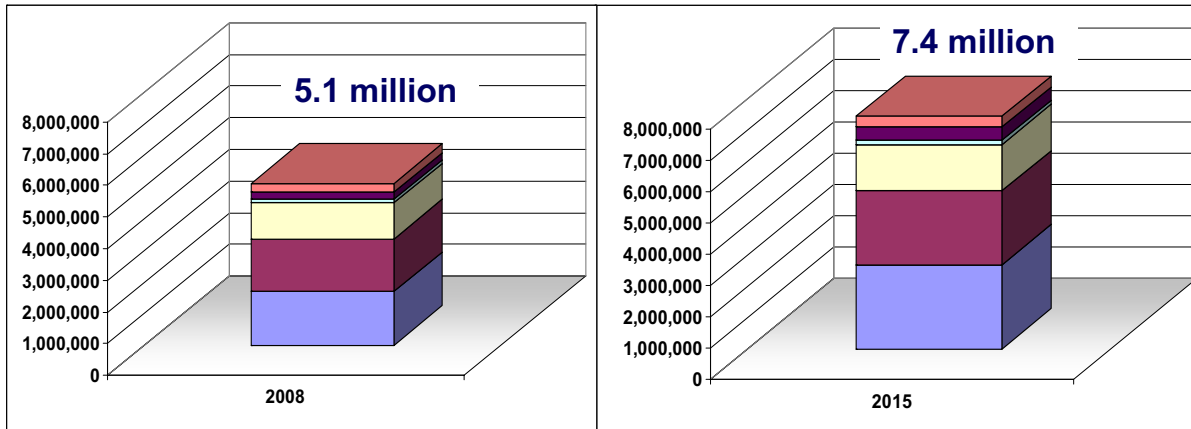
If there is enough capacity in the ports and railways, USWC ports should gain share, but . . .



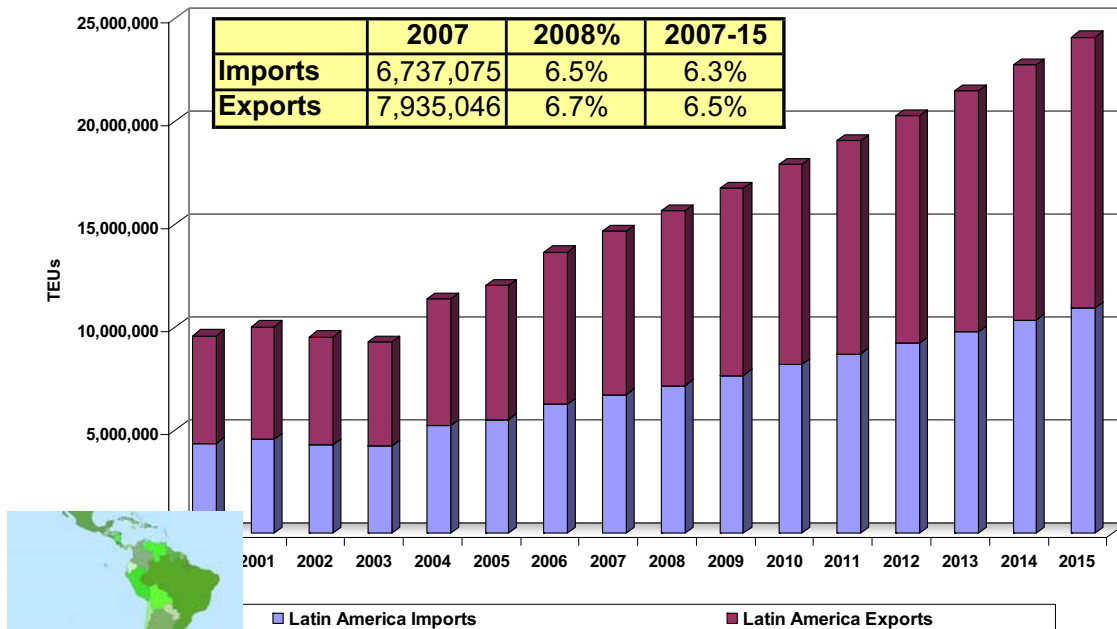
TEU imports into Gulf and S. Atlantic will grow.

Growth rates: 2008-15

Far East	5.8%	Latin America	5.2%
Europe	3.8%	India	8.9%
Africa	3.2%	Rest of World	4.0%

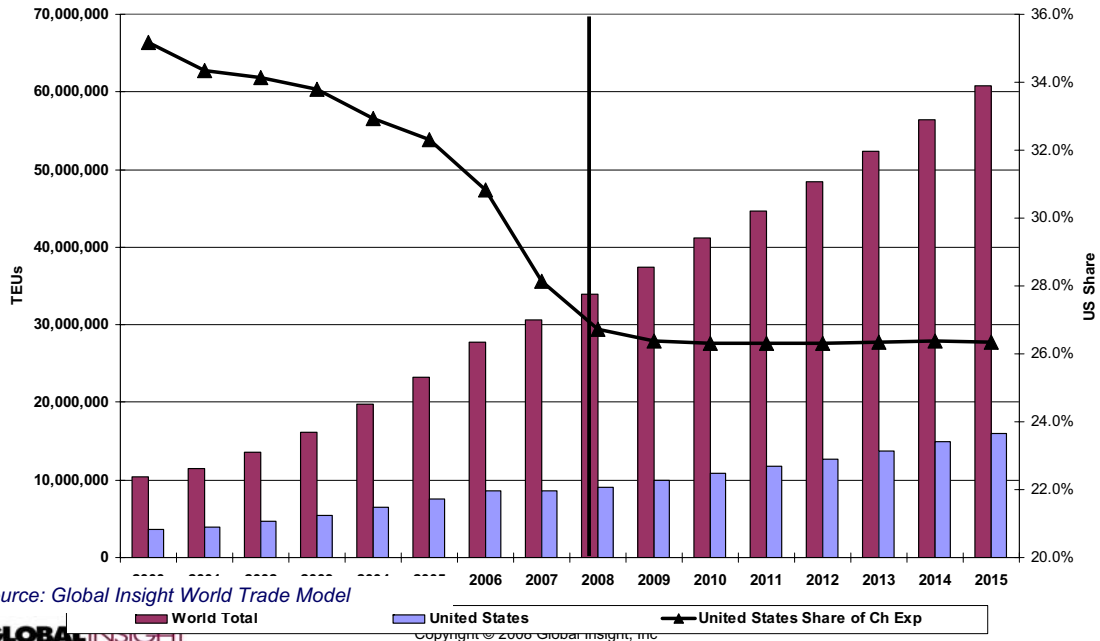


Latin America's sea trade is expected to grow in line with general world sea trade growth. Exports will outpace imports, but the trade will be fairly well-balanced.



As China expands its markets, the U.S. becomes less important, but Latin America - -

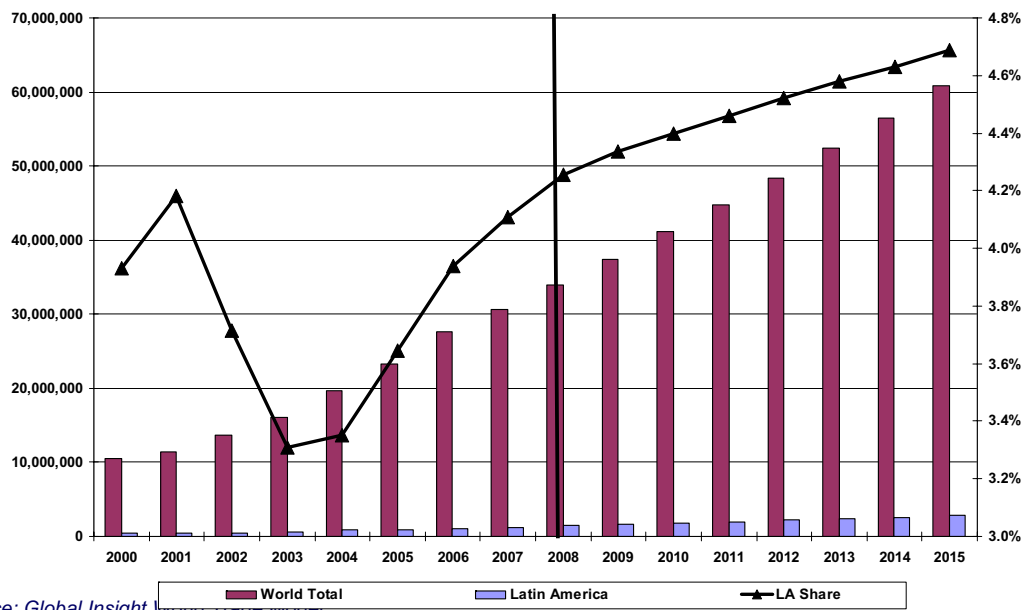
US Share of China Exports



19

... could absorb 5% of China's container exports by 2015, with strong growth in consumer products.

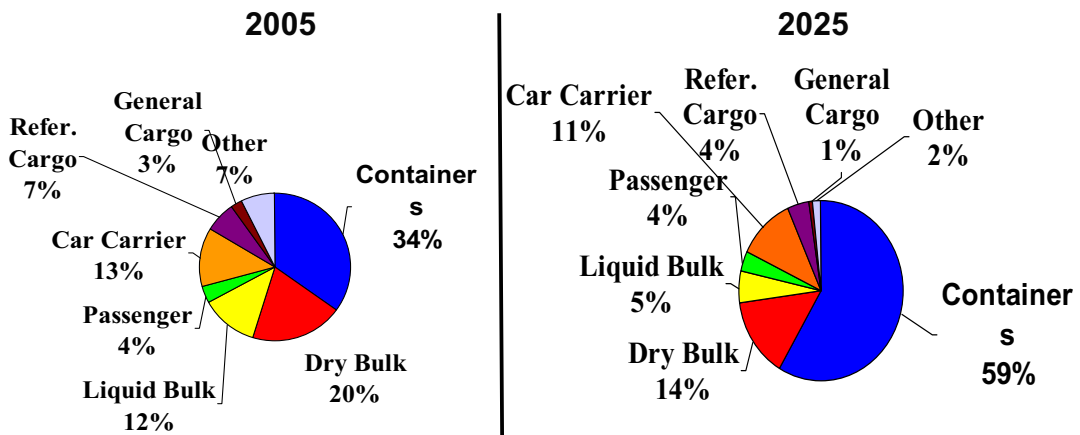
Latin America Share of China Exports



20

With expanded capacity, container traffic will account for nearly 60% of all Canal tonnage in 2025.

Panama Canal Tonnage: 2005 vs. 2025



After transiting the Canal, where will the big containerships go?

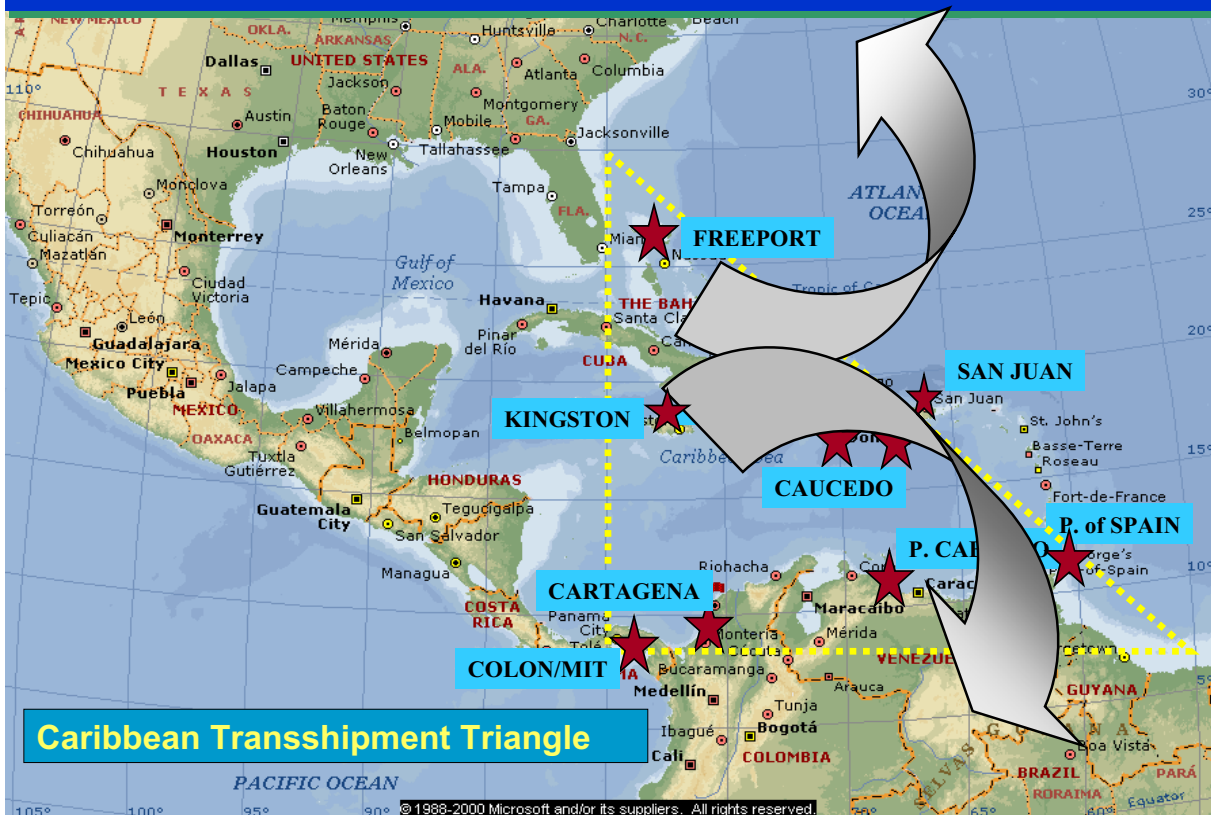
Source: ACP; Norbridge, Global Insight forecasts



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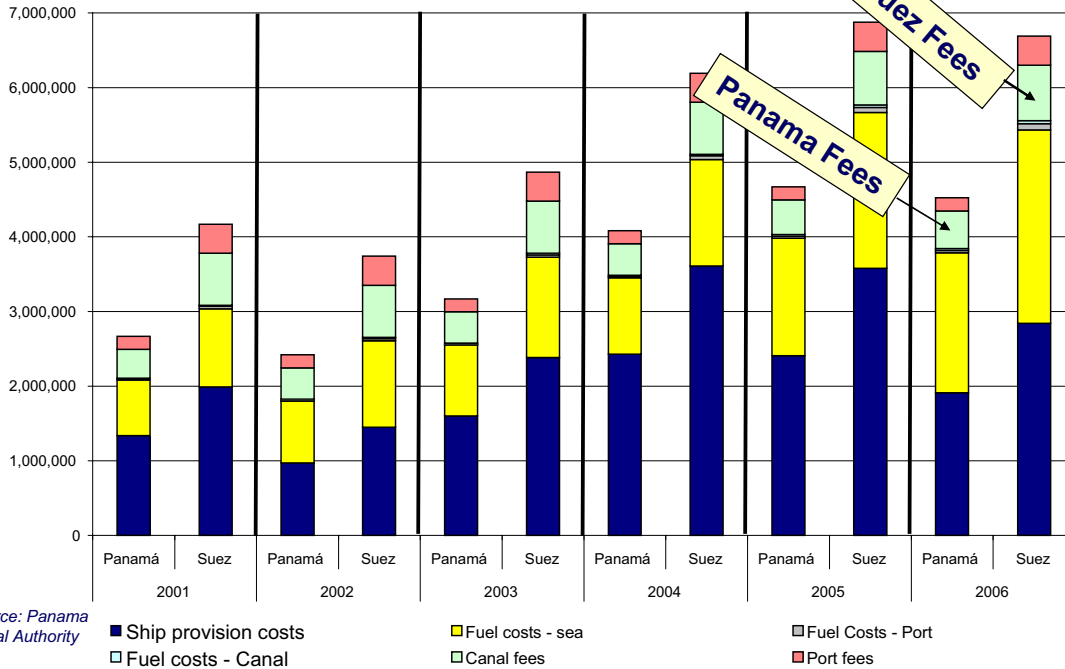
21

After the expansion, this is where the action will be.



Panama – Suez Route Cost Comparison

Northeast China to USEC



Source: Panama Canal Authority

■ Ship provision costs
 ■ Fuel costs - sea
 ■ Fuel Costs - Port
 ■ Canal fees
 ■ Port fees



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23

So the \$9 billion+
 UP + Hutchison
 BNSF + Grupo Mexico
 MTC + Carlos Slim (IDEAL)
 SSA?

being discussed – to feed
 a capacity squeeze.



- Container volumes will continue to grow.
- USWC port and rail congestion could return – 5 years?
- All-water service costs will go up.
- But there are wrinkles to iron out in Mexico.

- MHFM Transport (Mexico)
- SPV (Japan)
- Arias Asia (China)

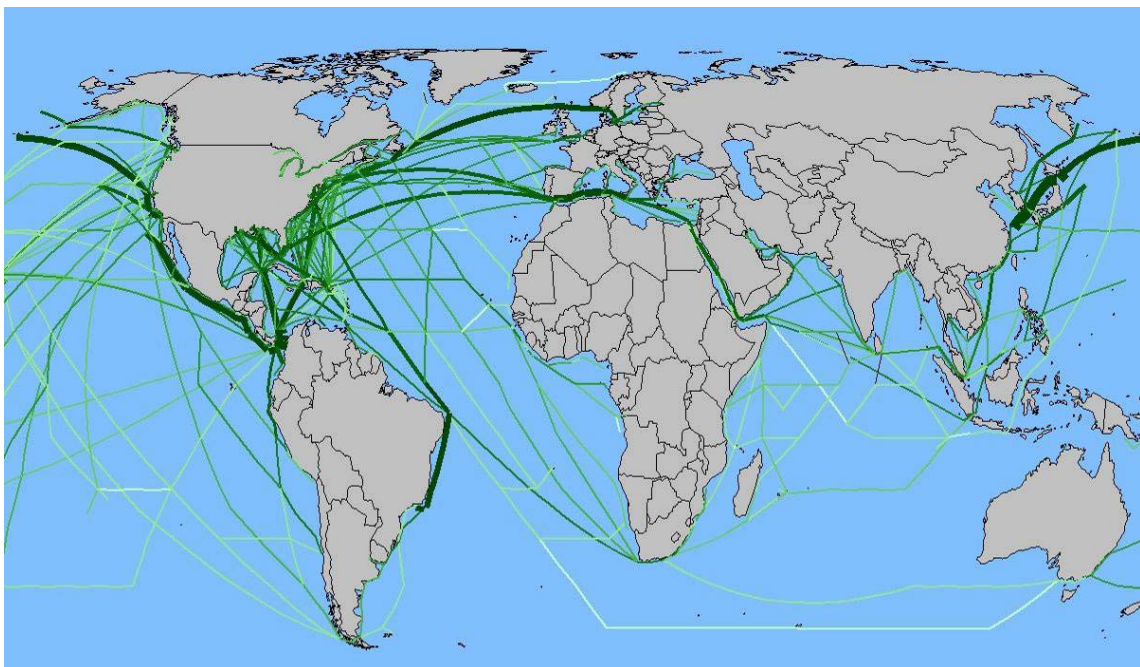


24

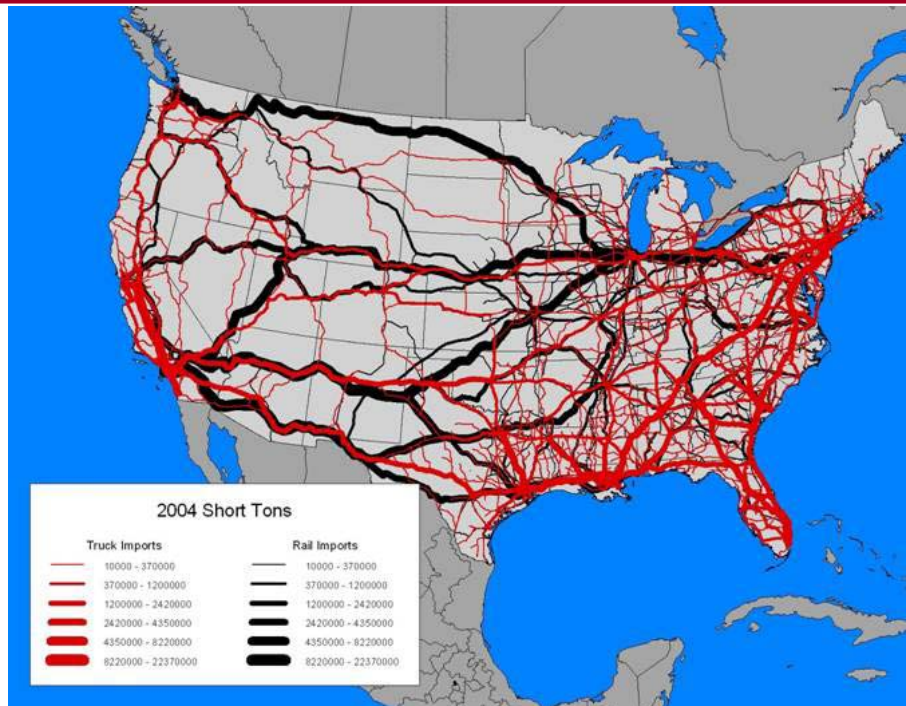
Agenda

- **The weakening economic outlook**
- **Shifts in trade patterns after the Canal expansion**
- ➔ • **Outlook for North Carolina in the midst of the world picture**
- **Conclusions**

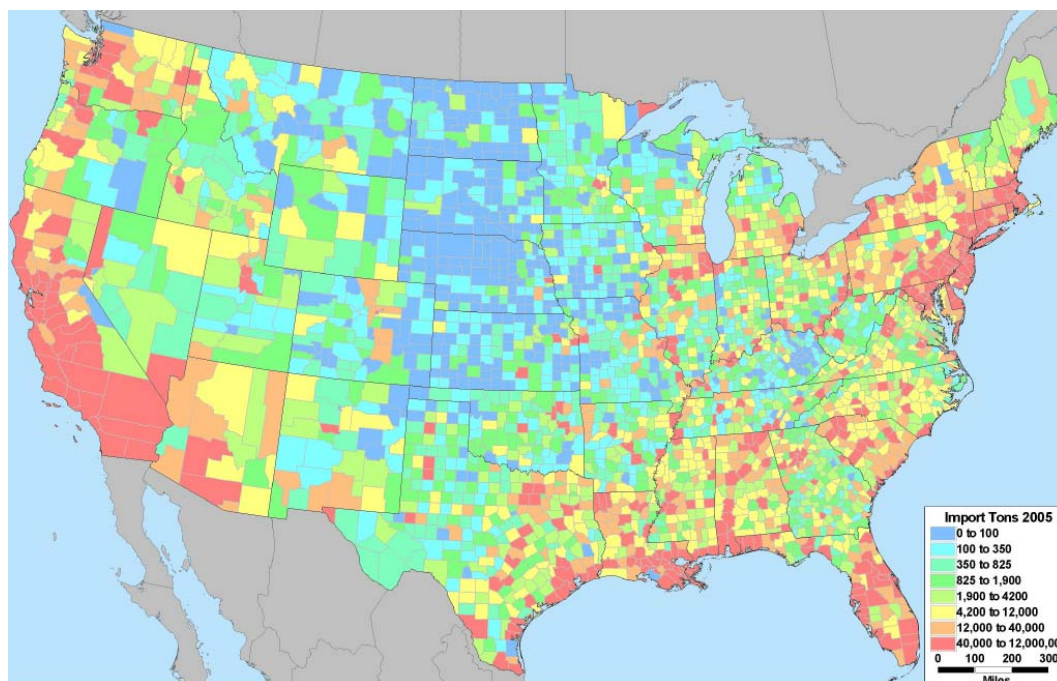
Overseas Origins for US Marine Imports



Inland Destinations for US Marine Imports



Inland Destinations for US Marine Imports

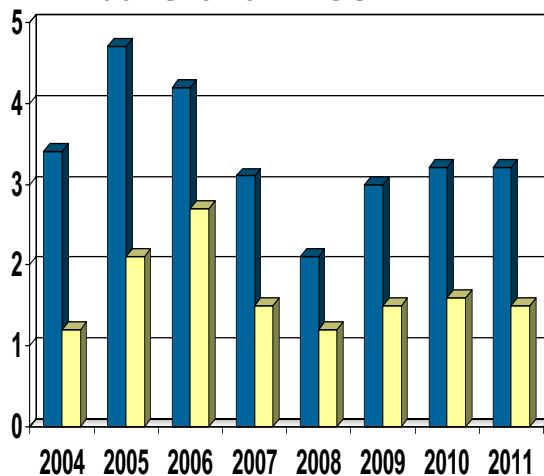


NC subscribes to many Global Insight services (Office of State Budget and Management)

- US economic outlook
- Regional economic outlook
- State (NC) economic outlook
- Contact: Bill Crumbley

North Carolina is down-shifting in short term growth.

Annual Growth in GSP



■ Gross State Product ■ State Employment

Summary of 2007

- Job growth slipped to 1.5%, down from 2.7% in 2006.
- Job growth was 1.7% in December (2nd best East of Mississippi) due to professional services and education/health.

Outlook for 30 years

- GSP: 2.7% per year
- Personal income: 5.0% per year
- Income will grow fastest in professional & business services (6.6%)

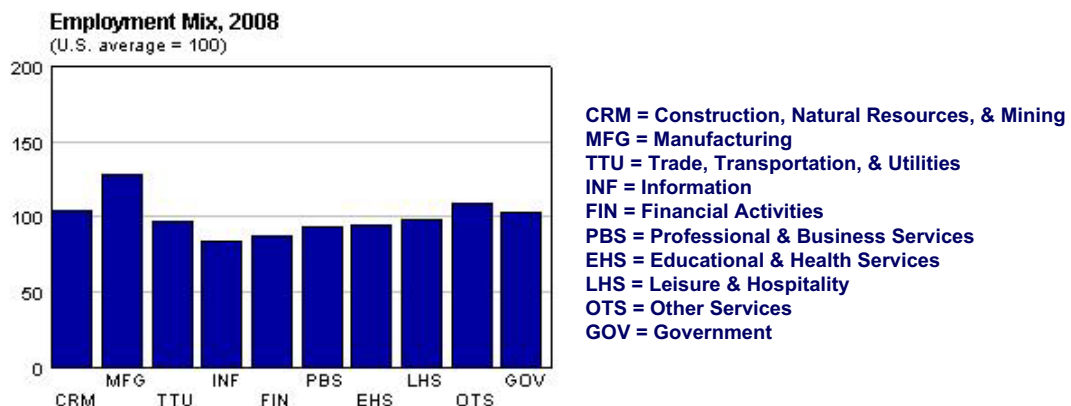
The state is shifting away from manufacturing, and more toward health, education, business services.



Service economies still require imports and exports.

NC is diversifying, a strategy that will help to support strong GSP and employment growth.

- Resource-based manufacturing is still 20% of the state's GSP, versus 12% for the USA. Continued drop in this sector is in the offing.
- The shift to services is in full swing in NC.



NC is forecast to be the 14th-fastest growing state through 2013 (GSP).

	2007	Rank	2013	Rank	2002-2007	Rank	2006-2007	Rank	2007-2008	Rank	2007-2013	Rank
Utah	87.2	33	106.7	33	4.8	5	5.7	1	2.8	3	3.4	1
Nevada	102.8	31	125.5	30	5.9	1	3.5	10	1.3	27	3.4	2
Texas	898.5	3	1095.2	2	3.4	15	3.5	9	2.8	2	3.4	3
Arizona	215.7	18	262.3	16	5.3	3	4.6	2	1.4	17	3.3	4
Florida	628.4	4	763.2	4	4.8	4	3.0	15	1.3	28	3.3	5
Oregon	143.8	25	172.2	25	4.6	7	3.3	12	1.6	10	3.0	6
Idaho	47.4	42	56.5	42	5.8	2	4.5	3	1.6	11	3.0	7
Georgia	340.5	9	405.8	9	3.0	24	2.9	16	1.3	25	3.0	8
Colorado	206.1	20	244.1	20	3.3	20	3.8	6	2.0	4	2.9	9
Louisiana	147.1	24	174.1	24	2.5	32	4.2	4	4.0	1	2.9	10
Maryland	223.9	15	262.9	15	3.0	26	1.8	36	1.1	34	2.7	11
New Mexico	64.8	38	76.1	37	4.7	6	3.7	7	1.7	7	2.7	12
Delaware	52.0	39	61.0	39	3.9	10	2.8	17	1.7	6	2.7	13
North Carolina	333.0	11	390.7	10	3.4	18	3.1	14	1.7	5	2.7	14
Tennessee	211.6	19	248.0	18	2.9	27	2.1	31	1.1	36	2.7	15
Minnesota	218.2	16	255.3	17	2.7	29	2.3	24	1.2	29	2.6	16
South Carolina	130.9	27	153.1	27	2.5	33	2.2	26	1.3	22	2.6	17
Virginia	324.9	12	378.6	11	3.7	12	2.0	33	1.4	18	2.6	18
Alaska	29.4	46	34.3	46	1.0	50	0.4	50	1.1	37	2.6	19
South Dakota	28.8	47	33.5	47	2.6	30	2.7	19	1.6	9	2.6	20

NC's personal income will keep it ranked #13.

	2007	Rank	2013	Rank	2002-2007	Rank	2006-2007	Rank	2007-2008	Rank	2007-2013	Rank
Utah	70.4	35	88.2	33	4.6	4	6.4	1	3.0	1	3.8	1
Arizona	178.2	18	222.9	16	5.1	3	3.8	20	1.7	26	3.8	2
Texas	757.9	3	943.0	2	4.6	5	5.5	3	3.0	2	3.7	3
Florida	596.7	4	740.1	4	4.5	6	3.2	35	1.7	25	3.7	4
Nevada	88.3	31	108.7	30	6.5	1	4.0	16	0.6	50	3.5	5
Georgia	270.9	11	332.3	10	2.7	28	3.6	22	1.7	23	3.5	6
Idaho	40.1	41	49.0	41	4.2	7	4.8	5	1.8	19	3.4	7
South Carolina	115.7	26	140.9	26	2.9	25	3.4	29	2.3	9	3.3	8
Oregon	111.1	28	135.1	27	2.5	33	3.5	24	1.8	20	3.3	9
Delaware	29.7	45	35.9	44	3.0	23	2.3	49	0.8	48	3.2	10
North Carolina	259.7	13	313.0	13	3.3	17	4.0	15	2.3	5	3.2	11
Colorado	169.7	22	203.9	20	2.8	27	3.4	28	2.2	11	3.1	12
Tennessee	174.3	19	208.7	19	2.5	32	2.4	46	2.0	15	3.1	13
Washington	222.0	14	265.8	14	3.1	20	4.6	7	1.6	29	3.0	14
California	1293.2	1	1546.8	1	3.1	19	3.4	30	1.2	40	3.0	15
Alabama	127.8	24	152.5	24	3.1	22	3.3	32	2.3	7	3.0	16
Louisiana	121.4	25	144.9	25	2.2	38	3.5	25	3.0	3	3.0	17
Virginia	271.5	10	323.9	11	3.2	18	3.0	38	1.7	21	3.0	18
Oklahoma	104.9	29	125.0	29	3.8	11	3.8	19	2.3	8	3.0	19
New Hampshire	46.7	38	55.5	38	2.2	39	2.7	42	1.5	32	2.9	20

NC housing starts take a beating in 2008.

Housing starts (000)

	2007		2013		2002-2007		2006-2007		2007-2008		2007-2013	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank
Texas	167.3	1	203.6	1	0.6	14	-18.9	20	-16.4	26	3.3	17
Florida	108.5	2	174.3	3	-9.9	44	-46.8	50	-16.4	27	8.2	4
California	103.5	3	179.8	2	-8.1	39	-33.3	46	-8.9	9	9.6	1
North Carolina	83.3	4	79.3	5	0.7	13	-15.4	15	-23.0	39	-0.8	42
Georgia	73.9	5	85.8	4	-5.3	33	-28.6	35	-20.8	36	2.5	21
Arizona	51.4	6	67.3	6	-4.5	29	-26.7	33	-31.4	46	4.6	14
New York	41.1	7	37.2	13	-2.0	19	-10.3	6	-28.7	42	-1.7	46
Illinois	40.3	8	54.6	8	-8.1	38	-29.8	42	-13.8	20	5.2	10
Washington	40.2	9	40.2	9	0.8	12	-14.9	13	-13.7	19	0.0	34
South Carolina	38.9	10	37.4	12	2.6	9	-23.6	26	-29.8	44	-0.6	40
Tennessee	35.9	11	38.1	11	1.3	11	-20.6	23	-13.2	17	1.0	31
Pennsylvania	34.3	12	39.7	10	-2.4	22	-18.7	19	-10.2	11	2.4	22
Virginia	32.9	13	55.4	7	-10.6	45	-33.4	47	1.7	4	9.1	2
Ohio	26.1	14	27.8	18	-12.6	49	-24.1	27	-8.9	10	1.1	30
Colorado	25.8	15	34.2	16	-11.0	46	-30.5	43	-19.7	34	4.8	11
Louisiana	25.4	16	15.5	28	7.5	2	-1.5	4	29.7	1	-7.9	50
New Jersey	25.0	17	29.9	17	-3.5	24	-25.4	30	-10.4	12	3.0	19
Indiana	24.6	18	36.4	14	-9.8	43	-21.9	24	-4.9	6	6.8	7
Alabama	23.7	19	23.3	23	4.3	6	-22.1	25	-17.6	31	-0.3	38
Wisconsin	22.6	20	23.7	21	-8.7	40	-19.5	21	-10.6	13	0.7	32

Recent industry news shows that the shift to high tech, and other service industries is progressing.

- Dell Computer (W-S): 2,000 workers
- Merck (vaccine plant in Durham) 200 workers
- Target DC (Hickory) 450 workers
- Dole Food (Charlotte) 550 workers

But the traditional industries have suffered and will likely continue to suffer:

- Furniture has lost 25,000 jobs in the 2000-06 period
- Apparel has lost 80,000 jobs in the same period

NC's economic outlook is positive and especially better than the U.S. as a whole.

- The bursting of the housing bubble will not affect NC as much as the nation, since the run-up in speculative prices was not so extreme.
 - Nationally, over 2000-05, average new home prices rose 40%. But in NC, the rise was just 10%.
 - While housing starts are down 23% in the last 2 years in NC, they have fallen 44% nationwide.
- Population growth is strong, partly due to “half-back’s.”
- With furniture, textiles, and tobacco on a long-term decline, the state must grow in other industries, which it is doing.

Agenda

- **The weakening economic outlook**
- **Shifts in trade patterns after the Canal expansion**
- **Outlook for North Carolina in the midst of the world picture**
- ➔ • **Conclusions**

Bottom Line

- U.S. is in recession now
- Once the Expanded Canal is open, there will be a boom in transshipment in the Caribbean
 - Feeding North and South America
- If manufacturing shifts into Vietnam and India (for export), the USEC will see a lot more Suez traffic, increasing its share of US container imports
- Despite the economic slowdown, container traffic growth within the next 5 years will push many ports to their full capacity limits, before the Canal is expanded – the search for more extreme alternatives is **on!**

Bottom Line for North Carolina

- The long-term outlook is strongest in
 - Professional & Business Services
 - Financial Activities
 - Construction
 - Leisure & hospitality

Shifts in Global Trade Patterns - Meaning for North Carolina

Presented to:
North Carolina

February 28, 2008
Raleigh, NC

Presented by:
Robert West
Managing Director
Global Trade & Transportation
Global Insight
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robert.west@globalinsight.com

Appendix B: Interview Transcripts

INTERVIEWS CONDUCTED

Interviewer	Interviewee	Company	Category	Focus
ES	Albert Delia	NC's Eastern Region	Public	Regional Agency
ES	Alpesh Patel	NC DOT - Div of Highways	Public	State Agency
ES	Bernard Groseclose, CEO	SC SPA	Public	State Agency
ES	Brian Casey	High Point Market Authority		
ES	Bruce Clements	SOS Global Express	Private	
ES	Charles Hayes	Research Triangle Regional Partnership	Public	Regional Agency
ES	Dale Carroll	Advantage West Economic Development Group	Public	Regional Agency
ES	Danny McComas	MCO Trucking & General Assembly member	Both	
ES	Darlene Waddell, CEO	Global TransPark	Public	Regional Agency
ES	David Miles	Variety Wholesalers	Private	
ES	Fred Stribling	SC SPA – business development	Public	State Agency
ES	Gary Harwell	Hickory Springs Mfg.	Private	Company
ES	Gene Conti	Global TransPark Board	Public	
ES	Glenn Carlson	NC SPA – business development	Public	State Agency
ES	Jeff Moore	Ex-cell Home Fashions	Private	
ES	Jim Brennan, Port & International Freight Transportation VP	Norbridge Consulting	Private	Logistics
ES	Jim Harrington, former Secretary	NC DOT	Public	State Agency
ES	Jim Waters	FMC Lithium Division, FMC Corp.	Private	Company
ES	John Bost	Bernards	Private	
ES	John Dillard	CSX	Private	
ES	Kenny MacDonald	Charlotte Regional Partnership	Public	Regional Agency
ES	Mark Foster, CFO	NC DOT	Public	State Agency
ES	Michael McCarley	Carolina Terminals	Private	Logistics
ES	Nancy Thompson	Weyerhaeuser		
ES	Pat Simmons	NC DOT - Div of Rail	Public	State Agency
ES	Randy Musselwhite	International Paper	Private	Company
ES	Rob Martinez, Sr. VP	Norfolk Southern – business development	Private	
ES	Ron DeGeare	BSH Home Appliances	Private	Company
ES	Sam Holcomb	NC Water Resources		
ES	Scott Saylor	NC RR	Public	State Agency
ES	Sheila Cox	SC State Ports Authority	Public	State Agency
	Steve Haynes	NC SPA	Public	State Agency

ES	Steve Yost	NC Southeast Commission	Public	Regional Agency
ES	Tom Bradshaw	Citigroup & Global TransPark Board	Both	
ES	Tom Eagar, CEO	NC SPA	Public	State Agency
ES	Vann Rogerson, Ray White	NC Northeast Commission	Public	Regional Agency
GL	Dan Gerlach, Senior Advisor for Fiscal Affairs	NC Office of the Governor	Public	State Agency
GL	Michael Gallis			
GL, AD	Scott Saylor	NC RR	Public	State Agency
GL, AD	Steve Varnedoe	NCDOT	Public	State Agency
GL, AD, RF, RH	Jim Fain, Secretary of Commerce	NCDOC	Public	State Agency
HC	Bill Bennett	Southeastern Freightlines	Private	
HC	Charles Diehl	NC Trucking Assn		
HC	Dave Hauser	Piedmont Triad Partnership	Public	Regional Agency
HC	Jay McIntosh	Furniture Today (business editor)	Private	
HC	Phill Warren	UPS Freight (fomerly Overnite Transportation)	Private	
HC	Steve Varnedoe	NCDOT	Public	State Agency
RF	William Williams	NCDOT - Div of Aviation	Public	State Agency
RF, GL	Mark Foster, CFO	NCDOT	Public	State Agency
RH	Donna Barios	International Textile Group	Private	Company
RH	Donna Clinton	Sonoco Products	Private	Company
RH	Eddy Burgos	Husqvarna	Private	Company
RH	Jim Fain, Secretary of Commerce	NCDOC	Public	State Agency
RH	John Sapp	RJ Reynolds	Public	Company
RH	Kevin Perry	Lowe's Home Improvement	Public	Company
RH	Michael Rescigno	Belk Stores	Private	Company

TRANSCRIPTS RECORDED

PUBLIC

STATE AGENCIES

TRANSPORTATION

Interviewee: **Steve Varnedoe**
Interviewee: **William Williams**
Interviewee: **Scott Saylor, CEO**
Interviewee: **Alpesh Patel**
Interviewee: **Darlene Waddell, CEO**
Interviewee: **Jim Harrington, former Secretary**

COMMERCE

Interviewee: **Jim Fain**
Interviewee: **Jim Fain**

COMMERCE AND REGIONAL PARTNERSHIPS

Interviewee: **Dale Carroll**
Interviewee: **Steve Yost**
Interviewees: **Vann Rogerson, Ray White**
Interviewee: **Kenny MacDonald**
Interviewee: **Albert Delia**
Interviewee: **Charles Hayes**

PRIVATE

COMPANIES

Interviewee: **Donna Barios**
Interviewee: **Eddy Burgos**
Interviewee: **Donna Clinton**
Interviewee: **Michael Rescigno**
Interviewee: **John Sapp**

SHIPPERS

Interviewee: **Ron deGeare**
Interviewee: **Gary Harwell**
Interviewee: **Jim Waters**

TRANSPORTATION INTERESTS

RAILROADS

Interviewee: **Scott Saylor**

MARINE TERMINAL OPERATORS

Interviewee: **Michael McCarley**

PUBLIC

STATE AGENCIES

TRANSPORTATION

Interviewee: **Steve Varnedoe**
Company/Agency of Interviewee: **NCDOT**
Interviewer(s): **George List, Alix Demers**

George gave Steve a description of the project plan of attack and the direction being pursued including that the team will be offering the Legislature concepts on where the state should go and how to get there, for example, with legislative changes, public and private partnerships, conceptual changes to the state TIP.

SV: Other work of interest for team is the long-range plan from 2004 and the Strategic Highway Corridors work. The TIP has both wants and needs; DOT tries to meet most needs and to do an equitable share for all regions. Two things the DOT considers are one, mobility and reliability are important, and two, network level.

GL: Project deliverable is that NC needs to be proactive – to take action – not be reactive. How could NC become more prominent?

SV: DOT wants to be poised to make NC more prominent. Think distribution facilities, ports and their ramifications, what kind of infrastructure is necessary to support them.

GL: There are two perspectives that could be taken. One, the lawyer's perspective – what circumstantial evidence exists that says NC needs to move in direction x and not sit still and two, engineer's perspective – what is the necessary infrastructure? Right now, the team is focusing on the latter.

SV: DOT can get us information on choke points and capacity info on highways, rail, air and ports, maybe.

GL: Great. This gives the team a seasoned assessment of the networks that legislators will trust.

George List Gave an outline of the final report to SV.

1. Intro
2. Vision – alternate futures of state
3. Infrastructure – needs assessment, gap analysis
4. Implementation – legislation, operational changes, etc.
5. Summary & conclusions

GL: Can Henry call you for the data?

SV: That's fine, I know Henry real well.

GL: (referring to the visioning sessions)What is Mike Walton's role for national contacts, the due date of the is project 4/15/08.

GL: Let me bounce some ideas off you.

Idea 1: NCDOT with a marketing VP / ombudsman that engages in outreach with significant firms to help them with their needs.

SV: Interesting point, especially since they don't look long-term. Are you aware of the I-95 Corridors of the Future stuff?

GL: Not really. Could you send info on it?

SV: Yes. It is a multi-state group to work on I-95 to get feds to improve it and get stuff accomplished. E.g. towing contracts, tolling options, truck only tolls also, sharing of information, uniformity.

GL: Idea 2: Truckways, what are some helpful investments ideas, dedicated use facilities they can run at the bleeding edge of feds since scales of vehicles keep widening.

SV: Merit to look at for conflict reduction, more safety.

GL: Idea 3: Rail investments, do you think of multi-modal? Of airport and other port connections? Of rail corridors?

SV: Yes, we need to look at in future in relation to the highway system dynamic of port to rail to highway, how does the whole system work together?

GL: Idea 4: Military support. The US Army is thinking of making Fort Bragg the center of the universe with the number of generals increasing from 1 to potentially 50. Based on this idea, should the state be the airlift and maritime jump-off point for the military?

SV: Wow, maybe. Let's say it happens with the military, this validates the new port and would help spin-off industries because of this military shift – connectivity, degree of security on rail and highway and warehousing space, design standard implications, where are the NCDOT strategic partners.

Interviewee: **William Williams**
Company/Agency of Interviewee: **NCDOT Division of Aviation**
Interviewer(s): **Robert Foyle**
Date of Interview: **03/21/2008**

- There will be continued steady growth in air freight at the three major NC airport hubs (CLT, GSO, and RDU).
- Other airports will remain as minor players for air freight.
- With Fed Ex moving into Greensboro, additional companies likely will come there and GSO would then become a major air freight hub.
- Global TransPark could become more of what it is intended to be under the right circumstances.
- A detailed air freight study would certainly help define the specific activity taking place at airports in NC and that an origin/destination study of air freight would be very useful.
- CLT likely processes a lot of through freight because of its hub status for US Airways, versus O/D freight to and from Charlotte and surrounding communities.

Interviewee: **Scott Saylor, CEO**
Company/Agency of Interviewee: **NC Railroad Company**
Interviewer(s): **Erik Stromberg**

NCRRCo rail plan is approximately 60/40 passenger/freight oriented.

Public perception in NC regarding rail is predominately passenger needs, not freight. However, largest economic impact comes from freight rail development and operations.

Port makes connection between freight and rail but NCRRCo doesn't see that connection.

Misinformation abounds about what infrastructure is in place, the relationships between modal infrastructure and what is needed to move forward. Moreover, interests are segmented with each sector working for its own interests and not the State's overall interest. What is needed is comprehensive transportation plan

Ports need to work with NCRRCo and develop plan for MHC that integrates tourism and industrial development. Also needs to bring in GTP and advanced manufacturing opportunities.

Re Wilmington, NS' new intermodal facility is Charleston oriented and does not address any CSX needs.

Analysis of State's transportation needs: Need data on freight moves and anticipated both from within and outside state.

Goals:

NC should be viewed as transportation friendly state. A freight plan is needed. With data can put together a freight plan, but not without data.

- Investment costs should be shared based on shared benefits
- Standards for service should be part of any state supported plan with performance standards
- Any plan should be based on shipper needs, which include 24-7 service.

Most critical is better awareness of importance of freight transportation. The economic value of improved freight transportation, especially based on each sector's needs and the percentage NC's economy is based on freight. What is the need of each transportation mode for infrastructure improvements. What are the key shipper needs? What are the key industry needs, including tourism, biomedical, military, logistics and DCs, manufacturing.

Other examples to use include Florida, which addressed short term needs and the value add for freight transportation infrastructure improvements.

Setting state transportation priorities would be one of key goals. MPOs may have long term as well as short term orientation but how to align divergent interests and multiple demands on resources. DOT needs better way to prioritize. What are the criteria for freight transportation

projects, what is the freight and state benefit? We must “mainstream” freight in the transportation policy and decision making process. But also need to “right size” transportation infrastructure—can’t just build capacity. Look at efficiency gains, technology. Look at corridors—high value cargo and low volume as well as high volume and low value. Need a better awareness of the importance of freight transportation in NC. Need a freight “champion”. NCDOC is a business broker. Don’t need another study group. Need to rationalize transportation investment and set priorities for choices to be made. Make a business case for investment. State can’t subsidize investments into future; decision process needs to address what and how state support is made.

21st century plan is addressing carve outs and immediate funding needs, but not setting priorities. Future assessments of needs in terms of infrastructure needs are underway in the areas of truck and rail (NCDOT) but data needs must be identified.

Goals to include:

- Identify bottlenecks
- Proactive information management
- Data covering entire state and region
- Sustainability factors
- Revenue generation issues, tolling and pricing criteria

Ports will be a player but what role is to be determined.

Understand what other states are doing.

Can’t be a huge investment—that’s a non-starter. Need a prioritization model not just to add on capital costs. How are other states doing in this area?

Must get big shippers to the table in a forum that includes government and regions—how to create effective blue ribbon panel to identify state transportation needs.

Address the four specific items in the state enabling legislation for this study.

Interviewee: **Alpesh Patel**
Company/Agency of Interviewee: **NCDOT**
Interviewer(s): **Erik Stromberg**

Data is needed. DOT needs truck--long and short haul volumes regional moves and within the state.

Developing truck study with FHWA on old data, county to county commodity flows.

Can't give me top goods movement generators.

Waybill study can look at rail moves, but rail less of an issue except for grade crossings especially in urban areas like New Bern and MHC.

Alpesh will provide me his data needs

Interviewee: **Darlene Waddell, CEO**
Company/Agency of Interviewee: **Global TransPark**
Interviewer(s): **Erik Stromberg**

NC appropriations are down to \$1.6M from \$3.2M five years ago. Total operating budget is now \$2.8M but with interest it moves up to \$4.6.

Infrastructure needs are critical and probably have lost projects due to this need. Two main issues:

- Rail spur—NCDOT is working on alignment and environmental planning and permitting
- Road connections/improvements—Felix Harvey pkwy is underway; 264 bypass is very helpful; 117 improved to I-795; but, need I-70 improved.
- All components of required infrastructure are in fact coming into place
- Need State support for transportation infrastructure. However, DOT and DOC are very supportive
- Site is OK—it's what they were given and will work hard to make it work. Just ahead of its time with greater expectations than were realistic

Goals:

- Job creation
- Self sustaining, but don't have a time frame at this point

Key issues:

- Escheat fund should be forgiven. \$33M is drag on GTP that it will likely not cover for years to come and books will not look good especially if there's a PPP opposition
- Need to develop a fair market value for GTP—but that takes money for consultant that is not available

Vision:

- Over next decade plus the original vision of Kasarda will be in place
- Project Olympus (Boeing) went far to show the concept was viable and achieved great visibility for GTP
- GTP has longest runway between DC and Atlanta. Air cargo will come.
- Inland port for Wilmington continues to be pushed but NC Ports resist as not viable at this time.
- Key targets include:
 - Military and DOD—light manufacturing, computer design/reverse engineering, support Bragg, LeJeune, and potentially National Guard
 - Aviation and aerospace—now has firm that supplies aircraft parts for used aircraft overseas
 - FTZs—both general and subzones, with more success in outlying subzones to date. No current operational general FTZ at runway yet.

PPP needs to be looked at more—I'll provide Darlene with contacts

Call Gene Conti who is vice chair of GTP board

Interviewee: **Jim Harrington, former Secretary**
Company/Agency of Interviewee: **NCDOT**
Interviewer(s): **Erik Stromberg**

It is difficult for me to make any substantive comment based on the materials you sent. I've reviewed the ITRE proposal and your outline of tasks, but there is little of the product included.

First, I think the Legislature, OSBM and ITRE have proposed a wide-ranging task that is unlikely to be attainable in the short time allotted. I'm sure you can produce a paper, but the detailed study that should be required, I believe, is not practicable within the time constraints.

The research and study that we undertook in 1987-89 took some 21 months to assemble and "sell" to the study group, and this was limited solely to resolving existing problems in highway construction and financing. It was intended for periodic review every ten years, but of course that never happened.

The premise of the proposed study is to develop some long-term alternatives for transportation infrastructure designed to serve either (a) the anticipated need for economic growth patterns in the state, or (b) to stimulate economic growth in patterns that may prove to be more beneficial to the state. You propose a "Vision" of only some 17 years future. This is a very short time frame, and means that the underlying trends in economic, trade, education and commerce in general will generate basically a straight-line extrapolation of existing trends. That's a reasonable basis for identifying transportation needs to serve these trends, but it will take some more imagination and extrapolation to identify any infrastructure investments that will favorably impact the truly long-term. Any investments that would be appropriate to "bend" the curve could take place during the 17-year time frame, but would have to be aimed at results beyond that.

According to the schedule in the ITRE proposal, Tasks 1 through 4 are supposed to have been completed, as well as a completed draft plan (Task 5). If, in fact, any of these have been completed, I will be glad to review and comment on them.

A through study along the lines of the ITRE proposal could be of truly significant benefit for North Carolina. I suggest, however, that it will be counter-productive to try to float such a study in the upcoming Legislative session, given the political floundering that will be involved this election year. If possible, ITRE might try to ask dispensation to defer any final submission until the end of the year, as is contemplated in their budget. That would also allow time to fine tune the assumptions and recommendations.

However, if I can be of help in reviewing and commenting on any of the drafts in process, I'll be glad to do so.

COMMERCE

Interviewee: **Jim Fain**
Company/Agency of Interviewee: **Secretary of Commerce of North Carolina**
Interviewer(s): **George List, Robert Handfield, Robert Foyle, Alix Demers**
Date of Interview: **04/09/2008, 8:30 a.m.**

Introductions, background of team members

GL: Producing statewide logistics plan for NC. For short session, what budget items might need adjustment? For long session, bigger changes when economic growth/activities options are chosen.

JF: Does the charter specifically say logistics?

GL: Yes, logistics - goods movement is focus, but not setting aside PAX travel, especially since both are important for economic activity. Investments we need to make, looking at all modes of transportation and where to place them.

RH: Talked w/ Fidelity, they were impressed with DOC.

JF: He thinks it's a wonderful undertaking; it's kind of under the radar. He spoke with Mark Foster some; he helped put it through legislature.

GL: Yes. We are meeting with Mark this afternoon. He wants the plan to gain traction with legislature.

JF: Wants to stand behind Mark Foster, supporting it. Jim was recently at a meeting in Chapel Hill with the idea that economic development ideas need to shape logistics systems. We have a road plan, we have some air ideas, Port Authority has their ideas, Global Transpark is doing their stuff, Is anyone talking to each other? From Chapel Hill meeting, it doesn't seem enough is being talked about between them.

GL: Yes, to improve overall health and welfare of state, you can't have the individual modes not talk.

1. How do we excite the legislature?
2. Proactive vs. reactive?
3. Coordination and empowerment - how do we orchestrate the various state agencies to make it happen?

RH: Another way to think about, what leverage is there to pull - incentives, budgets to make it happen?

GL: (referring to question 1) - excite the legislature and convey that infrastructure is necessary.

JF: We've focused on talking about jobs. Two primary challenges - how to foster the transition from agrarian/textiles to new stuff and how to create "one NC" prosperity concept? We've worked and made good progress on the first one. We had a steep decline around July 2003, lost about 177,000 jobs, now we are climbing well again. We gained 300,000-400,000 jobs with many of those being well paying. On the 2nd one, prosperity, C- at best for now, lots of people being taken out of smaller areas moving to larger ones that have the employment. So note that legislature is mostly rural focused. And some urban legislatures are having trouble coming up with a plan.

JF: Northeast is weakest economic but strongest legislators, the inner banks. We would appeal to the concept of adding jobs while we transition the economy and remain being attentive to rural areas.

GL: He has ideas like cottage industry for such areas as NE - smaller stuff, more of it, instead of a big entity.

JF: Place-based economic development - heritage assets, travel ones. They have a program 21st Century Communities working with 31 counties that have a public-private group that wants to improve situation and strengthen assets - DOC works with them to figure out what economic activity to focus on.

GL: Excite legislature, tell them how to make economic activity happen - like if you want to grow biomedical, here's what infrastructure would best support this option.

JF: He thinks story telling is a good thing to have in the report ... like what would work for Yancey County. What works for pill makers - high value, low volume - air needs.

GL: Help legislature know whether an investment in infrastructure is really worth it - will

JF: How to integrate ... if you put in hands of General Assembly, we risk inertia. Try to put more in hands of Governor and public-private group makes sense with key bureaucrats, small groups - 5 to 10, charged by Chief Executive to preside over policy making.

GL: Who should staff such a group?

JF: Standalone staff with a DOC and a DOT person on it too. Include key port staff, Scott Saylor, Bill Williams -- maybe not vote, but be the dedicated staff; possibly night work. What do you want to drive this, economic development, maybe other things to shape that system. The staff needs to have a lot of interfaces with DOC policy resources crowd (37 volunteers) and DOC economic development board. A strategic plan and a comprehensive plan are two different things. Latter is thorough and laundry list. There are also 100 EDA's (economic development agencies) throughout NC. For example Ken Atkins at Raleigh Chamber, then 7 regional organizations that promote region and region-specific economic development. These each have "vision plans" - like strategic plans - most are cluster theory driven. Economic development, much of it is education, at UNC Chapel Hill, City of Regional Planning School helped with this process. They are working on phase 2 - they've assessed the 7 plans (very independent 7 regions) to identify common elements. Ed Faser is a leader in cluster

analysis, now with University of Illinois, working on this in, terms of where is cluster-type critical mass?

GL: Tourism, half-backs, biomedical, San Juan of the North, without the tax benefits.

JF: How to ultimately get this done, maybe not on your short timetable. Ed Faser looking at the 7 plans and trying to come up with a statewide perspective – where are opportunities, which are ubiquitous, which are local. By summer, he should have that and direction of how to optimize economic development.

GL: Demand-pull, supply-push concepts, we are pushing toward the former.

JF: Hear, hear.

GL: Ports, for example.

JF: My ideas. If he reads the demand analyses, it looks like there is so much East Coast demand that you can't mess it up, if you get CSX and others to do their part. Can we break it up to see if it is good for US and/or good for NC? Strengthen DCs here? Do we need our own heartland corridor?

GL: He's looked at real estate to do a 2 Million square foot port - is this the best use of this real estate? Then there is military - do we have consistent or conflicting visions? They currently use Norfolk port.

JF: Does a rail line between Charlotte and Wilmington help Uncle Sam? So will he throw us some money? Does dredging affect some of the islands negatively?

GL: Morehead city and Wilmington are extremely hard to get to. Greenfield site is easier to get to.

JF: Long Beach built the rail road 100 miles inland. The market ought have a big hand in what we do there. Private should pay for most of it.

GL: You could build a deep water port and truck or send it by rail far inland for processing. Like a truck way to bring it in.

JF: I agree this should be in the solution set. Say a Greenfield developer and operator like Mersk - if they want to put their money into, that's encouraging. We might have to match some money for dredging.

GL: Is it possible that that port is a poster child to get the board created.

JF: Be careful not to tie it to ports. Don't lose a good idea because it is tied to just one mode.

GL: DOT has a comprehensive plan, not a strategic one - every pothole needs filling, every bridge needs fixing.

JF: Yes. How to get everyone out of their silos? What are the reasons why we want to have a logistics plan and what is in it for everyone? Then keep it away from legislature ...

GL: Value-added at the table.

Cameo: Outreach by DOT to travel globally to talk about economic development and promote NC's infrastructure and logistics support. Like a CSX - I'm a salesman, wanting to bring you to my infrastructure and serve you. How can I recoup my investment of my service?

JF: Think Ava Gardner museum. How to make money off of I-95?

GL: What is the mood of legislature and the executive branch? Do they think such an idea would be a good one?

JF: I think it makes a lot of sense to have someone in DOT to do outreach and connect the services to all things external. How do we build a system that serves you? DOC has an ad hoc interface with DOT to work on project-related things. He's an intergalactic go-to person, sounds good.

RH: What are the levers to pull? When thinking about next 5 to 10 years. In general, what is the mood of the legislature?

JF: Generally, everyone is comfortable with where we are. Are there any strong rural concerns? Personally, he's satisfied with inducement tools we have, generally they are serving us well. NCSU education, community college system, differentiating our workforce, modern infrastructure, quality of life assets/investments -- this is what we ,DOC, are selling. For example museum of art, and endowment for cancer research. My opinion - a key thing we are working on for about 5 yrs is a system of metropolitans or hub cities - think of hallow affect around Charlotte. Hickory, Asheville, Wilmington, Rocky Mount, Make these attractive places, make these job hubs. Then you need transportation means, if you live in Greenville and work at Global Transpark - how do you get to work? Historically we had farm-to-market roads, now we need home-to-work roads. Focus on quality of life for a knowledge driven society. Key element is the regional infrastructure concept. DOC will be engaging someone soon to determine the natural economic activities of areas and best macro way to get at it.

RH/GL: Does this run counter to "One NC"?

JF: Every place is different and one size won't fit all. We use One NC as wide prosperity and optimizing economic development, figure out the ports thing and support air services

GL: Yes, that's what we've been coming to. Air service or air dependent products would support high paying jobs. From a modal perspective, air is good. Greensboro is like a transshipment point, but Global transpark might be best for intermediate manufacturing.

JF: If that's true, think about building hwy 42 at a height that is too low, then we have a problem.

GL: Another thought - cottage industry of biomedical with 700 ft. runways all over the state.

JF: Yes, also on-demand charter service. Back to hub concept, this deserves attention. We need an air service strategy. Finally, need to figure out ports strategy.

GL: Is hub and hallows consistent with one NC, maybe. What kind of industries are NC? Agrarian is NC and it is ubiquitous. Not like auto plants and others that are locally concentrated. If some kind of ubiquitous development possible, then what do hubs need? Health service, air service, city parks, tourism, quality of life, this encourages investment in ubiquitous industries because you have stuff to do there.

JF: Our strategy is a knowledge strategy. Make sure they have a good presence in hub cities. Knowledge economy is really driven by knowledgeable workers - college education, 29 to 39 years of age that run knowledgeable companies. Austin is a good example - good music scene, good restaurants, sports programming, get in get out easily, good stuff to do after work. How do we create such places to fit this profile of people? So what are the logistics ramifications? Air service.

GL: Goes back to 4-lane highway concept.

BF: Multilane highway building fund - what do we do with it when we finish building?

JF: Garvey fund idea. Making sure we induce air service and connect two aspects of hub cities, the whom to work, Gen X and Gen Y types. Go back to laundry list, hub city implications and most fundamental, Harvey Goldstein-led clusters work informs what NC can/should be.

RH: Maybe light rail is part of picture.

JF: Yes.

BF: At least a mass transit system.

JF: Remarkably, you are below the radar.

BF: 21st Century Committee is in public eye.

JF: What do you think the output of it will be?

GL: More driven at short run and revenue side of equation. Focus on weeds, kind of a comprehensive plan. We are working on a different philosophy.

BF: We see connection w DOC and DOT, who else can we include?

JF: we have a breakfast club to talk. DNR. Bill & Linda.

Interviewee: **Jim Fain**
Company/Agency of Interviewee: **Secretary of Commerce**
Interviewer(s): **Robert Handfield**

Mandate – a logistics plan – most take two years. Target was the short session of the legislature. Adjustments to budget allocation to help them – and a year from now, to also give them material to work from. Try to get a relationship between economic development from the state and infrastructure investment. Instead of chronic needs – what are economic activities we want to attract – and make the investments consistent with that.

Logistics systems not transportation. Not just goods, but passenger as well – not setting that aside. From an economic perspective – both are important. Biomedical / pharmaceutical / aviation / aerospace.

Spoke with Mark Foster. I have some sense that they were involved in fostering this in the general assembly. On that point – I would stand behind and cheerlead. We talked about this relationship to a meeting in Chapel Hill a year and a half ago – a lot was going on – and none of us followed up. This shop prompted that meeting with the idea that economic development needs to shape logistics system – and we have thought that we have our road-plan, our plan around aviation. Port authority is planning a 2 million TEU addition.

Transpark – is playing up. Toll Road authority is set up. What we sensed in that meeting – Rob Martine – Norfolk Southern, Kasarta talked about global aviation. Kenan Institute talked about it – and we got busy on other things. Sense that we have is there is an overriding goal for the state to improve quality of living, jobs, etc., and a derived demand for logistics. We can't have the individual modal activities pursuing different objectives.

How do we excite the legislature?

Proactive vs. reactive to shape the future?

Coordination and power – is there a way to orchestrate among the various agencies. How to empower them?

Levers to pull?

How to appeal to them? We have been living off of the discussion of jobs – to replace textiles and furniture. Two primary challenges – how to foster transition from agrarian and manufacturing, to a technology-driven employment based economy? How to promote “one North Carolina” – widely enjoyed prosperity. Have done a great job on economic storm of 2001 – trade policy changes – China moving from WCO – nicked by dot com, 9/11 – lost 106,000 jobs in my first year in office. We had a steeper decline than others.

Since we hit the bottom of June 2003 – slope up has been higher than others – have added 250,000 jobs, even though we lost 177,000 manufacturing jobs. The number of jobs could even be up to 300,000. Target industry sectors included sustainable on-shore jobs that pay better than average wage.

How to make sure it is widely shared? That is more challenging – we get a C minus at best. Not without substantial inducements to push to non-urban areas. Most of what happens is around urban areas and the point is the legislature is still largely shaped by rural interests. There is a disproportionate influence of rural legislators. My view is that some of our urban legislators can't shoot straight and get themselves together. Part of the strategy needs to be addressed. Northeast is one of the worst – a disproportionate amount of attention. Eastern NC in general – coastal counties okay – but in between I95 and coastal – “Inner Banks”. We would appeal to get things done during this period of transition – as we move it over. Be attentive to rural interests.

Cottage industries – don't need a huge infrastructure base – but large activities at a single location. Place-based economic development – heritage assets, natural assets – those kinds of things. That is one toolkit we use.

Program we bootstrapped in Sept 2001 – take a cross-functional team – including from university, go to a county that is disadvantaged – go through consensus building analysis – SWOT – unique assets, need to have to strengthen, and their unique way forward. We need place-based economic development. Yancey – GE won't build – don't have flat land. As an example – what in our infrastructure or transportation systems support that – it is what the answers will be!

Do they understand that world? If you want to grow biomedical – storytelling is a good thing to put in. At the micro level – Yancey County – or the eastern part of state could benefit from logistics strategy built by the port. Or pill makers want a small bottle that can be transported quickly. That set of illustrations that are important for the state – not just “where did you get that from”? To tell them – there is a twist – put jobs first, and infrastructure second. And we need to take responsibility to make that happen. If you are SPA – and don't know how to speak to this crowd.

How to integrate all of these tricks – put it in the hand of GA we will get a camel! Whatever is done needs to be something that the governor directs or it will have inertia. Proactive states – Oregon, Florida, - a Goods Movement Action committee – a business case. A public private group – and keep some wise public sector people as part of that (small number) – seriously charged by the group to preside over policy making and information gathering – and drive the process forward!

Needs a dedicated staff by Commerce and Transportation – we have a small railroad guy – but he needs to be put to work – Scott Saylor, Bill Williams – Not ad hoc – but ex officio – and then have some dedicated staff. Shouldn't just be economic development – but also social – environmental. Staff needs to have good interfaces – begging resources – and got it to where it is significant – and has to be closely connected. Policy research and strategy planning – economic development board is staffed by us – and needs a strategic plan. A good but not great plan – and no one pays attention to it. A strategic plan and comprehensive plan – different. Comprehensive is very big – a long laundry list. Agencies are part of that – and in a staff driven way it is driven – and need to keep it refreshed – and I would argue that there needs to be an interface – an appendix to that.

Over 100 local Economic Development Agencies in the counties – and need to work with them. Raleigh Chamber of Commerce – and then 7 region-specific elements. Regions have good strategic plans – and have vision plans 2 or 3 sessions – and gave each region 200,000 dollars – and some spent 50 and kept the rest, some spent it all and got a great plan!

Most of these plans are cluster-theory driven. WE think economic development is about education – and have commissioned Harvey Goldstein – a PI who is working on getting them to take the 7 regional studies and classify them according to cluster the regional core competencies. Phase 2 will look at these seven plans – and the commerce department's comprehensive plan.

Ed Feser – a leader in cluster analysis at University of Illinois – industry sector type of techniques – start from the inside out. Identify sectors where there is already cluster-type critical mass, and build it out.

Ultimately – their work now around Ed's recent thinking – is to develop tools to assess probability of success in industry sectors to drive out and create clusters. Will come out with – where our opportunities are, how many are regionally localized, etc. By the summer, will have something to think about where to work together and optimize – which would drive these decisions.

Do we want to play a me-too against Norfolk, Charleston or Savannah? I serve ex-officio on the board of the port. A remarkable string of conflicts – they pay a lot of attention to it, and they update me. If I read the demand analyses – looking ahead 10 years – so much East Coast demand, that you can't screw it up – if you can get CSX to do their part. Can we break out whether this is good for America or good for North Carolina. How is it good for North Carolina – other than employees in Brunswick County – but should increase our DC needs – is it a corridor – and is it good for Uncle Sam.

The challenge we have – looked at real estate in Savannah and Charleston for a 2000 TEU – it is an area the size of Raleigh – and align with economic development, tourism, etc. Is it the best use of that real estate? Also the interest of the military – do we have conflicting objectives or not?

The ports would say that they are using Savannah and others – Norfolk by definition. Fayetteville to Wilmington – is that part of the driver – and will Uncle Sam put in some of that – or is it throwing a crumb. I have evolved to the point where the port makes sense – it is easy to see how dredging impacts South Port and Baldhead Island – but there are some rubs here. Morehead City and Wilmington are hard to get to – but a Greenfield site has an opportunity to build a deepwater porch you can use.

Longbeach, CA – on the 405 at 4:30 – horrible! So built a railroad 100 miles inland – market should have a large role in that! We can build a deep water port – and DC is well-inland – and build a truck road from the port to the I-95 DC location. That should be in the solution set. Some combination of Maersk and a Greenfield developer funded by Calpers to build the port, with Maersk operating it – if they want to put in their money – a good sign! What is rub for money we need to put in?

If it is a neutral for us, and someone pays for it – so what!

Don't hamstring this idea with the port! They have a comprehensive plan on fixing all of the roads, bridges, etc. It is NOT a strategic plan! Jobs and widely shared prosperity – reasons why we need to have a logistics transportation system.

Someone within DOT thinks it is their job to go to South Korea, Rotterdam, etc. about infrastructure development. A VP of Development for DOT – that takes the point of view – and is a sales person. A lot of people come through – how to get them to stop!

A globe-trotting sales person – someone in DOT who has a comprehensive assignment to do outreach – and connect the services and thinking of DOT to all things external. How to build a system that serves you? WE have an effective ad hoc interface with DOT – and there are some people in certain areas – that we go to work on project-related things. But it probably would be good to have an intergalactic person.

Will we have a recession? People are comfortable where we are – rural interests will be concerned about talent drain – as social costs go up this will continue. I am satisfied with the inducement tools we have – politically defensive – along with what we sell – and we adopt it – incentives only used one time on last page. NC State education, community college, workforce, infrastructure, and quality of life incentives. Modern infrastructure is important. Museum of Art – 1 billion dollar endowment for cancer research! Modern infrastructure is most important piece for you guys.

A key thing we are working on – political angst associated with it – a system called hub cities, micropolitans – think about halo effect around Triad, Triangle – how to do it in Hickory, Fayetteville, Greenville, etc. Make these attractive places to live. If a job hub is Greenville NC – then what you need is – if you live in Greenville and work in Global Transpark – and want to live in Martin County – how to get to work. Assuming Greenville will be more successful – will get a company involved with university, hospital, sports – in a knowledge-driven economy – that is what we are selling. In our comprehensive plan – the key element there is a regional infrastructure concept – and we are getting ready to get someone to look at analytical tools – natural geographic markets that are driving and informs a strategy for hub cities. Best way to get at that.

There isn't anything like One NC – someone asked me – but every place is different – and one size will NOT fit all – synonym for widely shared prosperity.

Ports thing – HAVE to get to.

Supporting air service – is a really critical element. Preserving quality of life – and educational investments – need to go in that direction – manufacturing processes that are air-dependent – and consistency with local transportation and air service. From a modal perspective – investing in airlift capacity. Maybe Global Transpark was a JIT industrial park – and manufacturing moved elsewhere. But it may be a manufacturing center, as opposed to a logistics center – there is a complex that sits there. As we are getting ready to build Highway 42 – at a level that was too low – that is the thinking that will start to occur. Deep water, underutilized port – want to get ahead.

7000 foot runways with cottage industries – on-demand charter service – get into Dulles – a 50 seat RJ to get to Greenville – if you had the capacity.

To sum it all up – the hub strategy and what it means to surface transportation – deserves attention and would meld with what we are doing. Doesn't just require an air service strategy – and figure out what the ports potential is.

COMMERCE AND REGIONAL PARTNERSHIPS

Interviewee: **Dale Carroll**
Company/Agency of Interviewee: **Advantage West**
Interviewer(s): **Erik Stromberg**
Date of Interview: **03/31/2008**

Louis Berger won Western Carolina study of feasibility for inland port. Dr Michael Smith and Alan Thornburgh, are leading effort at Western and State Sen. Walter Dalton is champion in NC.

Dale attended public outreach in Asheville

Focus is on “advanced manufacturing sector” as NC will always be manufacturing state and this is next phase.

Workforce development event in Asheville on 4-8. Focus on apparel and case goods. Needs are for machinists—plastics technology.

Driver is rail like Front Royal. Scott Heckritt (sp?) (ACS) is experienced in inland ports. Consideration for port capacity issues, need for corridors, and inland ports relieve coastal congestion.

Volvo construction equipment with its new excavator line is aggressively pushing export opportunities. A new Korean female CFO (didn't know name) is leading the charge.

Viz inland port, need CSX or NS to take active role and serve broader market. With resurgence of environmental concerns, energy costs, rail becoming more viable.

View of next 10-15 years is that there will be blend of advanced manufacturing (examples: Volvo construction with its North American Hq, Caterpillar and its two facilities, two Borg Warner facilities, Cutler Hammer (electrical), boat manufacturers including Chris Craft, Mako, Cobra, and case goods. All will access growing US market as well as export.

Need road and rail, especially:

1. I26 connector
2. local governments taking lead in advocating importance of goods movement and transportation improvements
3. TOL could be acceptable
4. Airport not key—use Greensboro, Greenville SC, Memphis, Louisville

Interviewee: **Steve Yost**
Company/Agency of Interviewee: **SE Regional Partnership**
Interviewer(s): **Erik Stromberg**

The Southeast partnership is focused on distribution centers. Logistics is key primarily due to the NC Port at Wilmington, but also because of the soon to be finished I-73/74, from Detroit to Charleston. The four lanes will be in place in 2008. From Rockingham to Wilmington will be four lanes soon. SE NC is midway between NY and Miami. Teaming with NC Ports the Partnership is hoping for a new port in Brunswick county, coordinating with NC Ports on marketing.

The NC ports and the region need a European service. NC Ports need to be a full service port with capabilities to support economic development activities in region and state. The Port is more important than ever.

DCs are number 1 goal. Model after Savannah with mega DCs distributing to local DCs.

Manufacturing is number 2 goal, with linkages to port taken advantage of. Like the aluminum can facility in Clinton, importing raw materials and exporting cans or distributing cans throughout US.

DC acreage is critical and becoming scarcer. Must save now to avoid residential and commercial gobbling it up through zoning. 2-3000 acres in Brunswick that can be saved utilizing tax advantages of Tier 1 status if two or more counties are involved. Lots of opportunity now to preserve key parcels of land both for development and for farming.

Tourism not threatened by DC or industrial economic development. There's plenty of space at this point, but planning is imperative now so as to minimize future potential conflicts between passengers and freight transportation.

Skyway bridge is less critical to SE than is new Brunswick County port. However, misperception about viability of Wilmington—i.e. concern can't dredge up river. Need new controlled access highway.

Interviewees: **Vann Rogerson, Ray White**
Company/Agency of Interviewee: **NE Partnership**
Interviewer(s): **Erik Stromberg**

Ray has SE Virginia background. Vann is CEO. Ray is on three major boards in SE Va. Want to develop in way that avoids Hampton Roads issues of congestion and poor planning and preserve quality of life in NE.

Port of choice is Norfolk and 4 laning 17 and 168 is key along with one bridge to be constructed (which?) which is integral part of SE VA economy. North Albermarle Sound.

NE is in transition now and undergoing a “transformation”. It’s the poorest region in the state, with the worst demographics. Looking a cluster area development. For example:

- Aviation: CG base and three commercial airports. Looking to enhance training programs especially with city state university at Elizabeth City. Land available, need skilled labor. Short commuter flights. Develop a mini Cherry Point, with a CG repair facility at Elizabeth City, expand to private sector aircraft.
- Automotive. Proximity to I-95. NC automotive project. With mid Atlantic location wants to develop auto technology testing and research center of excellence.
- Biomass fuels and processing facility. Cellulosic based, bio crops with acreage requirements to grow and test
- New wealth in developments underway for residential and tourism growth. Discretionary spending is key.

Need transportation infrastructure including

- 158, 85 to 95, 13 (corridor into SE VA) and 17 to outer banks. Need access to major N/S arteries and connect to SE VA through 58.
- Intracoastal O&M funding is crucial, including Oregon Inlet
- Rail infrastructure is OK with Seaboard shortline access to Hampton Roads
- Need Albemarle and Edenton bridge for better access to Hampton Roads (15000 work in SE VA). Also need access to outer banks for workers, plus the eight million tourists every year.

Interviewee: **Kenny MacDonald**
Company/Agency of Interviewee: **Charlotte Partnership**
Interviewer(s): **Erik Stromberg**

Historical transportation strength in Charlotte. However, must focus on choke points and avoid issues like Atlanta is dealing with. For example, I-85 is key and toll road is possibility. Not just a local issue but a state wide issue. Work force mobility is becoming affected. State needs to upgrade infrastructure development as an awareness issue as well as an investment. One area is the development of alternative forms of transportation—which is indicated by the Charlotte situation but will be increasingly relevant in other areas of our state in the future. No doubt about our state's growth path. Coordination of state's region is important too. Greensboro, Raleigh, Charlotte must be in synch in terms of plans to move forward—both economic development as well as transportation.

Rail—big leap forward with NS intermodal yard. Congestion was major problem. Economic impact is huge and available from NS. Charlotte is and will continue to be global business hub

Aviation—both air cargo and passenger. Use UPS out of Columbia SC and FedEx out of Greensboro, but most moves out of Charlotte international.

Growth—population grows at 100k per year. Monroe and Union counties are also getting growth

Economic Development projects—two major are Garden Pkwy (toll) and Monroe bypass.

Manufacturing—Mecklenberg County has more manufacturing than rest of state combined. 65% of economic activity is manufacturing based. Logistics is key today and in future.

New bio tech is wave of future for legacy manufacturing base like textile. Eg, PillowTex with its new campus of 6 million sq feet. National ave. for manufacturing is 11-12% and Charlotte is moving to that number

In the future must better coordinate regional development and transportation planning. But regional partnerships are and will be important way to organize NC's economic development strategies. Counties are tied together. Delivery system and discussion along Partnership alignments.

Better infrastructure investment for goods and people movement is more important than subsidies and tax incentives. Must develop corridors for effective freight and people movements. Eg, Statesville and Salisbury must be tied together. Gaston county access can be improved through investment in 20 mile stretch—those critical bottlenecks must be identified and improved.

Cost and mobility are key factors in bringing business to NC.

Coordination in Charlotte region is being done through the Leadership Forum which involves NC and SC businesses.

Interviewee: **Albert Delia**
Company/Agency of Interviewee: **North Carolina's Eastern Region**
Interviewer(s): **Erik Stromberg**

Two years on job, succeeded Tom Greenwood. 13 counties from Wilson, Edgecombe, Pitt, Lenoir, Onslow, Carteret, Craven and from MHC to Rocky Mount

Approach is to retain and expand existing business which covers 70% of jobs. Recruitment covers 15% of jobs (relocation or new plant). Entrepreneurial (create or foster new businesses) also covers 15% of jobs.

Regional growth is limited by infrastructure from broadband to ports. Therefore focus of region is to “grow our capacity to grow”. Since resources are limited must partner and orient goals. Needs are underfunded roads and highways, water and sewer.

Concern that resources are being allocated in silo fashion, not adequately integrated or modally coordinated. Commerce role needs to be enhanced.

Vision over next 10-20 years.

- Must have improved education and workforce training. Eg, 15-30% of workforce now with 4-year college degree—one-half of Triad and Triangle.
- Economic opportunities lie with military and defense related projects. Research and manufacturing
- 62000 population growth in 2 years
- Marine trades especially in recreational and fishing boat
- Bio-tech and life science. R&D in biotech. Pharmaceuticals will be key. Community college system and training are critical in this area
- Agri-business, with value added high tech services, such as Sara Lee's pork and poultry facility
- Tourism needs better connectivity
- Port—need better connections to port of MHC as well, especially Hwy 70 and NS rail line.
- Need to take advantage of GTP. Infrastructure must be developed ahead of time. \$60 million spent to date over last 15 years, but need to spend another \$60 million to get transportation road and rail adequate to be successful

Interviewee: **Charles Hayes**
Company/Agency of Interviewee: **Triangle Partnership**
Interviewer(s): **Erik Stromberg**

Key issues:

- Move people in a poly centric region
- Build roads to nonurban areas
- Goods movement not as critical as people movement
 - However, manufacturing remains strong with 8% of workforce
 - Interstate and rail systems in place but focus should be on maintenance as well as future planning
 - He's not targeting manufacturing or industrial sectors as much as...
- Focus is on
 - Advanced Medical
 - Agri bio tech
 - Analytical instrumentation
 - Logistics and distribution
 - Vehicle component parts, which is already in place
- Airports—reliever airports. People want global access. Air cargo is sufficient
- Environmental and air quality is critical goal for quality of life
- Transportation infrastructure is generally good with I-40 (connecting Triangle and Clayton corridor, for example), outlying counties to Triangle core, and commuter rail to core

Policies needed:

- Need to assure that existing goal for 80-90% of population is within 10 minutes of interstate
- Infrastructure has always been a priority and was accomplished even when the state didn't have the money. We don't have \$ now but infrastructure seems no longer to be a priority.
- NC used not to have good infrastructure, environmental awareness or education (used to say "thank God for Mississippi, or we'd be last in nation!") but state made investments and investments paid off
- Today we must rid state of its complacency. "We're at war in global economy and we must be engaged or we'll be passed by"

PRIVATE

COMPANIES

Interviewee: **Donna Barios**
Company/Agency of Interviewee: **International Textile Group**
Interviewer(s): **Robert Handfield**

Textiles must compete with companies overseas. Fuel increases are impacting all modes of transportation are having a huge impact on our profit margins. So, right now that is an area that is negatively affecting us. There doesn't seem to be any end to the madness and no light at the end of the tunnel.

Smaller truckers are unable to afford it and are closing their doors and this is impacting capacity problems. Too much freight and not enough carriers to handle it.

Ocean carriers and emergency fuel bunkers are also taking a hit and looking at how to consolidate their scheduling, which can reduce a vessel on a particular route which adds delays to sailings which are implementing further stop offs. Europe is one area because of lead-times, we look for the fastest vessel to Europe and have to jump from carrier to carrier. Reducing ports and adding more stop offs is affecting lead-times for us.

The cost of imported textiles will go up but we cannot absorb the cost and have to pass it on to our customers and in such a competitive market, they are shopping around and going with the cheapest product. In our case it is negatively affecting our sales and bottom line, and a way that we've tried to minimize that issue is by changing terms of sale to customers. Historically, Burlington owned their logistics and had a strong reputable name and a strong footprint, and competitive pricing with carriers. We are offering CIS or IMF to our exports and with continuing increase have to pass it on to customers. In an effort to not lose customers to someone else, how about doing Ex Works and they carry the burden if it is an export.

Transportation cost affects us dramatically. We are a big international company and that is an area where we see an increase in fuel, and carriers increase their pricing Air freight capacity is a big issue as well. On our air we are always having to airfreight since we needed it yesterday.

We need a close airport with international service. Atlanta is a big hub, with more flights into Asia, but in the past, we have had to truck to New York, with a larger international airport.

An airport with more international flights that would help us a great deal. I will be honest with you I never use Raleigh. I have done Charlotte, trying to get it to Miami, but usually having to go through Atlanta because they have more international lift.

On the ports, Wilmington, a pro supporter for Wilmington, with the new terminal hopefully more carriers will get on board, but there are limited numbers of carriers for Wilmington. So we go through Norfolk. Savannah is another big one. Customers are requiring carriers. Yan Ming is

one of their largest ones there, but they don't go all over the world and they don't have the carrier base.

For state governments, we are moving in the right direction with the local FedEx hub and the state and local government played a big role in that. With Wilmington we need a lot of push for that port with recruiting larger companies for distribution. We have heavily looked at warehousing and marketing also. I know the efforts are there – however, it is not happening fast enough! That would be my biggest issue.

On the modes of transportation domestically this is not a state government issue, other than fuel surcharge. Domestic trucking is so competitive it is not really a problem. The infrastructure for us in NC, easy access to major highways works very well. We do some rail shipping for land bridges for domestic, and that is really okay we see no real problems with the rail system.

The FedEx hub will draw more distributors and logistics providers in the region. With Fedex being so big, warehousing and distribution in Greensboro with a central location, should be as attractive to other companies, and other airlines will also start coming in to offer more lift.

Interviewee: **Eddy Burgos**
Company/Agency of Interviewee: **Husquvarna**
Interviewer(s): **Robert Handfield**

We are a lawn and garden distributor and manufacturer for total lawn and garden equipment – chain saws to mowers, trimmer, pressure washers. We make it and distribute. We have a facility in the US and are owned by the Swedish. We bring containers to Charleston, which lacks trucks at the port, and we see a lack of power to run containers. So our lead-times are stretched.

We are doing more air as a result of delays, especially for parts – as we manufacture so many sku's – a good percent of our customers are landscapers, arborists and they can't do without their trimmer or mower for more than a day. The season is short and they have to make their money in 5-6 months, on cutting grass. That is a big issue for us and we have had to spend more money on freight to get the parts which has added to our cost.

One of my pet peeves is the roads that don't allow for 53 foot trailers. They have to go around and take longer distances to get to the same place. With fuel the way it is, you have a lot more independents every day and can't keep up with cost of fuel and insurance. It is tough to get capacity, right now it is okay, but it is about to change as the economy gets a little bitter. With produce season you lose capacity in trying to move your goods. Warehouses are in various states and getting it transferred from one warehouse to another becomes a priority for us.

The hours of operation are a fiasco, with no end in sight, making it more difficult to operate. From a trucker's perspective, it is a domino effect because the cost of our product competes with John Deeres and what happens is because we sell to a lot of small mom and pop operations we carry them year round! We become their warehouse! We also finance them it is a domino effect. Their lead-times are very short, want it within two days. So that all plays into the total spending that we have increased in trying to do business. A host of things probably the same everywhere, not just in North Carolina. Road issue is the biggest pet peeves – delays the freight, non-economic routes for no rhyme or reason! In no study that I have heard of are these roads made for these trucks or trailers.

Interviewee: **Donna Clinton**
Company/Agency of Interviewee: **Sunoco**
Interviewer(s): **Robert Handfield**

Our concerns are of course are traffic and congestion. We see the growth and the roadways are not growing along with the growth around them. Also, I would suggest wider shoulders on the roads. If there is an accident, we need to make sure that it is big enough and people can exit off the highway.

The 485 plan, when will it be completed? We are close to the coast interstate 75 straight runs to the beach. Most of our shipments go through Charleston. I26 is a nightmare and is a heavily travelled interstate. Overall, the common things are concern about traffic and congestion, delays regarding accidents, inefficiencies and the domino effect.

We just have to get more efficient and with carriers, they provide one stop shopping. I see that trend continuing a supplier can handle multi-modes of shipments. As we are forced to reduce costs and improve processes, we look to partner with suppliers who can service all our needs. In the long run, the ones who figure it out will win.

I am all for privatizing I have lived in the North east and tolls do work. There are a lot of folks on the coast traveling down and utilizing our beaches and I am all for it. We struggle, a lot of transportation suppliers will not go into New York that passes through cost.

Interviewee: **Kevin Perry**
Company/Agency of Interviewee: **Lowes**
Interviewer(s): **Robert Handfield**

One area that will continue to grow is imports. Not a huge port – but Wilmington is a big part of our business. The more we can make it more efficient and have the capacity to support us, and the timely in/out loading and unloading of equipment serving, hours of service limitations that service our carriers – to make their day more efficient is critical. Anything from a domestic perspective to make their life more efficient is more important.

The new port – we have the largest transload facilities – our facility is in Savannah – and a fair share of direct imports. Anything that is beneficial.

When you look at our ratio – we are bringing more off the East Coast. The transload operation – we bring freight in and consolidate into containers into full truckload – don't have one in North Carolina – but eventually there may be one. When we made that location decision – based on where our DC's – Savannah made the most sense. We do break-bulk at the port – a 3PL located outside the port – dray it over there – offload the containers – and full containers directly to DC's. Reason it helps us – an inventory postponement strategy – lead-times are so long – and we can determine which DC's and part of the country need it most – and allocate it to those stores that need it the most.

I think from a trucking standpoint – we spend a lot of time – a VP on Government affairs involved. 53 foot trailer - someone snuck in some language – and the language restricted 53 foot trailers – which is the industry norm. 48's – most have been phased out by carriers, since the 1990s'. What happened was more of the roads were restricted – and taking 53 foot trailers to storage and non-approved highways – were being fined, and drivers were being fined which hurt their license. That has been a big hassle for us and not enhancing productivity in the state – and dissuaded companies from locating here if it was not changed. 48's are cost prohibitive – most carriers don't have them – and shippers require 53's – and what do you do with it then. Are working towards a solution, and added a lot of hassle and headache – but a little common sense should take place – no statistics that 53's would be more involved in accidents than 48's. I have tried to get more details behind that – and some people know, but aren't saying. A politician had interests with NC carriers that did NOT have 53's – and did not see the big picture – and that is my take on that. Every other state out there is good with it. That has been a big problem – quicker to get that resolved.

I talk to other shippers out there – and involved with the League of Transportation and Logistics – but the majority seem to prefer Charleston – I think they are more efficient, is what I hear. There could be some of the decisions being made because of the distance. Getting drivers in and out, getting offloaded – with the limitation on duty hours – the less time you can delay, and get an extra turn for the driver, it adds up to a lot and more interest from drivers to handle that part of the business. The economy is slow and it doesn't show as much – but the same issue will occur.

I think from a highway infrastructure – I am up and down I77 all the time – you could use an additional lane or two – and I like the HOV lane – but that HOV lane is underutilized – and it

makes more sense to have a tractor trailer lane – or open it up to everyone. With a family, it is great – but for the amount of traffic it is underutilized –and a future plan for HOV lanes – it is not maximizing.

Still slow things down a bit – but are you really improving the flow of traffic – we hear from drivers they are on a running clock right now, and routes put them in the heart of Raleigh and Charlotte at rush hour – they used to call time out and get two hours rest – and overall commuter traffic – and now don't have that option, form an hours of use standpoint. Anything the state can do to influence that – we are about safety – but a running clock that is 14 hours straight, and can't catch a nap, and still work the 14 hours – don't have that option anymore – not a lot of thought went into those rules – if they could alleviate congestion, additional lanes, throughout the state.

You might want to talk to Steve Palmer – he has lived here for several years, and might have some input on it. If you want to set up some time with him –I would support that. Us having the number of DC's and stores in N. Carolina, it is something we are concerned about. Original DC's – we have two – one in Garysburg near VA, and Statesville, N. of Charlotte. Flatbed Center in Thomasville, Import center in Wilkesboro, a specialty center outside of Winston. Number of stores – about 100 stores. Definitely an issue with the 53's is a big issue on that – a common sense standpoint.

Interviewee: **Michael Rescigno**
Company/Agency of Interviewee: **Belk**
Interviewer(s): **Robert Handfield**

As far as infrastructure is concerned – a lot of our vendor base moved to California. Used to have stuff manufactured in South Carolina – and moved there because they import it from the Pac Rim – cheaper container rates – and sell FOB their dock – and retail has to pay the transportation fee cross-country.

We need to strengthen infrastructure from West to East – where we are all falling off is the rail system. Need to move more trailers to inland ports like New Orleans, Atlanta, Chicago, Memphis, where they can be picked up and moved. There was talk – ATA – build a superhighway east to west just for trucks, if we can make it faster. No way a trailer should take nine days from east to west – when you get the mail in two days on a railcar!

What the problem is – when they get to the first rail hub – takes 304 days to get to a feeder line to get onto a truck. If I could buy the railroads – I know that if you fix that problem – freight would move a lot faster east to west and west to east. Hitting us with fuel charges – but on rail, it goes down – no driver, no truck. A lot of savings and for the environment.

They have a system that works. The mass transit systems in the US except for New England are almost non-existent. WE have lost that. Let's take that infrastructure – Burlington Northern – Conway Southern Express – and to move a box between them is terrible! And the other problem – when you get the container into your DC – they want to charge you 50 bucks a day – yet ocean containers are sitting at the hubs – and steamship companies will have a deficit – and if dollar stays weak and economy percolates. Empty containers at the ports – that is the perfect box to put merchandise into a box and stack on trains. He rents them to me to put merchandise in – goes to steamship line – they pay 2 dollars a day – he lets him have it for 5 bucks. And we store fixtures in there, and put it out there for some merchandise – house goods.

We are seeing more people to rush down to the new Wando terminal – as fast as they can – to get in place for that. East Coast – fuel costs have gone up – if you can time your shipments – almost as cheap to bring in to East Coast distribution. We bring it through Jackson DC and shuttle to South Carolina. Most of it comes from Pac Rim.

State government – need to do a lot more with bridges – and go tax the trucking companies – and that comes back to the consumer. Fuel is so high it is cutting into our margins – and will come back to the consumer – and these guys have started making money on the fluctuation in fuel – have a fuel service charge in place – and fluctuation in fuel – know if you buy in lower Atlantic – and the surcharge – will make money and lose it the next. Most trying to get fuel paid for out of that bucket – and rates are going for a fire sale. Last year – California to SC - \$1.35 a mile – now at \$1.10 to \$1.00 – rates are starting to fall.

Interviewee: **John Sapp**
Company/Agency of Interviewee: **RJR Reynolds**
Interviewer(s): **Robert Handfield**

We don't have the ability to handle international shipments in the state. The future port if you build it they will come. There is a huge desire on the East Coast for other services such as transatlantic services. For example, we import a fair amount of tobacco leaf and are dependent on ports in Virginia and South Carolina. We don't have carriers calling on Wilmington. Legislature can help with leverage to bring these people in here but can't get that service and keep things equal it is not within our state. The continuation of doing that project correctly will provide same opportunities for export as well. Companies going to the far-east used to have to do it from the West Coast, but from service and cost being equal, going out of the East Coast. The ability to ship internationally will bring in the imports and services in the lanes will be a tremendous boost for the state. Make sure you have the infrastructure to support highway and rail access to that. Access must be there for either one truck traffic is not as big an issue. Rail access for container type business will be harder. International piece is a big part of what the state needs to push through. Automatically the distribution 3PL's will put in those facilities to support the Wal-mart locations of the future. We've missed out on a lot of opportunities. We should have the Southport area scheduled for 10-15 year time period to avoid the roadblocks. That couldn't come soon enough.

Had we had something like that it would be booming with business that has gone to the north and the south of us and it will bring in the business with the sheer capacity issues they are having.

Having spoken to the traditional import/export business there is no question from an air standpoint and we try not to do that. With the FedEx hub it will be a tremendous opportunity. Is the state considering anything in that nature, tying in that private segment to bring in other businesses. Fedex will bring other business not the state doing that. Part of that question is what kind of role should the state play to ensure that FedEx will link up with other segments of the business, additional rail, etc. What are the opportunities? What services will those businesses need? They will be producing things and need those commodities and will be producing things that are going out airfreight. What is the state to support for that? One thing would be from an education system, do we truly have universities with a reputation for logistics and international business issues? We are building the talent and labor resources to keep people in the state. We are importing people from other schools. My point is, in the world of supply chains, when you say you are looking for a supply chain / logistics degree, do they look for state schools? What are we doing to market and promote that and think about looking for labor in the state?

Then from a domestic infrastructure as a state we are positioned well with our interstate connections N, S, E, and W, but I will go back to a port. What kind of highway structure that will officially move the goods? What are we doing here? There are a lot of obstacles. As far as your common carrier we have a very strong presence, from a domestic transportation standpoint, we are not limited. Truckload carriers will be based on balance of volume and we ship a lot of truckloads and are in a favorable position with equipment, a catch 22, most of it is outbound, and the surplus doesn't hurt me.

I think we are lacking there with rail. We have had to move product, and have to move to Charlotte to put it on rail. Transit rails go from CLT to ATL, and how can we develop more intermodal rail sites to improve that transit time. Let's face it how do we keep trucks off the highway? Should we charge? At the end of the day it will work if we charge tariffs.

You are right we do not have an efficient passenger rail service. In Europe, I love to ride the trains, they're reliability, always on-time, and they keep cars off of highways. We don't have that nor do we have the reliability even in the Northeast quadrant. I don't see as much short-rail service if it was there then people would take advantage of it. It is obviously more important with fuel prices.

One of the things that I took issue with in the ports is you are doing a lot of work, and you have an agenda but it tends to be so politically driven. You are asking us to give money to something, and two, to help us write letters in the political arena do things. But yet they are NOT doing a proper job of getting out and understanding the true business requirements and opportunities. They have their own agenda, but are not listening to our needs. If your agenda doesn't support our business, it gets in the way, it is an agenda that is politically driven and doesn't meet our needs. We see something that needs to be done and we go do it. The timeframe for them doesn't provide any value for us. Bureaucracy gets in the way of progress and it is always money related! I know where the highway tax came from.

With the exception of most business hubs getting to a future port site, we are in fairly good shape though. Continued work on the bypass around Charlotte has helped, and into Greensboro helps it moving.

SHIPPERS

Interviewee: **Ron deGeare**
Company/Agency of Interviewee: **BSH Home Appliances**
Interviewer(s): **Erik Stromberg**

New Bern office. Uses Norfolk port for two main reasons—service availability (MSC with No Europe and Med) and visibility of services with automation and modern container tracking. However, if all is the same would prefer to use Wilmington. State tax credit is incentive that would lead to Wilmington.

Connecting infrastructure needs to be improved. Two lane needs to be four lanes and stop lights need to be converted to limited access. However, in NE NC not easy to get in or out of MHC or GTP.

Interviewee: **Gary Harwell**
Company/Agency of Interviewee: **Hickory Springs**
Interviewer(s): **Erik Stromberg**

Manufacturing will continue in NC but more and more difficult. Trans infrastructure is critical especially with their 62 locations in US. Raw materials come to plants, product distributed through network to customers. More and more rail dependent. Highways need more sustainable approaches to maintenance, which is today well behind need to maintain serviceability. In Catawba county I-40 hasn't had major maintenance for over 30 years. (CHECK) Monroe bypass bottleneck leads to problems getting to Wilmington port. Greensboro loop will be big help with plants in Piedmont, mountains and Tennessee.

Rail economics are marginal so trucks are key. Chemicals and steel inbound with Canada inbound using rail. Rail outbound to west coast only 10% of total. Use Charleston for inbound and outbound for finished goods. With commodity goods currency is huge factor in competitiveness. Hickory manufacturing remains in US (?). Ft Smith outbound west coast.

Biggest issue transportation. 2-300 truck loads per week with LTL 80-100 per week. Can do west coast in 5-7 days, everywhere else 2 days. Heavy loads are issue with axle weights more important than gross. Tennessee and Georgia are problematic with regard to regulations but NC is OK—NC is more truck friendly. Recent ruling on 53' STAA is big help. Twins are hard to run. Overweights on interstate is no problem. Driver shortage is not problem – private fleet.

Interviewee: **Jim Waters**
Company/Agency of Interviewee: **FMC Lithium**
Interviewer(s): **Erik Stromberg**

Hazardous material with outbound capacity tight with dollar improving export competitive position but tightening capacity for export cargoes. Prices haven't gone up yet but will next year's contract. With diesel prices at \$4/gal, 1/3 freight cost is fuel and freight cost is \$3000 outbound and \$6500 inbound.

Rail rates have doubled in past two years--costs have gone up from \$5000 to \$10,000 not including fuel. This will increase number of trucks on the road.

Doesn't use Wilmington, as Charleston, Savannah, Houston and west coast are used.

Need better roads around Charlotte. Interstates are obsolete (I77 and I485). Rail to west coast has service problems and sometimes trucks are used to west coast from Austin plant. Rail rates have been deregulated with no more "just and reasonable".

TRANSPORTATION INTERESTS

RAILROADS

Interviewee: **Scott Saylor**
Company/Agency of Interviewee: **NCRR**
Interviewer(s): **George List, Alix Demers**

DL received: CSX, N-S maps, NCRR Eco Impacts Study

DL: You did a presentation for 21st Century Communities and I've reviewed that also.

SS: He needs to understand our goal and he'll help any way he can. He doesn't think anything about it. Secretary Jim Fain is interested in this and economic development and knowledgeable about it, for example, manufacturing jobs here.

DL: We got input from GI that NC is similar to other states but we have a larger emphasis on manufacturing.

SS: Catherine Heller did study, now knowledgeable and invented lots of the economic tools for the NCRR report, a good resource. The rail road industry focuses on their own stuff.

airport and Honda

Greensboro area natural hub for products Charlotte is another natural hub, but no major focus. The biggest challenge he sees is an intermodal container facility east of Raleigh in I-40/I-95 junction area, but the real challenge is finding available land. There is lots of developer pressure, i.e.(NIMBY and high costs). They tried to pull together a few hundred acre site, but there was too much opposition - even as far out as Clayton - too much congestion, trucks, pollution. They are now looking at another site that may have long-term potential. Center Point Properties does intermodal developments and logistics parks nationally. All rail roads tend to have all their own logistics departments, economic departments/goals, basically low margin, high volume, capital intensive to run competitively with trucks.

DL: (Referring to Study Overview) - State wants us to provide ideas to coordinate investment decision making among all modes operating in state to provide economic growth and logistics support, taking a broad brush approach to get the legislature excited about ways to support economic growth by logistics support and making infrastructure decisions.

Let's take an executive summary.

There seems to be a perception that there is a need to do this and states are moving to do that (VA, FL, WA, NJ, ...) and those states seem to be prospering now that they know the relations. Creation of a process whereby visions are developed, embraced, supported (capital investment d- m for specific facilities (intermodal, air capacity, etc.). Speaks to issues of alternate ideas that

state might elect to pursue as it moves forward into 21st century and global economy there is a well-established manufacturing and economic activity that needs to be supported and nurtured that translates into good transportation decisions (commerce in state and pass-thru).

Here's an option: US military is making investments in NC (Fort Bragg, Sunny Pt) so maybe NC wants to be military logistics friendly -- so what infrastructure decisions should we make to support this?

SS: There is a fair amt of military movement on rail - coal to Cherry Pt, Jeeps, and vehicles to and from Camp LeJeune.

DL: What other stuff does military want in infrastructure investments? What could they do if more infrastructures of various types were in place? Intermodal port, What about rail access? What are the clearances and capacities necessary for constant demands and surge demands?

SS: Agreed, we need more investments like around Southport

DL: He thinks the report will expose the quality of life as the primary objective -- that has implications of what the state might do. In context of report and the port, the "me too" strategy of competing with neighboring ports or "niche market" strategy such as supporting high value goods, let's not forget about safety and security issues and military movements.

SS: I could not agree more. The tendency is to more stuff, but the real goal is to be more efficient and have high multiplier economic impacts with low pollution and negative impacts.

NCCR- If given option of 5 train cars and 1,000 jobs vs. 1,000 cars and 5 jobs, then they'd choose the former, but each railroad has tendency to choose latter.

DL: We see lots of medical activity in state (Duke, ECU, UNC-CH, etc.) so we might want to encourage pharmaceutical and biomedical manufacturing in the state ... this would mean intermodal investments, connections to port (safe, reliable, secure) and investment in air. What market segments work together to create jobs and prosperity?

SS: It's a challenge. One policy issue he sees is that every little project takes a lot of work. His sense is that NC is not in the infrastructure business except for highways. It is a big deal for port auth to get a few dollars in Virginia; it is a big deal to get lots of money for ports. And there is no dedicated money for rail and port improvement money in NC.

DOT has a good rail department for safety work, but it does not compare to highway work.

DL: This prompts a question about public-private partnerships. One strategy is that NC must be proactive and working with private industry as a collaborative value-added member.

SS: They joined national council of public-private partnerships. It's a small idea that is not really catching fire. They like pay as you go, charging based on the number of cars crossing the facility. Port Authority is taking that approach by leasing space. In the rail road industry, states have been making direct infusions. The rail road industry got some federal money for Charlotte. The rail road industry is dipping more into public well now, changing their tune and going after

more public money due to capacity constrained. So some public-private ventures can work. NCRRC has not done one yet.

DL: It's curious to me that in context of Powder River Basin or track rights in Seattle or Long Beach or inter railroad collaboration in Chicago - private sector figures it out in a heartbeat. So shared risk is not a foreign idea to the rail road industry, but they may view it as peculiar or difficult to join with public agencies and it makes forging those partnerships harder.

SS: Government programs don't move quickly, so that doesn't that work well with Wall Street, whom private companies must respond to.

DL: Expectations on return are very different between public and private industry.

DL: From RR perspective, where is the network going?

SS: No new rail lines built, but improving existing system. Decisions on which lines to upgrade, which to promote, driven some by market, but this is a multi-state issue -- moving goods at less than 400 miles doesn't bring revenue. The best case scenario would be 1,500 mile coal trip with one rail road. The worst case is short-haul container trips. He guesses that investment is driven by capital market. Burlington Northern will make most decisions. Gas prices will have a strong impact. If gas went to \$5/gal, what happens to the network - what modal shifts occur? What market shifts occur? 2006 was peak for class 1 rail roads. But rail roads are awful at delivery service.

DL: How much time do we have left not minutes, but days/weeks?

DL: What about rail networks between Charlotte and Wilmington?

SS: They serve Morehead City.

DL: Whose challenge is this?

SS: It's economics for CSX. CSX has that route/direct shot and it is a captive market. NCRRC spent big money upgrading their own routes and can move the market a bit on their lines, but not in Wilmington. Agriculture business folks in Wilmington are trying to push PAX rail to get better CSX service. Port Authority jumped on this and also thinks PAX rail would be good. Would this mean is two more container trains/day from Wilmington or what? CSX could do that. If so, then Boston-Castle-Hayne (sp?) not needed. CSX needs to be persuaded down by Wilmington. Charleston has shared rights unlike Wilmington.

DL: Go back to agriculture business - what does it look like today in NC?

SS: Grain to hog. Hog and pork shipments out. Three 75 cars per week sometimes from the Midwest of corn -- but sometimes zero because of the local grain used since Midwest is going to Goldsboro Milling (they own Butterball). Smithfield is same way. Buy grain using economies of scale. CSX just improved track parallel to highway 17 near Goldsboro - very unusual. Because of supply chain and cost structure, any price change in grain has a big effect on their business, animal production is supported by grains, soybeans, grain, feed blends. ConAgricultural, Goldsboro Milling, Smithfield, are the big players. Talk to Dave Hauser in Greensboro. He is pushing branding of Triad area – Piedmont Triad Partnership. Very knowledgeable about all modes.

MARINE TERMINAL OPERATORS

Interviewee: **Michael McCarley**
Company/Agency of Interviewee: **Carolina Terminals**
Interviewer(s): **Erik Stromberg**

Private port operator on Cape Fear handling bulk products.

Needs to be better coordination and cooperation between public port and private terminals operating on Cape Fear River.

Appendix C: Visioning Sessions

Sample Invitation Letter

Date

Name

Title

Address

Address

City, NC Zip

RE: Invitation to a Statewide Logistics Visioning Session

Dear name:

In the last session of the general assembly, the Joint Legislative Transportation Oversight Committee tasked the NC Office of State Budget and Management (OSBM) to conduct a statewide logistics study, now due April 30, 2008. The OSBM has contracted with ITRE at NC State University to perform this study. We are inviting you to attend a special outreach visioning session at the _____ on _____ to assist our team in creating a vision to support the movement of people and goods across and through our state. Your participation is critical in helping us discern a credible vision for the future of North Carolina.

This study is a separate effort from the 21st Century Transportation Committee. Although many of the same topic areas are being addressed in both efforts, this study is projecting out a long range vision for the state and identifying the infrastructure and legal gaps to meet that vision.

Because time is so short for this study, this is the only opportunity you will have to meet with the research team and provide your thoughts on creating a viable and sustainable vision for all citizens of North Carolina.

The attached sheet shows the agenda for the day. We would appreciate a response back by _____ if you can attend this session for planning of break refreshments and lunch. You can contact Daniel Findley at 919-515-8564 by phone, or by email at Daniel_Findley@ncsu.edu.

On behalf of our entire research team, thank you in advance for your attendance at this important visioning session.

Sincerely,

George F. List, PhD, P.E., Principal Investigator
Professor and Head
Civil, Construction, and Environmental Engineering Department
North Carolina State University
919-515-7212
gflist@ncsu.edu

Statewide Logistics Study for North Carolina

Legislative Mandate

House Bill 1005 instructs the Office of State Budget and Management to develop a statewide logistics plan that will advance North Carolina into a world where its plans for economic development and infrastructure investment, management and operation are coordinated and tightly coupled. The plan is due to the Joint Legislative Transportation Oversight Committee not later than April 30, 2008 (an extension from the April 1 date in the bill). The plan will include, but not be limited to, all of the following components:

- 1) Identification of priority commerce needs.
- 2) Enumeration of transportation infrastructure actions, including multimodal solutions that will support key industries vital to the State's long term economic growth.
- 3) Endorsement of the plan based on input from State agencies and the private sector regarding these needs and actions.
- 4) A timetable to meet any identified needs.

Approach to the Study

The Institute for Transportation Research and Education (ITRE) has assembled a team of knowledgeable faculty and consultants to develop the plan. Key team agencies include ITRE (the lead), NC State University, UNC-Charlotte, UNC-Greensboro, NC A&T State University, Hatch Mott MacDonald, Dr. Michael Walton, Global Insight, and the University of South Carolina. The study is undertaking the following key tasks:

- 1) State of the Practice – identify the present best practice in statewide logistics planning.
- 2) Visions of the Future –discern a vision of economic growth and infrastructure investment and operation for North Carolina for the next 30 years.
- 3) Infrastructure Needs –identify the new infrastructure investments and changes in system operation which are needed to support the vision.
- 4) Implementation Strategy –create an implementation strategy that can accomplish and support the vision. This includes legislative actions, transformation of agency missions and empowerments, public-private-partnerships, and financing strategies
- 5) Prepare and Deliver the Plan to the legislature via the Office of State Budget and Management.

Expected Outcome

The principle outcome will be the statewide logistics plan. It will present options for alternative futures and identify the infrastructure needs and implementation strategies that follow. It will not identify specific projects. It will review the State Transportation Improvement Program and highlight initiatives that are key to empowering the vision. It will address opportunities for development within specific areas of the state. It will identify trade corridors where investments could be made. It will identify markets in which it appears that North Carolina could play a major role. It will be comprehensive in its review of modes: highway, rail, trucking, marine, pipeline. It will especially give the legislature guidance about actions it can take to help make this vision emerge.

Stakeholder Involvement

Stakeholder input is a key component in (1) creating the vision, (2) recognizing obstacles that impede implementation of that vision, and (3) identifying possible solutions or changes needed to support the vision.

Statewide Logistics Study Visioning Session

Site Name

Date

Agenda

9:00 – 9:15 a.m.	Registration
9:15 – 9:30 a.m.	Setting the Stage for the Day
9:30 – 10:30 a.m.	<u>Visioning Exercise #1</u>
10:30 – 10:45 a.m.	Break
10:45 – 11:45 a.m.	<u>Visioning Exercise #2</u>
12:00 – 1:00 p.m.	Lunch
1:15 – 2:30 p.m.	<u>Visioning Exercise #3</u>
1:30 p.m.	Afternoon refreshments available
2:30 – 2:45 p.m.	Wrap-up and Future Activity / Interaction

Posters: There will be 5-6 posters available showing some core data for your use during the visioning exercises.

Visioning Session Exercises

Visioning Exercise #1

1. Comparative freight strengths. Thinking about the freight environment and regional differences, how do the following compare?
 - a. U.S. versus other countries (U.S. neighbors, rest of world)?
 - b. NC versus surrounding states – VA, TN, SC, GA, FL, other states?
2. Looking at horizons up the year 2030, what should NC be doing to encourage commerce?
3. What markets should NC cater to – current and new? Why?

Visioning Exercise #2

Based on your combined vision from exercise #1:

1. What roles do you see for highway, rail, air, water and public transportation to support your vision?
2. What technology changes are needed to support your vision?
3. What infrastructure changes are needed to support your vision?
4. What new legislation may be necessary to support your vision?

Visioning Exercise #3

1. From the synopsis you just heard based on the morning exercises, what issues or items still need to be addressed in your vision?
2. What can the legislature change to help make your vision a reality?
3. What is the single most important activity to be accomplished to support your vision?
4. What recommendations do you have for any improvements in statewide logistics planning and implementation?

Visioning Session Summary

	2/28/2008 Wilmington	3/10/2008 Greenville	3/11/2008 Asheville	3/13/2008 Charlotte	3/14/2008 Raleigh	3/17/2008 Greensboro
Exercise 1.1 – Support Vision	<p>NC Actions to Encourage Commerce</p> <ul style="list-style-type: none"> Marketing what we have and are planning Infrastructure to improve efficiency of movement (highway, rail, port, air) Need statewide planning functions versus MPO/RPO narrower focus Sustainable development / environmental, economic, social Funding Mechanisms could be tied together <p>–Currently, the DOT, Ports, Airports, etc. each has their own funding sources and goals. –A global view</p>	<ul style="list-style-type: none"> Create statewide connectivity Link transportation, education, and traditional & new products Cross-promotion between agencies/industries like hospitality and tourism to promote new commerce Build new international ports and regional airports Get input from companies to find their logistics needs Expand statewide tier of Long Range Statewide Transportation Plan Multimodal freight regions Growth of inland ports throughout state Include travel and tourism as growth industries Make all modes coordinate needs and develop plan together as system 	<p>Workforce development</p> <ul style="list-style-type: none"> Affordable housing Training esp. of youth and retirees Green jobs Support community colleges and university especially with distance education Working with local vision for growth to target growth consistent with local vision Identify infrastructure that supports local vision Explore strategic corridors Endorse controlled access corridors Weigh in on major corridor projects in regional discussions 	<ul style="list-style-type: none"> Marketing by government of Charlotte’s & NC Port offerings Workforce training (welders, pipefitters, warehouse/DC workers) Invest in port technology, e.g. intermodal, on-dock, rail infrastructure, short haul rail shuttle, day definite LCL services Enhance freight operations and supporting infrastructure: highway vs rail vs air, O-D patterns Infrastructure privation Create ocean freight incentives to drive freight Provide better rail and highway access to the ports at Wilmington and Morehead City Infrastructure and alternative routes, 	<ul style="list-style-type: none"> Infrastructure – Highways, Rail, Ports, Aviation, Waterways, Water/Sewer, Intermodal Education & Training for Workforce Education for stakeholders Recognize national/international environment regulations Pursue adequate clean energy Incentives to target desirable business Create logistics control center Planned or controlled development Expansion/improvement of water supply Streamline Policy Making Land Use Planning Support: Innovation, Emerging Industries Encourage Cooperation Between All Levels of Government Develop Strategic Business Corridors Integrate BRAC/Military w/ Economy 	<ul style="list-style-type: none"> Infrastructure – Highways, Rail, Ports, Aviation, Intermodal Support modal facilities with intermodal connectivity Business Recruitment – Funding of and Support for Incentives Improve efficiency at ports, especially non-container vessels Develop rail lines to existing traffic hubs; continue projects like 840 loop to facilitate volume Ensure that NC is on the same level of competition Prevent delay of major infrastructure related projects(TIP) Pot of money for incentives Support new international port Better access to Mid-West I-74 opening Congestion on US-52 in W-S Yadkin River Bridge (exempt from equity formula, Toll financing?) Fuel price(higher NC fuel

<p>would help create/improve strategic areas or corridors. Ex: road development that could support ILM that could both support the Ports and vice versa</p> <ul style="list-style-type: none"> •Projects and systems need a “top-down” champion to be as successful as possible <ul style="list-style-type: none"> –Who are these “champions”? –How to we get their attention? –How do we make sure the “champions” have a global view? •Costa Rica Type thinking could really benefit logistics <ul style="list-style-type: none"> –There is no need to maintain the status quo, if NC has a vision of where it wants to go, it doesn’t necessary have to be the same aspects it is currently involved in •Balance is Key <ul style="list-style-type: none"> –How to balance 		<ul style="list-style-type: none"> • Play an active role in identification of <ol style="list-style-type: none"> a). Intermodal facilities from a state wide level b). seaport expansion priorities • Advocate for state and federal funding • Develop business and facilities clusters • Breakdown barriers for business success /taxes, healthcare costs • Corridor visioning planning • Support and plan for small business growth • Support communications growth • Improve rail access to WNC • Plan for roadway expansion for increased traffic ahead of need • Make the argument that strategic corridors 	<p>i.e. truck only routes</p> <ul style="list-style-type: none"> • Congestion pricing • I77/I485 as an alternate • GIS tools/R&D • Centralized operate as a hub • Improve marketing for the port at Wilmington • Create incentives for rail lines to expand service to high growth areas • Don’t focus to much on the improvements, but look at long term ways to provide more multimodal options 	<ul style="list-style-type: none"> • Integrate the Various Visions – DOC, DOT, Private Industry, local, regional, statewide, etc. • Make Funding More Flexible 	<p>tax)</p> <ul style="list-style-type: none"> • Incentives for business • More focus on larger East coast Logistics needs(I-95 congestion) • Greater emphasis on exports <ul style="list-style-type: none"> • Need port in Southport • East-West highway improvements Charlotte/Raleigh • Integrate the visions of other states • Encourage Cooperation Between All Levels of Government and Industry & Cooperation Between Regions and Cities • Triad as the center for logistics on East Coast • Education & Training for Workforce • Public education to obtain support for vision • Allow each region of the state to develop it owns niche • Toll freeways should allow triples or turnpike doubles • Freight movement data from local to statewide levels
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	<p>healthy living (tourism, medical, etc.) and production (industry, shipping, freight)?</p> <p>–How do we keep these competing interests from impacting each other?</p>		<p>have regional /national security/economic health implications not just local</p> <ul style="list-style-type: none">• Modes of transportation work together to reduce obstacles• Pay particular attention to rail – include passenger rail connectivity with eastern part of the state <p>Infrastructure development & maintenance</p> <ul style="list-style-type: none">• Rail service to Asheville• Inland port and seaport needs• Water & grey water needs to promote companies to move here• Identify shortcomings• Endorse strategic corridors and access corridors•• Financing – advocate state and federal funding			
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			<ul style="list-style-type: none"> • Support growth in communications (high speed internet) • Development of clusters • Resolve turf battles in Raleigh for transportation investment and planning • Incorporate visions across levels – local to state to regional to national to world 			
Exercise 1.2 – Competitive Differences	<p>Comparative Freight Strengths US vs. World</p> <ul style="list-style-type: none"> • US is biggest buyer for foreseeable future • Good trade with Latin America , Canada, Asia <p>Comparative Freight Strengths NC vs. Other States</p> <ul style="list-style-type: none"> • Handle larger ships • Become more multi-modal • Create dedicated taxes, availability funding 	<p>Strengths</p> <ul style="list-style-type: none"> • Lots of available workforce • University system has excellent programs in logistics and distribution • State owned road system • 2 NC ports are close to open sea • Potential for port expansion • Depth at Morehead Port • Interstate hub potential • Not overcrowded; room for growth <p>Weaknesses</p> <ul style="list-style-type: none"> • Planning between modes not existent • Lack of infrastructure connectivity (esp. rail & 	<p>Strengths</p> <ul style="list-style-type: none"> • Great location – w/in US, on Eastern seaboard, area’s quality of life • Hwy system, Rail, Connectivity • Recognized importance of expanded ports • I-26 corridor development • Rail connected to short rail • Support for trucking <p>Weaknesses</p> <ul style="list-style-type: none"> • Lack of statewide 	<p>Strengths</p> <ul style="list-style-type: none"> • Great location and quality of life with big city • Workforce supply • Good interstate system • Multi-port access • Freight from here: centralized mid-Atlantic to West Palm Beach or parts of NY, NJ next day; (good HWY hub) • Increased Population • Triad Logistics, Critical Mass <p>Weaknesses</p> <ul style="list-style-type: none"> • Poor marketing by 	<p>Strengths</p> <ul style="list-style-type: none"> • Geographic Location Provides Access to East Coast Population • Quality of Life • Workforce Supply and Skill • University and Community College System • Large State System of Roads • Infrastructure: Deep Ports, Highways - “The Good Roads State”, • Multimodal Transportation System • Extensive rail system • Available Land near freeways/rail for Development 	<p>Strengths</p> <ul style="list-style-type: none"> • Geographic Location • Quality of Life • Workforce Supply and Skill – Work Ethic – Good People • University and Community College System • Infrastructure: Highways (E-W, N-S), Ports • Flow is predictable b/c of climate and congestion • Proximity to multiple ports – redundancy, options • Logistics/Industry cluster • Incentives for business and industry • Triad Strengths – 4 interstates, airport, rail connections, has a working

	<ul style="list-style-type: none"> • Focus on higher level facilities • Increase linkages between facilities 	<p>hwy)</p> <ul style="list-style-type: none"> • Ports and links to them • Water availability • Nowhere near capacity • Most economic development professionals have little familiarity with port system • Increased port traffic will have to move all freight container through the city • Too much politics • GIS based visioning plans 	<p>planning and multi-state initiatives</p> <ul style="list-style-type: none"> • Need for stronger municipal leadership for transportation & logistics • Lack of funding future • Rail is near capacity • Lack of navigable rivers • transportation • Port utilization • Utilization of WNC for freight activities • Business incentives • Climate change sea level rise will affect infrastructure for rail ports highways 	<p>state</p> <ul style="list-style-type: none"> • Lacking (?) major tax incentives • Congestion in city • Global trans park is in the middle of no where • Charlotte is not seen as a strong distribution point. Eclipsed by Atlanta & East PA • Lack of infrastructure • Ports of Norfolk, Charleston, and Savannah are typically 1st choice over Wilmington 	<ul style="list-style-type: none"> • Funding Accessibility - Bond Climate and Rating • Insulated from national crisis due to diverse economies <p>Weaknesses</p> <ul style="list-style-type: none"> • Intermodal Infrastructure Accessibility and Investment • Limited access to ports from railway/highways • To geographically dispersed for efficient passenger air transport • Aging and inadequate sewer and water system • Regional Planning • Lack of Leadership • Poor Coordination and Planning Between Agencies • Lack of Sustainable Funding Sources • Worker Shortage in Transportation Service Sector (Drivers) • Workforce Transition from Manufacturing to Technology/Services • Utility Investment • Maintenance of Infrastructure • Rail Capacity • Mountains Create a Barrier to Western Markets 	<p>roundtable</p> <ul style="list-style-type: none"> • Proximity to multiple ports(redundancy, options) • Most central (N-S) location • Strong training platform via community college system • Extensive highway system to more rural areas of the state • Seaboard location(good) <p>Weaknesses</p> <ul style="list-style-type: none"> • Intermodal Infrastructure Accessibility and Interconnectivity • Maintenance of infrastructure • Fuel Tax • Incentives are not sustainable long-term • Cost of Operation and Insurance is Prohibitive for Trucking Companies • Environmental impacts are increasing • Design Standards might be too high from some projects • State equity formula • Port size and service • Population distribution (too widely spread) • Secondary level education needs improvement • Excessive time from
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						<p>project planning to operation</p> <ul style="list-style-type: none"> • NC not aggressively pro business • East/West vs North/South rail is weak(connections) • Legislature is moving to slowly to capitalize on strengths • US postal service doesn't let you know where packages are & doesn't guarantee deliver
Exercise 1.3 Markets	<p>What Markets to Encourage?</p> <ul style="list-style-type: none"> • Biotechnology • Distribution opportunities • Conversion from manufacturing to services • Education & research • Technology-based activities 	<p>Current</p> <ul style="list-style-type: none"> • Baby boomers should be looked at as an important industry • React to trend and plan for more growth • High tech incantation traditional industries • High end food markets • Medical devices • Non woven fibers • Drug research • Bio processing including bio maintenance • Furniture • Automotive <p>New Markets</p> <ul style="list-style-type: none"> • Clean/Green Industry to increase/maintain tourism • Capitalize on ex-military workforce • Biomedical • Energy development 	<p>Current</p> <ul style="list-style-type: none"> • Population services • Biotechnology • Tourism & hospitality • Green buildings • Bio fuel • Handmade crafts (cottage industry) • Advanced manufacturing • Retirement <p>New</p> <ul style="list-style-type: none"> • Export composite materials to emerging countries • Biofuel production • Export 	<p>Current</p> <ul style="list-style-type: none"> • High-tech & medical continue building this (add air freight routes to support) • Focus on goods distribution • Focus on increasing imports, by aggressively pursuing imports diverted from west coast • Support power companies by improving access to coal • Charlotte as a Distribution Center hub • Aerospace – bring more in <p>New</p>	<p>Current</p> <ul style="list-style-type: none"> • Population Services • Tourism/Leisure • Education/Research • Distribution of Goods Based • Advanced Manufacturing • Locavore Industries • Alternative Fuels and Energy Development • Infrastructure for Growing Industries • Agriculture • Military <p>New</p> <ul style="list-style-type: none"> • Nanotechnology • Wireless Industry • Aerospace • Homeland Security, Defense Consulting • Mixed Use Development 	<p>Current</p> <ul style="list-style-type: none"> • Tourism 1. Wineries – Create “The Wine Train” 2. Agro-tourism • Education/Research • Technology • Environment • Food • Exposure of Citizens to vision • China/Mexico/Canada • Fine Furniture • Just in Time Production • Medical Services • Advanced Manufacturing • Cost of Fuel will lure manufacturing back to NC • All Industries • No Targeting Industries – Stay Light on Feet <p>New</p> <ul style="list-style-type: none"> • Alternative Fuels • Emerging Market

		<ul style="list-style-type: none"> • Military applications • Non-woven fibers • High-end specialties • Clustering synergistic companies • Swine and pork waste (energy production) • Retirement community • Military applications i.e. blast resistant vehicles • Clusters of synergistic companies i.e. grape growers, barrel builders, bottle makers 	<p>biotech/biomed to emerging countries</p> <ul style="list-style-type: none"> • New immigrants start industries they excel at (Latin American, Russian, Ukrainian, ...) • Research capabilities • Education for fine art/furniture • Agriculture-tourism • Utilize intellectual capital in Asheville • Sustainable technology 	<ul style="list-style-type: none"> • Shift manufacturing workforce to automotive industry support & heavy equipment; locate along I-85 / I-77 (Mercedes? BMW? Others?) • Wilmington could create a market niche by partnering with emerging countries and railroads (Vietnam, Thailand, North Africa – Morocco, Nigeria) • Advanced manufacturing • Aerospace (Curtiss) • Wilmington partnering to cut lead times • Imports: Ports to destination, Hub operations(air, highway), R&D(tools, safety(not business markets)) 	<ul style="list-style-type: none"> • Mass Transit • Clean energy production(wind turbine, solar) • Bio fuel/CNG distribution centers • Tourism(theme parks, historic tours) • Sustainability 	<p>Economies(Brazil/Latin America/Europe)</p> <ul style="list-style-type: none"> • Clean renewable energies(biodiesel) • Utilities to Support Industry • Utilize FedEx Hub • Perishables • Distribution • Logistics Education • High Value, Low Weight Air Freight • Bring Sheetrock (US Gypsum) by bringing more power plants which will generate the construction industry
Exercise 2 Infrastructure	<p>Wish list for Ports – Glenn Carlson</p> <ul style="list-style-type: none"> • 42' depth channel (done by Erik) • Intermodal service • Securing 	<p>Multi-modal planning and needs</p> <ul style="list-style-type: none"> • Avoid “tunnel vision” for specific disciplines • Multi-modal components in strategic corridors • Include tourism in decision making 	<ul style="list-style-type: none"> • Interconnected logistics system / operations center using smart technology • Multi-modal connectivity 	<p>Overall</p> <ul style="list-style-type: none"> • Charlotte is prioritizing projects for security & mobility • Expand existing capacity & interconnectivity 	<p>Overall</p> <ul style="list-style-type: none"> • Expand existing capacity & interconnectivity • Early and better communication between transportation and land use planning 	<p>Overall</p> <ul style="list-style-type: none"> • Real time data is critical • Expand existing capacity & interconnectivity • Create infrastructure around free trade zone • Maintenance of existing

<p>shipper volume – like Savannah port getting distribution centers, 10 million sq ft of distribution</p> <ul style="list-style-type: none"> • Funding Mechanisms don't tie anything together. DOT, ports, air, everything is separated instead of a global tied together view • Projects and systems need a top-down champion to be really successful • Dedicated roads – maybe not feasible, maybe trucks only 8pm-8am and cars only 8am – 8pm and pay toll otherwise • Costa Rica Type Thinking – radical, we were doing a, b, and c. Now we might want to do something different (recurring 	<p>Highways</p> <ul style="list-style-type: none"> • Increase funding of SHC • Make system dependable (maintenance & congestion) • ITS for congestion • Bridge maintenance and reconstruction • Complete SHC prior to modifying trust fund legislation • Dedicated funding sources for I-95 corridor • Freight committee for BOT • Interstate quality highway grid in Eastern NC • Upgrade to a 4 lane highway system • Increase shoulder size of US 264 • Increase connectivity with ports and cities • Upgrade existing highway and designate interstate • Improve connection to distribution points • Integrated support of inland ports container areas and individual businesses • Find funding through tolls and other user fees • Examine value of global trans park • Truck specific rest areas with reservation systems • Use of probe vehicle data to identify congested areas 	<p>Highways</p> <ul style="list-style-type: none"> • Quick detection & clearance of incidents • Weigh in motion • Improve to accommodate 48' to 53' lengths • Improve pavement structures • Increase capacity of some links i.e. east/west • Remove or isolate freight movement from passenger vehicles • Switch to 30 year pavement structure (economical and less disruptive) • Create incentives for not using the highways • Corridor protection conversion to control of access facilities • Concept of truck ways; balance highways for tourism • I-26 is critical • Ports: build for 	<ul style="list-style-type: none"> • Charlotte is reducing turning radii for bikes & pedestrians, so trucks have difficulty on some facilities <p>Highway</p> <ul style="list-style-type: none"> • Strategic highway corridors planning out 50 years • Improve maintenance on freeways – esp. lighting • Add ITS capabilities • Increase fund flexibility, increase type & number of mechanisms • Truck lanes, increase safety once off freeways • Changes to support intrastate/interstate system as the high mobility system • Highway widening, expansion Critical, Impacts most of commerce • Legislation change to the highway trust fund (rules and allocation formula) • Additional 	<ul style="list-style-type: none"> • Improve energy efficiency • High speed distribution infrastructure • Need dedicated funding sources and flexibility • Real time data is critical • Remove government and territorial barriers between modes <p>Highway</p> <ul style="list-style-type: none"> • Add more ITS capabilities, dynamic message signs • Dedicated truck lanes • Passenger • More cost effective • Toll/Tax increase for repair/congestion • Fluid transition from highway to other modes or vice versa • Business incentives for clustering • Support rural corridor development • Prioritize investment around movement of freight • Better data collection techniques • Increase capacity • Reasonable tax increases or switch to VMT • Address congestion with an eye on future 	<p>facilities</p> <p>Highway</p> <ul style="list-style-type: none"> • Add more ITS capabilities, dynamic message signs • Movement of goods (interstate and intrastate) • Collection and distribution to other nodes • Real time signage • The worlds tightest logistics security system in NC • Multi-state EZ pass • TWIC(roll out) • Expanded WIM • Materials • Address cost of doing business in other states(fuel tax, licensing, and inspection fees) • Make local traffic data more available – Need more bandwidth • Increase load capacity on rural roads • New highway to Southport(international port) • Additional industrial only access interchanges • East-West interstate from Charlotte to Wilmington and to the Midwest (I-74) • Technology within the vehicle to assist drivers • Improve driver training and testing for safety
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	<p>theme), think outside the box</p> <ul style="list-style-type: none"> • Possible Southeast NC vision – A place where in 25 yrs our kids can stay here and get a job • Balance is very important, don't destroy what attracted us • Balance jobs, tourism, medical services, educations. It is possible to balance these. • Healthy living (healthcares, etc) vs Productive industry • How to keep these from competing? How do we not have them impact each other? Ex: trucks from ports impacting tourists going to beaches. • Balancing long-term visions with near term needs • Need to have vision like the 	<ul style="list-style-type: none"> • upgrade I-95 to 6 or 8 lane • US 70 to freeway or at least improve signals • Consider extension of I-79S from US 70 in Goldsboro to US 117 corridor to I-40 in Sampson County <p>Rail</p> <ul style="list-style-type: none"> • Plan for passenger rail with double tracks for freight and passenger • Restoring rails in strategic corridors • Unload ships directly to rail • Replace rail from Wallace to Castle • Maximize rail use to relieve highway congestion <p>Air</p> <ul style="list-style-type: none"> • Regionalization and upgrade to use for time sensitive and smaller high value freight • New technology for inspection of cargo • Access to air cargo terminals • One large eastern airport (Greenville, Jacksonville or New Bern) • Thoroughly and specifically investigate trans park <p>Port</p> <ul style="list-style-type: none"> • Increase volume of goods 	<p>cruise ship industry, support tourism</p> <ul style="list-style-type: none"> • Legislation <ol style="list-style-type: none"> 1. Agreements with state & private sector , multi-state 2. New funding: gas taxes, VMT-based 3. Recognize & prioritize strategic corridors <p>Rail</p> <ul style="list-style-type: none"> • Freight shipment from ports to distribution centers • People/tourism • Environmentally smart to help promote and maintain tourism • Signaling upgrades • More efficient freight movement • Ease highway congestion • Upgrade lines and invest heavily in new lines • Find ways to fund light rail to service local cities of WNC 	<p>mechanisms to allow for other types of toll roads (including truck only or HOV lanes)</p> <ul style="list-style-type: none"> • Funding for new construction • Provide better facilities for goods and service movement • Reduce bottlenecks and congestion through ideas such as truck-only lanes and bypasses • Congestion Pricing • Streamline 74 from Wilmington to enable more efficient travel from port to Charlotte <p>Rail</p> <ul style="list-style-type: none"> • CSX & N-S expanding rail here to support area's market. From: Atlanta, West Coast To: within 100 miles of Charlotte • Double-track between Charlotte & Raleigh or to port • Increase connectivity, have government work with railroads 	<p>growth</p> <ul style="list-style-type: none"> • Better access to maintain proper level of service • More bridges replacements to replace aging bridges • Increase connectivity from distribution • Grossly increase Truck Tax per mile to replace competitive disadvantage of rail vs truck and to compensate for damage due to heavy truck traffic. • Is equity the best use of scarce funding? <p>Rail</p> <ul style="list-style-type: none"> • Better corridor to ports(increase competition) • Look to public/private partnerships for short line funding • "Greener" alternative to trucks • Use rail to reduce intrastate truck traffic • Positive train controls could increase the useable capacity of rail lines • Clearance and curves for big trains(double stack) • Expand capacity • More high speed load/unload/transship infrastructures 	<p>Rail</p> <ul style="list-style-type: none"> • Increasing passenger service • Heavy loads • Fuel efficient • Secure • Ease congestion • Better corridor to ports • Balance passenger/freight transportation (dual rails are ideal) • Increase Rail yard efficiency • Faster Coast to Coast • Freight and PAX conflicts need to be reduced • Need to double track capacity • Rail service to major hubs to improve costs and offer on time service to final destination of freight • Newer switches • Need federal support <p>Air</p> <ul style="list-style-type: none"> • Promote regional airports • Movement of smaller goods to and from International market • Primary in Triad (FedEx) • Larger capacity(more runways) • Good recruitment industry(high pay scale, other airports at capacity) • Ineffective security(wastes time)
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	<p>director of Savannah Port by getting shipper to commit to that port and therefore bring the carriers to that port</p>	<ul style="list-style-type: none"> • Speedier cargo inspection • Increase capacity for unloading and loading • Cruise terminal at each port to increase tourism revenue • Container port at Morehead City port • New port at South Port • Create in land intermodal terminals at Pembroke, Wilson, and Asheville to complement Charlotte and Greensboro • Use GA, VA and SC as models <p>Multi-modal planning and needs</p> <ul style="list-style-type: none"> • Create a logistics operations center • All modes report to a single state executive 	<ul style="list-style-type: none"> • Develop incentives for funding/using rail • Quiet zones • Improved fuel efficiency • Alternative fuels <p>Air</p> <ul style="list-style-type: none"> • Business needs • Possibly tourism • Expand runway lengths • Expand “field instrument” facilities • Major mode of transportation • Security, cost, alternate fuels • Maintenance plan <p>Port</p> <ul style="list-style-type: none"> • Bulk freight • Source of transportation for freight can be developed for other industries like tourism – cruise ships • Port upgrades to accommodate big ships • Seek private funding • Decide on inland port 	<p>Air lift capacity</p> <ul style="list-style-type: none"> • <u>Big deal; big expansion planned at airport for Pacific Rim traffic (load/unload, transshipment, & mode change)</u> • <u>Additional Runways</u> <p>Ports/ Barges</p> <ul style="list-style-type: none"> • <u>Charleston is key one right now, \$100 more/box to dray in Savannah; Wilmington needs ships</u> • <u>Build roads/rail to/from NCIP now, not later</u> 	<ul style="list-style-type: none"> • Balance passenger/freight transportation (dual rails are ideal) • Utilize highway medians for rail corridors • Consider activating existing unused rail • Restore signalization to modern standards. <p>Air</p> <ul style="list-style-type: none"> • Promote regional airports • Improve GPS approach to all airports • Better connectivity • Resolve issues of airspace utilization conflicts with military use of air • Infrastructure connectivity is key • More capacity and expanded runways for Air Cargo at commercial service Airports (Charlotte/RDU) • Minimize Security for international freight with better detection technology • More Fed-Ex type facilities Statewide, especially for South Port • Perishables, JIT Inventory 	<p>Ports/ Barges</p> <ul style="list-style-type: none"> • Technology is important for efficiency • Increase capacity • Intermodal connectivity • Open ports to more industries(importing and exporting)
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					<p>Ports/ Barges</p> <ul style="list-style-type: none">• Technology is important for efficiency• Increasingly important• Encourage barges use when possible to lower costs• Find efficient transport out of Morehead Port• Increase connectivity• Public Private Partnerships should be explored• Minimize Security for International freight with better detection technology• Additional bulk terminals• Additional container facilities• Consider legislation to support how revenue generated through South Port can help build other freight related infrastructure• Improve intercostal waterways• Tax incentives for off hour deliveries• Reservations for trucks at port• Allow NC to be more complete by providing lower transportation costs to and from a port with efficient highway/rail systems	
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					<ul style="list-style-type: none"> Asses future ship size vs port capacity 	
Exercise 3.1		<ul style="list-style-type: none"> Education of the public is important Look at existing studies from Universities across the state (ex: Stone's freight projects) Inform public officials about the study and logistics – understand impact, tradeoffs, costs, fuel consumption, emissions DOT and DOC Economic Growth Development need to meet regularly, coordination is important Sharing ideas across agencies to spark discussion 	<ul style="list-style-type: none"> Clarification that retirement age population should be looked at as an important industry 	<ul style="list-style-type: none"> Sustainability as a criteria for development considerations Multi-state/Regional cooperation to marketing and infrastructure development Improvement intrastate cooperation and coordination – DOT and DOC Tourism in the Charlotte region (attractions, cruises?) Intermodal terminal at CLT Performance measure, how do we measure our key performance for freight mobility 	N/a	N/a
Exercise 3.2	<p>Bold Moves:</p> <ul style="list-style-type: none"> Ports could partner with CSX or NS to build E/W corridor Infrastructure to make international port successful 	<ul style="list-style-type: none"> Coordination of leadership and agencies. Get Secretary of Commerce and Transportation together or create one Secretary of Infrastructure to oversee all the funding decision making. Re-think the incentive 	<ul style="list-style-type: none"> Consistent regional vision (beyond state, county boundaries). Align visions. Re-Design Cities and Towns to reduce our need for automobiles. 	<ul style="list-style-type: none"> Get key players to the table, get private sector in touch with the public sector for planning. Improve coordination between agencies and industry. Create a master plan that everyone 	<ul style="list-style-type: none"> DOT will implement statewide multi-modal plan Explore flexible funding options at national, state, and local levels to support capacity and maintenance Redefine NCDOT divisions to support 	<ul style="list-style-type: none"> Build International Port now Infrastructure funding <ol style="list-style-type: none"> New Revenue Sources – toll roads, PPP Streamline/consolidating government processes in an attempt to be business friendly

	<ul style="list-style-type: none"> Created dedicated funding source for NC Ports to make them self-sufficient Information systems to support container shipping Fund the vision and allow the “NC Infrastructure Authority” to make the actual project funding decisions Gas tax replaced by VMT tax County roads could be the responsibility of counties 	<p>game: invest in people and infrastructure instead. Decrease the tax incentives and increase what the companies need. Where does the CEO want to live?</p> <ul style="list-style-type: none"> Creation of high level interdepartmental coordination and vision. Run this initiative like a business – mindset and funding. NC Logistics Operation Center, Global Logistics Network. Multi-modal transportation planning. Freight Transport Advisory Committee could be a subcommittee. Look at best practices across US to make comparisons Look at rail line in San Diego that is single track that efficiently runs freight and passenger trains 	<p>More like pre-WWII development. Encourages physical activity, air quality, save money, reduce impact on climate change, reduce geo-political ties to oil rich nations.</p> <ul style="list-style-type: none"> Coordinated short and long term vision and funding streams. Dedicated funding is critical to make the vision possible. Particularly long-range projects and the goal towards sustainable funding mechanism. Recognizing global interconnectivity and cost of moving products. 	<p>can support and get behind, get everyone on the same page.</p> <ul style="list-style-type: none"> Attracting new industry, use University and community college system to market to new industry. Universities can be used as change agents. Sustainability. Highways and rail have had a problem of proving long-term sustainability. Articulate and use tactical, strategic planning. Minimum length of RR haul, trucking industry is increasing size and weights in rural areas to increase productivity. Statewide public and private leadership on this issue. We need to present to them the importance of this issue. Implement the recommendations of strategic visioning. We need advocates for freight. 	<p>regionalism, the state has changed a lot since the original divisions were defined</p> <ul style="list-style-type: none"> Take politics out of decision making Encourage private investments Connectivity between cities and modes Need interstate, international focus. Sensitivity to regional and local offering (think resource mapping) Maintain Existing Infrastructure Reassess/reassign boundaries among resources so they (DOT, DOC, etc.) Align them with markets. Remove boundaries – develop political will Funding flexibility Real-time data (congestion, incident information would greatly benefit the trucking industry, among other modes and users) Corridor planning Funding Support small and large industries Customer focus 	<ul style="list-style-type: none"> Marketing our state’s strengths - Identify the advantages of the port available and market them Identify and improve infrastructure to support ports Define advantages of FTZs then implement Aggressively seek global industry. Search for niche markets. Meeting and information sharing <ol style="list-style-type: none"> Gain government and regional support, industry Define needs, take action More money for infrastructure, need accountability, better and smarter decision making Education - secondary level Market the set of ideas to the public, give them an understanding of logistics
Exercise 3.3		<ul style="list-style-type: none"> Legislation for sustainable logistics 	<ul style="list-style-type: none"> Funding mechanism and 	<ul style="list-style-type: none"> Board of Transportation needs 	<ul style="list-style-type: none"> Mandate that transportation revenue 	<ul style="list-style-type: none"> Leadership – Attitudes flow down, not up.

		<p>funding</p> <ul style="list-style-type: none"> • Instruments for allowing private or foreign investment, public private partnership • Review and understand, potentially revise regulatory and political barriers (e.g. Interstate facility through Wilmington to port) • Relaxing planning horizon to beyond the standard 20-25 year horizon to allow for multi-modal needs, particularly in strategic corridors 	<p>flexibility</p> <ul style="list-style-type: none"> • Talk to feds, we no longer want to be a donor state • Ask US Congress to support regional interconnectivity and get regional leadership • Dedicated funding for infrastructure. Stop taking money from trust fund to general fund • Climate change that could cause rising sea levels to overtake infrastructure at the coast 	<p>a freight advisory committee.</p> <ul style="list-style-type: none"> • Define “success,” measure how successful we are and how to become more. Value-added by NC network? How do we fit into the supply chain? • Identify market position that NC has and utilize that. “Me too” – Johnny has a big wagon so we want a bigger one. Or develop a separate market strategy that is cost effective and can reach market frontier. Unified vs Segmented – which one for markets, regions, modes? How to fit those together? • List all current facilities – see how to synergize these to max logistics needs; piggyback on existing facilities to fully synergize for least cost and most benefit. 	<p>must be spent on transportation projects</p> <ul style="list-style-type: none"> • Allow for the tolls of existing roads to help pay for the maintenance and improvement of those segments • Find money. Cut costs or raise more revenue (taxes) • Adjust equity formula to be based on per capita instead of just geography • Appointments should be of qualified people with a solid resume • Redefine DOT: Board, structure, think outside the box. It’s not keeping with the time. Maybe even privatize like SC did with Fluor-Daniels • Too many workforce development zones, economic development and types of regions • Make the legislature come up with their priority list • Quick legislation to support freight would prove that NC is serious about freight and goods movement • State DOTs should be broken in 2: One part for Freight and one for passenger travel • Support federal 	<p>Someone is needed to take action. We need someone charismatic to take this idea on. An enduring body to keep these ideas in front of the public is important.</p> <ol style="list-style-type: none"> 1. North Carolina Chamber should be contacted about this issue. They are a powerful lobbying group. 2. Ownership and responsibility is important 3. Who is responsible to keep the trucks rolling <ul style="list-style-type: none"> • External marketing to attract companies. Internal marketing to explain to NC why logistics is important. A dual side marketing campaign. • Capitalize on other ports reaching capacity. We need to make sure our ports are ready when the demand increases, including intermodal connection. • Legislature needs to act on recommendations by commissions, not just have more commissions. Stop having studies, start acting and making decisions. • The bureaucracy is biased toward inaction, it’s a better decision to not act then to make the wrong decision. • Need better data on
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					legislation for multi-modal needs and infrastructure <ul style="list-style-type: none"> • Establish an intermodal commission in the legislature • Create an intermodal center for help with executing logistics • Bureaucracy streamlining (environmental reviews are too long) • Improve education and access to education. Gear education to meet industry needs 	freight movement. Data driven decisions making is important. <ol style="list-style-type: none"> 1. Local levels are missing. Volumes and tonnage are helpful. Good data leads to good decisions.
Exercise 3.4		<ul style="list-style-type: none"> • This is critical – We must act now before we fall too far behind GA and VA and lose the opportunity. It’s not getting any cheaper anyway. • Promote and fund critical statewide logistics projects and economic development projects 	<ul style="list-style-type: none"> • Commerce goals needs to match more with Transportation, communication is key • Education is important for our children: legislation, city planning, region visioning. They will be inheriting this. Citizens in general need to be more involved in decision-making and planning. It’s the citizen’s DOT, how do we get their involvement, they are the 	<ul style="list-style-type: none"> • ?No Data? 	<ul style="list-style-type: none"> • Educate the public about logistics (definition, activities, etc.) and inter-modal • Public awareness about the economic benefit of logistics • NCDOT staff training and education to prepare for logistics planning • Department of Commerce should take a major role in logistics • Make the governor more responsible and powerful in order to make the important decisions • Improve and align institutional • Look at other states 	

			<p>stakeholders</p> <ul style="list-style-type: none"> • Local option funding • Sales tax is really a great tax for transportation, because as a consumer economy, the goods had to there on our transportation system. Look at the sales tax for a reasonable tax. Locabor – someone who consumes locally produced goods (particularly food items) • Tolls could be a good way to raise the revenue to get projects completed 		<p>logistics activity</p> <ul style="list-style-type: none"> • Take the interstate approach; decisions don't end at the state lines. Work with border state to be successful • Analytical models can help decision makers (such as the truck freight movement study by NCSU) – create new ones or use old ones • Just in time delivery that can be developed and supported. Best possible connections between modes and areas using real-time information. Redundancy and value-added network can give alternatives to various travel routes. Leveraging existing technology. • Security can drive a new transportation model. Has to be considered. • Passenger travel should be considered. If it is reduced by 10%, how much would that affect the system, logistics, congestion, etc. 	
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Visioning Session Attendance List

Focus Area	Person	Title	Company/Agency	Session
Public - State Agency	J. J. Swain, Jr., PE	Division 13 Engineer	NCDOT	Asheville
Public - State Agency	Joel Setzer, PE	Division 14 Engineer	NCDOT	Asheville
Public - Regional Agency	Virginia Faust	Senior Planner	Western Regional Office	Asheville
Public - City Agency	Terry M. Bellamy	Mayor	City of Asheville	Asheville
Public - City Agency	John Mitchell		Chamber of Commerce	Asheville
Public - City Agency	Laura Copeland		Chamber of Commerce	Asheville
Public - Regional Agency	Dale Carroll	President & CEO	AdvantageWest ED Group	Asheville
Public - University	Dick Mauney		A-B Tech	Asheville
Public - University	Alan Thornburg		WCU	Asheville
Public - City Agency	Judy Ray		Tyco/Chamber of Commerce	Asheville
Private - Logistics	Mark Miralia		Distribution Technology Inc	Charlotte
Public - City Agency	Timothy Gibbs		City of Charlotte	Charlotte
Private - Logistics	Mark A. Andrews	Vice President of Sales & Business Development	Bonded Logistics Inc	Charlotte
Public - University	Srinivas Pulugurtha		UNCC	Charlotte
Public - State Agency	Terry Arellano		NCDOT	Charlotte
Public - State Agency	David J. Fencil		NC Department of Commerce	Greensboro
Private - Company	Tom Beard		E N Beard Hardwood Lumber, Inc	Greensboro
Private - Company	Michael W. O'Brien	Transportation Manager	Sears Holding Corp	Greensboro
Public - City Agency	David Hyder		City of High Point	Greensboro
Public - City Agency	Adam Fischer	Engineering Manager	City of Greensboro	Greensboro
Public - Regional Agency	Dave Hauser	Director, Logistics & Distribution Cluster	Piedmont Triad Partnership	Greensboro
Private - Shipper	David Sain	Manager	Coastal Transport Inc	Greensboro
Private - Shipper	LB Clayton	Midsouth Region VP	Old Dominion Freight Line	Greensboro
Private - Company	Rick Dehnert	Director of Leasing Greensboro	Highwoods Properties	Greensboro
Private - Company	Thomas W. Townes	Managing Partner	Triad Commercial Properties, Inc.	Greensboro
Private - Company	Ron Morrison		Deere-Hitachi Construction Machinery Corporation	Greensboro
Private - Company	Bob Froyzell		Dell	Greensboro
Public - City Agency	Fred Haith		City of Winston Salem	Greensboro
Public - City Agency	Stephanie Coplin		Greensboro Economic Development Alliance	Greensboro

				(GEDS)	
Public -	State Agency	Neil Lassiter, Jr., PE	Division 2 Engineer	NCDOT	Greenville
Public -	State Agency	Elena Talanker		NCDOT	Greenville
Public -	Regional Agency	Earl Brinkley		North Carolina's Eastern Region	Greenville
Public -	State Agency	Ricky E. Greene, Jr., PE	Division 4 Engineer	NCDOT	Greenville
Public -	County Agency	Wanda Yuhas	Executive Director	Pitt County Development Commission	Greenville
Public -	City Agency	Bryant Kittrell		City of Greenville	Greenville
Public -	Regional Agency	Joe Milazzo	Executive Director	Regional Transportation Alliance	Raleigh
Public -	State Agency	Shirley Williams		NCDOT	Raleigh
Public -	City Agency	Carl Dawson	Public Works Director	City of Raleigh	Raleigh
Public -	State Agency	Donald J Voelker		NCDOT	Raleigh
Private -	Company	Jeff Moore		Glenoit LLC / Ex-Cell Home Fashions, Inc	Raleigh
Public -	State Agency	Miriam Perry	Public Transportation Division Director	NCDOT	Raleigh
Private -	Logistics	Matt Nolan		Longistics Transportation Inc	Raleigh
Private -	Shipper	Howell Barr	Manager	Con-Way Freight-Southern	Raleigh
Public -	State Agency	John Gessaman	President	Carolinas Gateway Partnership	Raleigh
Public -	Federal Agency	Bruce Lambert		ITTS	Raleigh
Public -	State Agency	Scott Walston, PE	Triangle Planning Group Supervisor	NCDOT	Raleigh
Public -	State Agency	Marie Sutton		NCDOT	Raleigh
Public -	Regional Agency	Steve Wilkins		BRAC RTF	Raleigh
Public -	State Agency	Alpesh Patel		NCDOT	Raleigh
Public -	Regional Agency	Sandy Korschun	President	Korschun, Inc/Eastern NC Railroad Alliance	Raleigh
Public -	State Agency	Rick Barks		NCDOT - Division of Aviation	Raleigh
Public -	Regional Agency	Dave Quick		Quick's Incorporated/Eastern NC Railroad Alliance	Raleigh
Public -	State Agency	Stephanie Ayers		North Carolina State Port Auth	Wilmington
Public -	Airport	Jon W. Rosborough	Director	Wilmington International Airport	Wilmington
Public -	Federal Agency	Loretta Barren		FHWA	Wilmington
Public -	State Agency	H. Allen Pope, PE	Division 3 Engineer	NCDOT	Wilmington
Public -	State Agency	Terry R Gibson, PE	Division 6 Engineer	NCDOT	Wilmington
Public -	State Agency	Vagn Hansen	Chief Planner	Southeastern Regional Office	Wilmington

Public - University	Edward S. Topor	Executive in Residence	UNCW - Cameron School of Business	Wilmington
Public - State Agency	Glenn Carlson		NC Ports - Speaker	Wilmington
Private - Company	Bob West		Global Insights - Speaker	Wilmington

Visioning Session Invitation List

The following invitation list consists of the original invitation outreach that was conducted by the research team, but might not be complete due to secondary outreach by other team members, local and state agency partners, or other contacts.

Person	Title	Company/Agency	Session
J. J. Swain, Jr., PE	Division 13 Engineer	NCDOT	Asheville
Joel Setzer, PE	Division 14 Engineer	NCDOT	Asheville
Virginia Faust	Senior Planner	Western Regional Office	Asheville
Terry M. Bellamy	Mayor	City of Asheville	Asheville
Yuri Koslen	Transportation Planner	UNCA	Asheville
John Franklin		Volvo Logistics of the Americas	Asheville
John Mitchell		Chamber of Commerce	Asheville
Laura Copeland		Chamber of Commerce	Asheville
Richard J. Lutovsky	President & CEO	Chamber of Commerce	Asheville
Michael A. Pettyjohn, PE	Division 11 Engineer	NCDOT	Asheville
Andy Brown	President	Wolfpen Associates Inc	Asheville
David N. Edwards, JR.	Director	Asheville Regional Airport	Asheville
Sam Young	President	Young & McQueen Grading Co Inc	Asheville
Anne H Bernhardt	President	Bernhardt Furniture Company Inc	Asheville
Richard Lozyniak	President	Blue Ridge Paper Products Inc	Asheville
Mark Combs	Public Works Director	City of Asheville	Asheville
Cathy Ball, PE	Transportation Director	City of Asheville	Asheville
Jon Creighton	Planning and Development Department	Buncombe County	Asheville
Sarah Smith, PE	Mountain Planning Group Supervisor	NCDOT	Asheville
Dale Carroll	President & CEO	AdvantageWest ED Group	Asheville
John Snow, Jr.	Senator	NC Senate	Asheville
Mitch Gillespie	Representative	NC House	Asheville
Jeff Konz	Chair	UNCA - Economics Department	Asheville
David Todd	Director	UNCA - Facilities Management	Asheville
Roger Lirely	Chair	WCU - Department of Accounting, Finance and Economics	Asheville
J Michael Mabry Jr	Executive Vice President	Lowe's Companies, Inc	Asheville
Raymond Barclay	Associate Vice Chancellor	WCU - Office of Institutional Research & Planning	Asheville
Dr. Randy Edwards	Dean	ASU - Walker College of Business	Asheville
Allan Harper	President	Scenic Railroads of America	Asheville
Enzo De Filippis	President	Sun Logistics Group Inc	Asheville
Dale F Elliott	Chairman Of The Board	Sioux Tools	Asheville

Dom Marchiando	Manager	Henredon Furniture	Asheville
Jeffrey L Cook	President	Broyhill Furniture	Asheville
Mike Balbwain	Manager	Wal-Mart Distribution Center	Asheville
Harley F Shuford Jr	Chairman Of The Board	CV Industries, Inc	Asheville
Parks C Underdown Jr	Chairman Of The Board	Hickory Springs	Asheville
Edward A Arditti Sr	Chairman Of The Board	Regency House	Asheville
Nancy Few	Manager	Robert Abbey, Inc	Asheville
	Chief Executive Officer	Alba Waldesian	Asheville
	Chief Executive Officer	Drexel Heritage	Asheville
	Chief Executive Officer	Lowe's Home Improvement LLC	Asheville
Rock Miralia	Chairman of the Board	Distribution Technology Inc	Charlotte
Mark Miralia		Distribution Technology Inc	Charlotte
Darren Rhodes	Chief Planner	Piedmont Regional Office	Charlotte
Mark A. Andrews	Vice President of Sales & Business Development	Bonded Logistics Inc	Charlotte
William Scurry	President	Scurry Construction Inc	Charlotte
Mike Holder, PE	Division 12 Engineer	NCDOT	Charlotte
Barry Moose, PE	Division 10 Engineer	NCDOT	Charlotte
Ronald Horton Sr	President	Hepaco Inc	Charlotte
Patrick McCrory	Mayor	City of Charlotte	Charlotte
Ronnie Bryant	President & CEO	Charlotte Regional Partnership	Charlotte
David W. Hoyle	Senator	NC Senate	Charlotte
Lorene Coates	Representative	NC House	Charlotte
Drew Saunders	Representative	NC House	Charlotte
Terry Rankin	Manager	Con-Way Freight Inc	Charlotte
Henry Faison	Chairman of the Board	Faison & Associates LLC	Charlotte
Chris Hancock	Operations Manager	Old Dominion Freight Line Inc	Charlotte
Steve Deelinger	Manager	Woodgrain Millworks	Charlotte
Steven Johnston	Director	Fedex Ground Package System	Charlotte
Glenn Barr	Operations Manager	Estes Express Lines Inc	Charlotte
James Carr Jr	Chief Executive Officer	Bonded Logistics Inc	Charlotte
Greg Skoog	President	Lance Transport Inc	Charlotte
Randy Berry	President	Teeberry Logistics LLC	Charlotte
Forest Gaines	Chief Executive Officer	Gaines Motor Lines Inc	Charlotte
Deborah Hawn	Member	Zenith Freight Lines LLC	Charlotte
Racheal Hordon	Accounts Manager	O T S Astracon LLC	Charlotte
John Pope	President	Cargo Transporters Inc	Charlotte
Frederick Klein	President	Childress-Klein Properties	Charlotte
Charles Raymond	President	Horizon Lines Inc	Charlotte
Bob Morgan	President	Charlotte Chamber of Commerce	Charlotte
Roger Crossfield	President	Goulston Technologies, Inc	Charlotte
Scott Broermann	Manager	Alcan Composites Usa, Inc	Charlotte

Jerry Orr	Executive Director	Charlotte Douglas Airport	Charlotte
Danny C. Pleasant	Interim Director of Charlotte DOT	City of Charlotte	Charlotte
Curt Walton	City Manager	City of Charlotte	Charlotte
Michael Orr, AICP	Metrolina Planning Group Supervisor	NCDOT	Charlotte
Daniel G. Clodfelter	Senator	NC Senate	Charlotte
Fletcher L. Hartsell, Jr.	Senator	NC Senate	Charlotte
Becky Carney	Representative	NC House	Charlotte
Steven Ott	Interim Dean	UNCC - Belk College of Business	Charlotte
Philip M. Jones, P.E.	Associate Vice Chancellor for Facilities	UNCC - Facilities	Charlotte
Andy Sipe	Human Resource Manager	AAA Cooper Transportation	Charlotte
J Michael Mabry Jr	Executive Vice President	Lowe's Companies, Inc	Charlotte
Tony Bolte	Branch Manager	Dillard's Inc	Charlotte
Jason Knight	Manager	Knight Transportation Inc	Charlotte
Rod Prevatt	Terminal Manager	Saia Motor Freight Line Inc	Charlotte
Jim Deynes	General Manager	UPS Ground Freight Inc	Charlotte
Mark Russell	Information Technology Manager	DSC Logistics Inc	Charlotte
John Kiser Jr	Operations Manager	Baxter-Harriss Co Inc	Charlotte
Anthony Scioscia	President	APM Terminals North America	Charlotte
Mike Poston	Regional Manager	USF Holland Inc	Charlotte
Daren Lawson	Manager	Iron Mountain Information Mgt	Charlotte
Terry Luper	Manager	TJX Co's Inc	Charlotte
James Wieland	Manager	General Motors Corp	Charlotte
Daniel Tybursky	President	Wachovia Financial Services	Charlotte
Howard Levine	President	Lowe's Inc	Charlotte
Joseph Richardson	Chief Executive Officer	Clayson Knitting Co Inc	Charlotte
Terry Young	Branch Manager	Hanesbrands Inc	Charlotte
Steven Ford	Manager	Greenwood Motor Lines Inc	Charlotte
Anissa Nixon	General Manager	Maidenform Inc	Charlotte
Joseph A Rutkowski	Executive Vice President	Nucor Corporation	Charlotte
M Benfield Phillips	Chief Executive Officer	The Contractor Yard Inc	Charlotte
Michael Duda	Human Resource Manager	Fedex National Ltl Inc	Charlotte
Rob Wayson	Manager	FedEx Freight East Inc	Charlotte
Larry Mason	Manager	Averitt Express Inc	Charlotte
Art Fields	President	Crescent Resources LLC	Charlotte
Brian Long	Manager	Estes Express Lines Inc	Charlotte
Cathy Curtin	President	Curtin Trucking & Drainage Inc	Charlotte
R Miralia	Chairman of the Board	Distribution Technology Inc	Charlotte
David Royster Jr	President	Capitol Funds Inc	Charlotte

Carl Anderson Sr	Chairman of the Board	Anderson Truck Line Inc	Charlotte
Edward Long Jr	Member	Shulls Group LLC	Charlotte
Howard Lisk Jr	President	Lisk Trucking Inc	Charlotte
William Adkins	President	Adkins Land Group Inc	Charlotte
Douglas Trexler	President	Trexler Trucking Inc	Charlotte
Eugene Isenhour Jr	President	Ceitransportation Inc	Charlotte
Ronald Elliott	President	Piedmont Express Inc	Charlotte
Erskine Smith	Manager	Mooreville Community Dev	Charlotte
W Kerns Jr	President	Kerns Trucking Inc	Charlotte
Don Beaver	Chief Executive Officer	Rock Barn Properties Inc	Charlotte
Andrew De Hart	President	Foothills Trucking Co Inc	Charlotte
Nick Santella	President	Distribution & Marking Svcs	Charlotte
Larry Hendricks	President	Classic Moving & Storage Inc	Charlotte
James Swing	Chairman of the Board	Swing Transport Inc	Charlotte
Allen Bowman	President	Sunbelt Transportation Inc	Charlotte
David Brenner	President	Caldwell Freight Lines Inc	Charlotte
Robert Clarke	President	Four Truckers Inc	Charlotte
Michael Frost	President	Cleveland Capital Holdings Inc	Charlotte
Brian Hay	President	Shaw Energy Delivery Services	Charlotte
Marvin Chambers	President	Chambers Express Trucking Inc	Charlotte
Jeff Reymanning	Manager	BIC Corp	Charlotte
Stuart Uselton	Executive Vice President	Cato Corporation	Charlotte
John Petza	Manager	The Black & Decker Corporation	Charlotte
Curt Hoppestad	President	John Deere Consumer Products, Inc	Charlotte
David Painter	Manager	Stein Fibers Ltd	Charlotte
Randal Queen	President	Verbatim Corporation	Charlotte
Danny E Plemmons	President	Consolidated Textile Services Inc	Charlotte
Hilda Bolin	Principal	Stanley Home Products	Charlotte
Kenneth Parker	President	Magla Products	Charlotte
Mike Resler	Manager	Pass & Seymour Inc	Charlotte
	Chief Executive Officer	Comer Industries Inc	Charlotte
	Chief Executive Officer	Arvin Meritor, Inc	Charlotte
	Chief Executive Officer	JC Penny Logistics	Charlotte
	Chief Executive Officer	Lowe's Distribution Center	Charlotte
	Chief Executive Officer	Kewaunee Scientific Corporation	Charlotte
	Chief Executive Officer	The Valspar Corporation	Charlotte
	Chief Executive Officer	Sara Lee Intimate Apparel	Charlotte
	Chief Executive Officer	APA Marketing	Charlotte
	Chief Executive Officer	H. T. Hackney Co	Charlotte
	Chief Executive Officer	Family Dollar Stores	Charlotte
	Chief Executive Officer	RSI Home Products Inc	Charlotte

	Chief Executive Officer	Sara Lee Intimate Apparel	Charlotte
	Chief Executive Officer	DSC Logistics/Phillip Morris	Charlotte
	Chief Executive Officer	Ellis Hosiery	Charlotte
	Chief Executive Officer	Universal Manufacturing & Logistics	Charlotte
	Chief Executive Officer	L & P Distribution Center	Charlotte
	Chief Executive Officer	Boyles Furniture	Charlotte
	Chief Executive Officer	Shoe Show Companies	Charlotte
	Chief Executive Officer	Collezoine Europa, US Inc.	Charlotte
	Chief Executive Officer	TJ Maxx	Charlotte
	Chief Executive Officer	Distribution Technology	Charlotte
	Chief Executive Officer	Sam's Distribution Center	Charlotte
	Chief Executive Officer	Atlantic Envelope	Charlotte
	Chief Executive Officer	Tryon Distributing Co	Charlotte
	Chief Executive Officer	Husqvarna	Charlotte
	Chief Executive Officer	Minka Lighting	Charlotte
	Chief Executive Officer	Lucent Technologies	Charlotte
	Chief Executive Officer	Spencer Gifts	Charlotte
	Chief Executive Officer	General Motors Service Parts	Charlotte
	Chief Executive Officer	Converse Inc	Charlotte
	Chief Executive Officer	United Stationers Supply Co	Charlotte
	Chief Executive Officer	John Deere Consumer Prod.	Charlotte
	Chief Executive Officer	DMSI	Charlotte
	Chief Executive Officer	Rooms to Go	Charlotte
	Chief Executive Officer	Eckerd Drugs	Charlotte
	Chief Executive Officer	Logisco/Baxter-Harriss Co	Charlotte
	Chief Executive Officer	D M Bowman Inc	Charlotte
Dave Riley		Salem Logistics	Greensboro
David J. Fencl		NC Department of Commerce	Greensboro
Tom Beard		E N Beard Hardwood Lumber, Inc	Greensboro
Michael W. O'Brien	Transportation Manager	Sears Holding Corp	Greensboro
David Hyder		City of High Point	Greensboro
Jim Westmoreland	Transportation Director	City of Greensboro	Greensboro
Adam Fischer	Engineering Manager	City of Greensboro	Greensboro
Mark E. Kirstner	Transportation Director	Guilford County	Greensboro
Maximilian A. Merrill	Environmental Programs Specialist	North Carolina Dept of Agriculture & Consumer Services	Greensboro
		Piedmont Regional Office	Greensboro
Dave Hauser	Director, Logistics & Distribution Cluster	Piedmont Triad Partnership	Greensboro
David Sain	Manager	Coastal Transport Inc	Greensboro
David Congdon	President & COO	Old Dominion Freight Line	Greensboro
Mike Mills, PE	Division 7 Engineer	NCDOT	Greensboro

LB Clayton	Midsouth Region VP	Old Dominion Freight Line	Greensboro
David Paine		CT Transportation	Greensboro
Robert Cummings	President	Southland Transportation Co	Greensboro
Brent McKinney	Executive Director	PART	Greensboro
Buddy Seymour	President	Windsor Commercial	Greensboro
Yvonne J. Johnson	Mayor	City of Greensboro	Greensboro
Allen Joines	Mayor	City of Winston-Salem	Greensboro
Darren Rhodes	Chief Planner	Piedmont Regional Office	Greensboro
Donald A. Kirkman	President & CEO	Piedmont Triad Partnership	Greensboro
Phil Berger	Senator	NC Senate	Greensboro
Cary D. Allred	Representative	NC House	Greensboro
Jorge Quintal	Associate Vice Chancellor	WSSU - Facilities	Greensboro
Stuart Allen	Department Head	UNCG - Department of Economics	Greensboro
Arthur L. Samet, CCIM	President	Samet Corporation	Greensboro
Susan Ivey	President & Chief Executive Officer	R J Reynolds Tobacco Holdings Inc	Greensboro
Darren Green	Plant Manager	Pactiv Corp	Greensboro
Lisa Norris	Branch Manager	Federal Express Corp	Greensboro
Steve Cobb	General Manager	Waste Management of Carolinas	Greensboro
Susan Alt	President	Volvo Logistics North America	Greensboro
Williar Bondurant Jr	President	J L Rothrock Inc	Greensboro
Truman Doggett	Chief Executive Officer	Doggett Construction Co Inc	Greensboro
Robert Mazurek	President	Carolina Southern Inc	Greensboro
Paige Smith	President	Cooke Trucking Co Inc	Greensboro
Ted Davis	General Manager	Carolina By-Products Co	Greensboro
John Beard	President	E N Beard Hardwood Lumber, Inc	Greensboro
George Jones	President	Carolina Fibre Corporation	Greensboro
Jim Leonard	President	J E Jones Lumber Co	Greensboro
Edward A. Johnson	Executive Director	Piedmont Triad Airport	Greensboro
Rebecca R. Smothers	Mayor	City of High Point	Greensboro
Rudy Wright	Mayor	City of Hickory	Greensboro
Wayne Courtney Davis, Ph.D, PE	Triad Planning Group Supervisor	NCDOT	Greensboro
Pat Ivey, PE	Division 9 Engineer	NCDOT	Greensboro
Nelson Cole	Representative	NC House	Greensboro
J Michael Mabry Jr	Executive Vice President	Lowe's Companies, Inc	Greensboro
Earl Jones	Representative	NC House	Greensboro
Dan Lynch	President	Greensboro Economic Development Alliance	Greensboro
Jessica Bailey	Dean	WSSU - School of Business and Economics	Greensboro
Quiester Craig	Dean	NC A&T - School of Business and Economics	Greensboro

Robert Pompey	Vice Chancellor	NC A&T - Facilities	Greensboro
Tony Schallert	Assistant Vice Chancellor for Facilities	UNCG - Facilities Operations	Greensboro
Helen Cauthen	Vice President, Cluster Development	Greensboro Economic Development Alliance	Greensboro
Rick Dehnert	Director of Leasing Greensboro	Highwoods Properties	Greensboro
Thomas W. Townes	Managing Partner	Triad Commercial Properties, Inc.	Greensboro
Richard Beard		Simpson Schuman & Beard LLC	Greensboro
Jason Bodford	Vice President	Lowe's Inc	Greensboro
Marty Coleman	Service Center Manager	Southeastern Freight Lines	Greensboro
Chris Colley	Office Manager	Southeastern Freight Lines Inc	Greensboro
Rich Lugo	Vice President Operations	Carson-Dellosa	Greensboro
Randy Bray	Logistics Manager	DSC Logistics	Greensboro
Anissa Nixon	General Manager	Maidenform Inc	Greensboro
Alex U Te	Chief Executive Officer	Acacia Home & Garden, Inc	Greensboro
Morris R Beschloss	Chairman Of The Board	American Valve, Inc	Greensboro
Tony Lee	Principal	Berco Of America	Greensboro
Scott Kauffman	Treasurer	Klaussner Corporation	Greensboro
John Forrester	President	Proctor & Gamble Distributing Co	Greensboro
Alan L Seeba	President	Deere-Hitachi Construction Machinery Corporation	Greensboro
Robert L Harris Jr	President	Konica Minolta Manufacturing	Greensboro
Lee Boone	President	Legacy Classic Furniture, Inc	Greensboro
John Revell	Manager	Cooper Tire & Rubber Company	Greensboro
Nancy Webster	President & CEO	Thomasville Furniture Industries Inc	Greensboro
Joyce Jones	President	Quick Step LLC	Greensboro
Steven M Kincaid	President	Kincaid Furniture Company Inc	Greensboro
John Ford	Logistics Manager	Woodgrain Millworks	Greensboro
Matt McClunt	Manager	Con-Way Freight Inc	Greensboro
Ms. Nancy York	Operations Manager	UPS Supply Chain Solutions	Greensboro
Jerry Lee	Branch Manager	UPS Ground Freight Inc	Greensboro
Jerry Gallimore	General Manager	UPS Ground Freight Inc	Greensboro
Ricky Stone	Manager	Allied Systems Ltd	Greensboro
Roger Schager	Branch Manager	UPS Ground Freight Inc	Greensboro
Shaun Martin	Manager	USF Holland Inc	Greensboro
Scott Spencer	Manager	Roadway Express Inc	Greensboro
Suzanne Russ	Manager	Target Corp	Greensboro
Wayne Lambert	Branch Manager	City of Statesville	Greensboro
Keith Bryant	General Manager	Lowe's Co's Inc	Greensboro
John Ford	President	Excel Cargo Services Inc	Greensboro
Henry Batten	Member	Central Carolina Concrete LLC	Greensboro
Bob O'Brian	Branch Manager	Lowe's Co's Inc	Greensboro

Earl Congdon	Chief Executive Officer	Old Dominion Freight Line Inc	Greensboro
John Eberling	Chief Executive Officer	Old Dominion Freight Line Inc	Greensboro
Roy Deridder	Branch Manager	McLane Co Inc	Greensboro
Mike Kretschmaier	MIS Manager	Linens 'n Things Inc	Greensboro
Russ Montgomery	Manager	FedEx Freight East Inc	Greensboro
Rick Faieta	President	Caribbean Transportation Svcs	Greensboro
Roy Whittaker	Manager	Synagro Technologies Inc	Greensboro
Howard Fortszh	Operations Manager	JC Penney Corp Inc	Greensboro
Bill Turner	Operations Manager	Estes Express Lines Inc	Greensboro
Vincent Price	Manager	Wilson Trucking Corp	Greensboro
Gary Witt	VP Administration	Lawrence Transportation Svcs	Greensboro
Oscar Fears	President	Meadwestvaco Healthcare Pkg	Greensboro
Chuck Miller	Manager	APL Logistics Warehouse Mgt	Greensboro
Richard Glover	President	Bob Glover Grading Inc	Greensboro
Patty Stanley	Chief Executive Officer	Thomas Stanley Grading	Greensboro
Roscoe Nolen	Chief Financial Officer	Reliable Tank Line LLC	Greensboro
Fred Murrow	President	Murrow's Transfer Inc	Greensboro
Danny Nicholson Sr	President	Danny Nicholson Inc	Greensboro
Gurney Long	President	Hilco Transport Inc	Greensboro
Roger Mabe Jr	President	Mabe Trucking Co Inc	Greensboro
Erric McManus	President	A & D Environmental & Indl	Greensboro
Bill Anderson	President	W L A Inc	Greensboro
Anthony Capps	President	Carolina Tank Lines Inc	Greensboro
L Rogers Jr	President	L J Rogers Jr Trucking Inc	Greensboro
George Massood	Chairman of the Board	MGM Transport Corp	Greensboro
Randy Krull	Plant Manager	Tyco Electronics Corp	Greensboro
Phil Kennett	President	Utility Craft Inc	Greensboro
Jimmy Clark	President	Guy M Turner Inc	Greensboro
David Griffin Sr	President	D H Griffin Wrecking Co Inc	Greensboro
Kenneth Langone	Chairman of the Board	Salem Holding Co	Greensboro
Jack Freeman	Chief Executive Officer	Piedmont Express Inc	Greensboro
Jeff Reymanning	Manager	Tyco Electronics	Greensboro
	Chief Executive Officer	Lowe's Distribution Center	Greensboro
	Chief Executive Officer	Lowe's Distribution Center	Greensboro
	Chief Executive Officer	Hanes Converting	Greensboro
	Chief Executive Officer	Lowe's Distribution Center	Greensboro
	Chief Executive Officer	Baker Furniture	Greensboro
	Chief Executive Officer	Mannington Laminate Floors	Greensboro
	Chief Executive Officer	Universal Furniture	Greensboro
	Chief Executive Officer	Atlantic Corp	Greensboro
	Chief Executive Officer	Bennett Uniform	Greensboro

	Chief Executive Officer	Anthem Leather	Greensboro
	Chief Executive Officer	Homelegance	Greensboro
	Chief Executive Officer	Hanamint	Greensboro
	Chief Executive Officer	K-Mart Distribution Center	Greensboro
	Chief Executive Officer	VF Jeanswear	Greensboro
	Chief Executive Officer	APL Logistics	Greensboro
	Chief Executive Officer	Linens-N-Things	Greensboro
	Chief Executive Officer	Jockey International	Greensboro
	Chief Executive Officer	Powell Co	Greensboro
	Chief Executive Officer	Dell Inc	Greensboro
Neil Lassiter, Jr., PE	Division 2 Engineer	NCDOT	Greenville
Ricky E. Greene, Jr., PE	Division 4 Engineer	NCDOT	Greenville
Elena Talanker	Northeast Planning Group Supervisor	NCDOT	Greenville
Jack Cahoon	Ferry Division Director	NCDOT	Greenville
Earl Brinkley	Board Member	North Carolina's Eastern Region	Greenville
Wanda Yuhas	Executive Director	Pitt County Development Commission	Greenville
John Gessaman	President	Carolinas Gateway Partnership	Greenville
Marc Basnight	Senator	NC Senate	Greenville
Anthony Roper, PE	Division 1 Engineer	NCDOT	Greenville
Albert A Delia	President & CEO	North Carolina's Eastern Region	Greenville
Lee Padrick	Chief Planner	Northeastern Regional Office	Greenville
Darlene A. Waddell	Executive Director	Global Transpark	Greenville
Mark Doggett	VP of Manufacturing	GRADY-WHITE BOATS, INC.	Greenville
Marvin Beland	Chief Executive Officer	REGIONAL STORAGE & TRANSPORT, INC.	Greenville
John Mc Nairy	President	Tidewater Transit Co Inc	Greenville
Sidney Perry	President	C A Perry & Son Inc	Greenville
Mayo Boddie	Chairman of the Board	Boddie-Noell Enterprises Inc	Greenville
Victor C Barringer	President & Chief Executive Officer	Coastal Lumber Company	Greenville
James G Turcotte	Director	Pitt Greenville Airport	Greenville
Pat Dunn	Mayor	City of Greenville	Greenville
Steve Atkinson	Mayor	City of Elizabeth City	Greenville
Clark Jenkins	Senator	NC Senate	Greenville
John H. Kerr III	Senator	NC Senate	Greenville
Arthur Williams	Representative	NC House	Greenville
Phil Dickerson	Deputy County Manager/Public Services	Pitt County	Greenville
Frederick D. Niswander	Dean	ECU - School of Business	Greenville
J Michael Mabry Jr	Executive Vice President	Lowe's Companies, Inc	Greenville
Freda H. McBride	Dean	ECSU - School of Business and Economics	Greenville

Yoshihiro Oyobe	President	ASMO GREENVILLE OF NORTH CAROLINA, INC.	Greenville
Chris White	General Manager	COASTAL BEVERAGE CO., INC.	Greenville
Randy McGowan	President & GM	DSM DYNEEMA, LLC	Greenville
Theresa Sprague	HR Program Coordinator	DSM PHARMACEUTICALS	Greenville
Harry Moser	HR Director	MINGES BOTTLING GROUP, INC.	Greenville
Ken Grayburn	HR Manager	NACCO MATERIALS HANDLING GROUP, INC.	Greenville
Mark Metcalfe	President	OVERTON'S, INC.	Greenville
Mack Burks	Site Manager	WEYERHAEUSER COMPANY	Greenville
Robbie Barnes	Principal	Williamson Produce Inc	Greenville
Steve Maggart	Manager	Lowe's Inc	Greenville
Mark Suddreth	Branch Manager	Greenwood Motor Lines Inc	Greenville
Deborah Hodges	Chief Executive Officer	Crown L S P Group Inc	Greenville
Paul Shaver III	President	Barrier Island Realty Inc	Greenville
Anissa Nixon	General Manager	Maidenform Inc	Greenville
William C Curran	Finance Controller	Electrolux Home Products Inc	Greenville
Edward Mijeski	President	Standard Commercial Inc	Greenville
Eugene Rose	President	Woodgrain Millworks	Greenville
Billy Williamson	President	Williamson Produce Inc	Greenville
Guy Shavender Jr	President	Guy Shavender Trucking Inc	Greenville
Keith Barnes	President	Barnes Transportation Services	Greenville
E Pope Jr	Chief Executive Officer	E J Pope & Son Inc	Greenville
Bob Sanders	Director	Safelite Glass Corp	Greenville
	Chief Executive Officer	Poppies International	Greenville
	Chief Executive Officer	QVC, Inc	Greenville
	Chief Executive Officer	Moen Inc	Greenville
	Chief Executive Officer	Lowe's Distribution Center	Greenville
	Chief Executive Officer	McLane Carolina	Greenville
	Chief Executive Officer	Mbm Corp	Greenville
Ty Harrell	Representative	NC House	Raleigh
Joe Milazzo	Executive Director	Regional Transportation Alliance	Raleigh
Shirley Williams		NCDOT	Raleigh
Carl Dawson	Public Works Director	City of Raleigh	Raleigh
Maximilian A. Merrill	Environmental Programs Specialist	North Carolina Dept of Agriculture & Consumer Services	Raleigh
Patrick B. Simmons	Rail Division Director	NCDOT	Raleigh
Donald J Voelker		NCDOT	Raleigh
Jeff Moore		Glenoit LLC / Ex-Cell Home Fashions, Inc	Raleigh
William H. Williams, Jr	Aviation Director	NCDOT	Raleigh
Miriam Perry	Public Transportation Division Director	NCDOT	Raleigh

Matt Nolan		Longistics Transportation Inc	Raleigh
Patrick Gavaghan	President	Keystone Corp	Raleigh
Paul R. Dordal		BRAC Regional Task Force	Raleigh
Howell Barr	Manager	Con-Way Freight-Southern	Raleigh
John Gessaman	President	Carolinas Gateway Partnership	Raleigh
Jeff Tsai		ITRE	Raleigh
Liz Rooks		Research Triangle Foundation of North Carolina	Raleigh
Scott Walston, PE	Triangle Planning Group Supervisor	NCDOT	Raleigh
Zack Abegunrin, PE	Associate Vice Chancellor	NCCU - Facilities Management	Raleigh
Larry Wilson	Manager	Food Lion LLC	Raleigh
John Brantley	Director	RDU	Raleigh
Charles Meeker	Mayor	City of Raleigh	Raleigh
Mike Kennon, PE	Transportation Operations Manager	City of Raleigh	Raleigh
David Cooke	County Manager	Wake County	Raleigh
Steve Varnedoe, PE	Chief Engineer - Operations	NCDOT	Raleigh
Robert K. Andrews, Jr., CSP	Director of Safety and Loss Control	NCDOT	Raleigh
Roberto Canales, PE	Deputy Secretary for Transit	NCDOT	Raleigh
John Morck	Chief Planner	Central Regional Office	Raleigh
Richard Stevens	Senator	NC Senate	Raleigh
Neal Hunt	Senator	NC Senate	Raleigh
James W. Crawford, Jr	Representative	NC House	Raleigh
Harvey Schmitt	President & CEO	Raleigh Chamber of Commerce	Raleigh
Charles A. Hayes	President & CEO	Research Triangle Regional Partnership	Raleigh
Steve Jones	Dean	UNC - Kenan Flagler Business School	Raleigh
Charlie Diehl	President	Lowe's Inc	Raleigh
Rick L. Weddle	President & CEO	Research Triangle Park	Raleigh
Arlene Graves	Corporate Secretary	Florida Progress Corp	Raleigh
Rick Hightenger	Manager	Estes Express Lines Inc	Raleigh
James Byrd	President	Byrd Brothers Inc	Raleigh
Vance Forbes Jr	President	Forbes Transfer Co Inc	Raleigh
Charles Wall	Chief Executive Officer	Freight Handlers Inc	Raleigh
Ron Powell	Owner	Triangle Express	Raleigh
Todd Herbert	Manager	Southeastern Freight Lines	Raleigh
Brock Soutendijk	Manager	Beltmann Group Inc	Raleigh
Denny Hayworth	Manager	Old Dominion Freight Line Inc	Raleigh
Candy Su	President	Sinai International Co Inc	Raleigh

Scott Saylor	President	North Carolina Railroad Company	Raleigh
Peter Yang	President	Yang Enterprises Company	Raleigh
Gary Gay	Director	NCDA&CS Food Distribution Division	Raleigh
Harry E. Payne, Jr.	Chairman	Employment Security Commission	Raleigh
J. Wally Bowman, PE	Division 5 Engineer	NCDOT	Raleigh
Tim Johnson, PE	Division 8 Engineer	NCDOT	Raleigh
Jon Nance, PE	Director of Field Operations	NCDOT	Raleigh
Bill Rosser, PE	State Highway Administrator	NCDOT	Raleigh
Deborah M. Barbour, PE	Director of Preconstruction	NCDOT	Raleigh
Calvin W. Leggett, PE	Program Development Branch Manager	NCDOT	Raleigh
J Michael Mabry Jr	Executive Vice President	Lowe's Companies, Inc	Raleigh
Lyndo Tippett	Secretary	NCDOT	Raleigh
Lucy T. Allen	Representative	NC House	Raleigh
Karen P Geer	Director	UNC - Facilities Planning	Raleigh
Bijoy Sahoo, M.B.A., Ph.D.	Interim Dean	NCCU - School of Business	Raleigh
Bobby Tacum	Manager	Food Lion LLC	Raleigh
Brian Griffith	Manager	Coastal Transport Inc	Raleigh
Anissa Nixon	General Manager	Maidenform Inc	Raleigh
C G Kim	President	Daedong-Usa, Inc	Raleigh
Anthony Sturuss	President	Pergo, Inc	Raleigh
Sajjan Kumar	President	Sigma Electric Manufacturing Corporation	Raleigh
George Smith	Branch Manager	Gold Toe Brands, Inc	Raleigh
Fenton N Hord	President	Stock Building Supply	Raleigh
Peter Ridler	President	The Body Shop Inc	Raleigh
Joe Lewis	Manager	Woodgrain Millworks	Raleigh
Roger Hodge	Manager	Goldtoemoretz LLC	Raleigh
Lee Shaffer	President	Kenan Transport Co	Raleigh
C Lee	VP Marketing	Nortel Networks Inc	Raleigh
Steve Schilling	President	Nortel Networks Inc	Raleigh
Michael Whitehead	Finance Manager	Estes Express Lines Inc	Raleigh
Scott Carle	President	East Coast Drilling & Blasting	Raleigh
Brett Plummer	President	All American Relocation Inc	Raleigh
Smedes York	President	York Properties Inc	Raleigh
Morley Muralidhar	Chief Executive Officer	USC Solutions Inc	Raleigh
Robin Hood II	President	Robin Hood Container Express	Raleigh
Percy Johnson	President	Percy L Johnson Inc	Raleigh
Thomas Brinley Sr	President	Brinley's Grading Service Inc	Raleigh
Paul Mascia	President	Mammoth Grading Inc	Raleigh

D Grantham	Owner	Grantham Trucking Co	Raleigh
Steve Fowler	President	Commercial Grading Inc	Raleigh
Carter Worthy	Chairman of the Board	Research Triangle Regional	Raleigh
Donald Stallings	Chairman of the Board	Eagle Transport Corp of North	Raleigh
Bobby Thompson Jr	President	Thompson Contracting	Raleigh
Donald Oldham	President	Sanford Contractors Inc	Raleigh
Michael Devine	President	L & M Transportation Services	Raleigh
Mark Stewart	Owner	First Flight Delivery Svc Co	Raleigh
Danny Keen	Plant Manager	AAA Cooper Transportation	Raleigh
Joey Mills	Manager	UPS Freight	Raleigh
	Chief Executive Officer	Generation Co's LLC	Raleigh
	Chief Executive Officer	Variety Wholesalers	Raleigh
	Chief Executive Officer	Royal Home Fashions	Raleigh
	Chief Executive Officer	Wal-Mart Distribution Center	Raleigh
	Chief Executive Officer	Variety Wholesalers - Rose's	Raleigh
	Chief Executive Officer	Kerr Drugs	Raleigh
Jon W. Rosborough	Director	Wilmington International Airport	Wilmington
Brad Strader	Managing Partner	LSL Planning, Inc	Wilmington
Bill Saffo	Mayor	City of Wilmington	Wilmington
Loretta Barren		FHWA	Wilmington
Richard King	Director of Public Services	City of Wilmington	Wilmington
H. Allen Pope, PE	Division 3 Engineer	Local NCDOT	Wilmington
Terry R Gibson, PE	Division 6 Engineer	Local NCDOT	Wilmington
Paul G. Butler, Jr	Director	North Carolina's Southeast	Wilmington
Vagn Hansen	Chief Planner	Southeastern Regional Office	Wilmington
Julia Boseman	Senator	NC Senate	Wilmington
Tony Rand	Senator	NC Senate	Wilmington
Larry Shaw	Senator	NC Senate	Wilmington
Daniel F. McComas	Representative	NC House	Wilmington
Edward S. Topor	Executive in Residence	UNCW - Cameron School of Business	Wilmington
Jane M Bailey	Director	UNCW - Facilities	Wilmington
Eric B. Dent, Ph.D.	Dean	UNCP - School of Business	Wilmington
Bess Tyner, MME, PE	Director/University Engineer	UNCP - Facilities Planning & Construction	Wilmington
Assad A. Tavakoli, Ph.D.	Interim Dean	FSU - School of Business and Economics	Wilmington
Rudolph S. Cardenas	Associate Vice Chancellor for Facilities	FSU - Facilities Management	Wilmington
Scott Satterfield	CEO	Chamber of Commerce	Wilmington
Andy White	President & CEO	GE Nuclear	Wilmington
Derric Hill	Branch Manager	Maverick Transportation LLC	Wilmington
Tim Starling	Operations Manager	Wal-Mart Stores Inc	Wilmington

Larry Knight	Manager	Cumberland County Schools	Wilmington
Keith Stark	Member	B & K Coastal LLC	Wilmington
Randal Menscer	President	Star Leasing Inc	Wilmington
Daniel Mc Comas	President	M C O Transport Inc	Wilmington
Elijah Morton	President	Morton Trucking Inc	Wilmington
Jerry Donald	President	Apac Carolina Inc Sandhill Div	Wilmington
Mason Anderson	President	Caw Caw Land Corp	Wilmington
Thomas Eagar	Chief Executive Officer	North Carolina State Port Auth	Wilmington
	Chief Executive Officer	Ellery Homestyles	Wilmington
	Chief Executive Officer	Quickie Manufacturing Co	Wilmington
	Chief Executive Officer	Ellery Homestyles	Wilmington
	Chief Executive Officer	Dayco-Mark IV Automotive	Wilmington
	Chief Executive Officer	TBC Corporation	Wilmington
Pat DeVane	Chief Executive Officer	Cape Craftsman	Wilmington
Charles Kues	Branch Manager	PCS Phosphate Company, Inc	Wilmington
E Marvin Johnson	Chairman Of The Board	House Of Raeford Farms, Inc	Wilmington
Gregory Bryant	Vice President Control & Finance	Alliance One International, Inc	Wilmington
Curtis Struyk	President	Carolina Ocean Lines, Inc	Wilmington
Gary Beacher	Branch Manager	International Paper Company	Wilmington
Gene Renzaglia	Principal	Elementis Chromium Lp	Wilmington
Danny Langston	Vice President	Smithfield Farm Equipment Co Inc	Wilmington
Allen Asbury	Finance Controller	Mountaire Farms Inc	Wilmington

Appendix D: Survey of Trucking Companies



UNIVERSITY OF
SOUTH CAROLINA

COLLEGE OF ENGINEERING AND COMPUTING
&
MOORE SCHOOL OF BUSINESS

SURVEY OF NORTH CAROLINA TRUCKING COMPANIES

Conducted by
Mecit Cetin
Sandra Teel
Rhondra Willis

Columbia, South Carolina
April 14, 2008

Executive Summary

To support the Statewide Logistics Plan for North Carolina, the University of South Carolina (USC) had a subcontract agreement with the North Carolina State University (NCSU) to conduct a survey to assess the opinions and perceived needs of motor freight carriers (i.e., trucking companies) located in North Carolina. The objectives of this survey were 1) to give an opportunity to the freight carriers in North Carolina to express their needs and concerns; 2) to understand how satisfied these companies are with the available freight services and infrastructure; and 3) to understand the overall freight movement patterns and characteristics. The survey instrument (shown in the appendix) includes three main sections: company profile, operations, and assessment of infrastructure. The questions under “operations” seek input on the freight services that motor freight carriers provide. In the last section, the respondents are asked to rate various transportation infrastructure conditions (e.g., congestion, travel time reliability, delays at port facilities), to indicate impediments encountered in moving freight. Respondents were also allowed to express what needs in and suggest improvements to the current freight system.

Approximately 770 trucking companies were contacted by telephone. In addition, a request to participate in the survey was sent to the 350 members of the N.C. Trucking Association via email with an URL link to the online survey. Among all those, a total of 107 companies completed the survey. The locations of the respondents are randomly distributed throughout the state and include both small- and large-size companies with the number of employees ranging from 10 to 500. A majority of the respondents are either common carriers (37%) or contract carriers (32%); private carriers (17%) and independent owner operators (12%) are also represented in the sample. More than half (55%) provide long-haul freight transportation services throughout the country, and 35 percent provide service within several nearby states. Among all respondents, the average number of shipments carried per week is about 350. The average percentage of empty trips, in relation to all truck trips, is roughly 27 percent. An analysis of these empty trips shows that there are more empty trips inbound to NC from other states than outbound (58% vs. 10%). Taken as a group, most of the companies (77%) provide full-truckload services, and 13 percent provide less-than-truckload services. Most of these companies travel on almost all of the major roads within North Carolina and, therefore, are quite familiar with the road conditions. However, only 16 percent of them often use airports, seaports, and intermodal terminals on a regular basis. Their assessment of the transportation infrastructure is discussed next.

Respondents were given a list of transportation infrastructure conditions and asked to rate them in terms of whether the condition causes problems for their operations. The figure below shows the assessments for each the infrastructure conditions. It is found that the greatest variation in responses is for the evaluation of highway congestion and travel time reliability. About 30 percent of the respondents rate highway congestion as a “serious” or “very serious” problem whereas this number is about 15 percent for travel time reliability. The next item of major concern is the number of truck rest areas on highways—about 23 percent of them rank this as either a serious or very serious problem. If the condition’s assessment was “serious problem” or “very serious problem”, respondents were asked to explain their rating in terms of where the

condition occurred and when, if applicable. For highway congestion, Charlotte, N.C., was mentioned most frequently as a problem area. In addition, a few respondents indicated Raleigh and Greensboro as areas with significant highway congestion. For truck rest areas on highways, some respondents indicated this as a nationwide problem as well as a significant problem on all major roads in North Carolina. One respondent comments: “Due to tightened restrictions on commercial driver drive time, there are not enough parking/break spots to park trucks.”

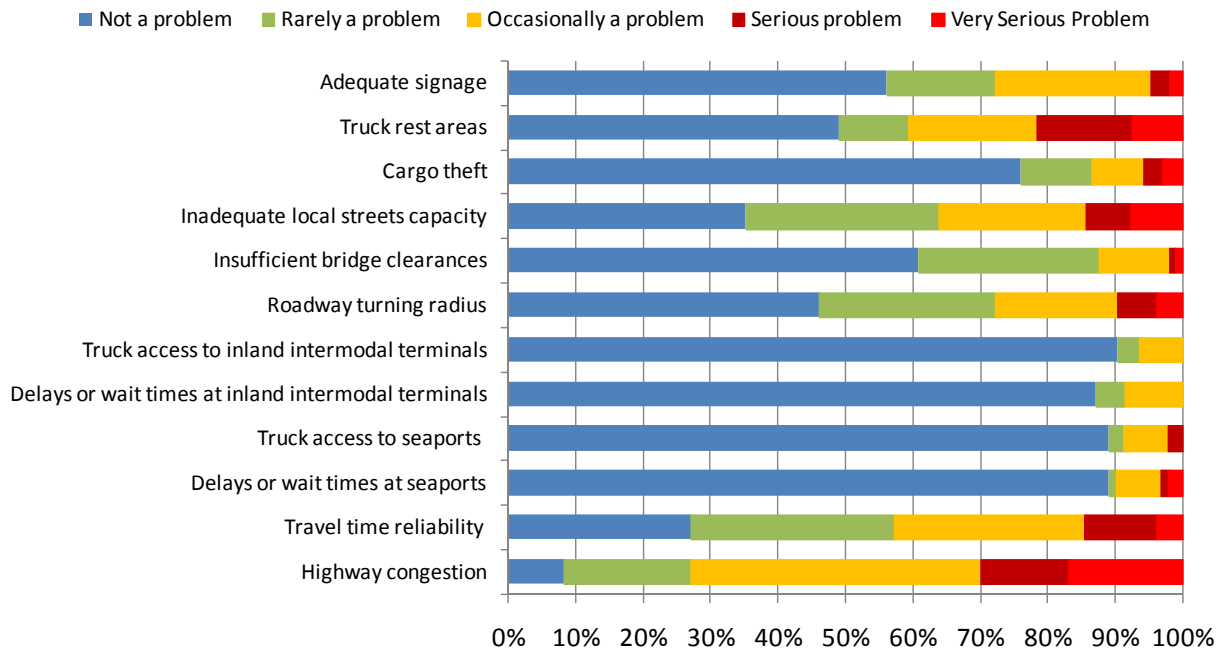


Figure 1 Ranking of Various Infrastructure Conditions by the Respondents

In a separate question, the respondents were asked to rate the overall transportation infrastructure in North Carolina. Most respondents (47%) gave an “average” rating; other ratings were: 34 percent “above average”, 13 percent “below average”, 4 percent “poor or failing”, and only 2 percent “excellent”. Thus, based on these assessments, the overall evaluation is more positive than negative. For this question, the respondents were also asked to give an explanation when they choose “below average” or “poor or failing” rating. Deteriorating road conditions (potholes, cracks, gaps, etc.) and insufficient roadway capacity are cited as the main reasons for giving these low ratings.

The survey instrument also included a number of open-ended questions to give an opportunity to the trucking companies to provide more general input. First, companies were asked about the strengths of the freight infrastructure in North Carolina. Frequently given responses include: i) good highway and interstate systems; ii) highway location and access; and iii) continued improvements and construction of new capacity. Interestingly, one respondent indicated the availability of employees for warehouse and manufacturing positions as a strength.

Next, respondents were asked to suggest legislative changes in the coming five years that would improve goods movement in North Carolina. The commonly suggested changes are: i) increase the limit on hours of driving; ii) increase truck weight limits; iii) lower taxes on commercial carriers; iv) lower fuel (diesel) prices/taxes; v) use the fuel taxes *only* for highway improvements; vi) do not restrict trucks to only the right lane; vii) improve pavement conditions and expand the roads; and viii) allow 53-foot trailer combinations on more highways/roads.

Parallel to the previous question, respondents were asked about any infrastructure improvements needed by year 2020 to improve goods movement in North Carolina. The main suggestions include: i) increase the Interstate highway capacity (increase the number of lanes from two to three); ii) complete/build bypasses around major cities and small towns; and iii) keep roads maintained. Interestingly, most of the suggestions were related to highways, and only one respondent cited capacity at seaports as a major concern. This might be attributed to the fact that only 16 percent of the sampled group uses airports, seaports, and intermodal terminals on a regular basis as mentioned before.

Lastly, respondents were asked to make any final comments. Some of the notable comments are given below.

- “Do not toll existing highways. Use the highway trust fund for highway improvements. . .”
- “20 years ago our infrastructure was great. Now it is the single biggest impediment to business expansion.”
- “North Carolina weak on outbound freight (Mexico and China).”
- “Small companies such as ours are going out of business every day because of high fuel prices and low freight rates. We will close at the end of March for those reasons.”
- “Something needs to be done about the high fuel bill. We do not need toll roads. Truckers have a hard time staying in business now as it is.”
- “The overseas truckers are allowed to haul containers up to 92,000 lbs. U.S. truckers can only haul up to 80,000 lbs.”
- “The recent system installed at N.C. weigh stations will not be adopted by most carriers because it is not part of the PrePass network.”
- “The state of North Carolina is the 3rd highest in paying taxes.”
- “The laws need to be changed and updated. For example the weight per axle verses total weight and truck access to the left lane in Charlotte, N.C.”

Introduction

To support the statewide logistics plan for North Carolina, the University of South Carolina (USC) had a subcontract agreement with the NCSU to conduct a survey to assess the opinions and perceived needs of motor freight carriers (i.e., trucking companies) located in North Carolina. The USC team was led by Dr. Mecit Cetin from the Department of Civil and Environmental Engineering and by Dr. Sandra Teel from the Moore School of Business. Dr. Teel's survey team included Dr. Rhondra Willis of St. Leo University, Sumter (S.C.) campus.

The objectives of this survey were 1) to give an opportunity to the freight carriers in North Carolina to express their needs and concerns; 2) to understand how satisfied these companies are with the available freight services and infrastructure; and 3) to understand the overall freight movement patterns and characteristics. The survey instrument (shown in the appendix) includes three main sections: company profile, operations, and assessment of infrastructure. The questions under "operations" seek input on the directional movement of the containerized freight and empty trucks. In the last section, the respondents are asked to rate various transportation infrastructure conditions (e.g., congestion, travel time reliability, delays at port facilities), to indicate any impediments they may face in moving freight, and to express what they see as needs and improvements in the current freight system.

Methodology

The research team developed a survey instrument to address the issues outlined above. The survey instrument was reviewed by a team of experts to increase its likelihood for success. Contact names, addresses, and telephone numbers were purchased from ZAPdata.com and InfoUSA.com, both private providers of company lists. Telephone interviewers were secured and trained to facilitate collection of data by telephone. Potential respondents were allowed to complete the survey with the telephone call, to go online to complete the survey, or to request the survey be sent to them by facsimile. In addition, an email was sent to the approximately 350 members of the N.C. Trucking Association with the URL link to the online survey. Routine checks of completed surveys were conducted to assure the quality of the data collected.

Results

Respondent Group

In total, 767 trucking companies were contacted by telephone. Thirty of those requested e-mail contact; 153 said they would complete online; 265 have received faxed questionnaire; 126 were unusable telephone numbers; 186 said not interested; 84 were completed by phone; and 6 were completed by fax. To boost the response rate, interviewers re-called potential respondents who said they would complete online but no online survey had been completed by that respondent. A total of 107 completed surveys are the foundation for this report. Figure 2 shows the geographic distributions of the respondents. It is clear that the respondents are distributed throughout the

state whereas some are clustered around the major metropolitan areas, e.g., 10 respondents from Charlotte and 5 respondents from Greensboro.

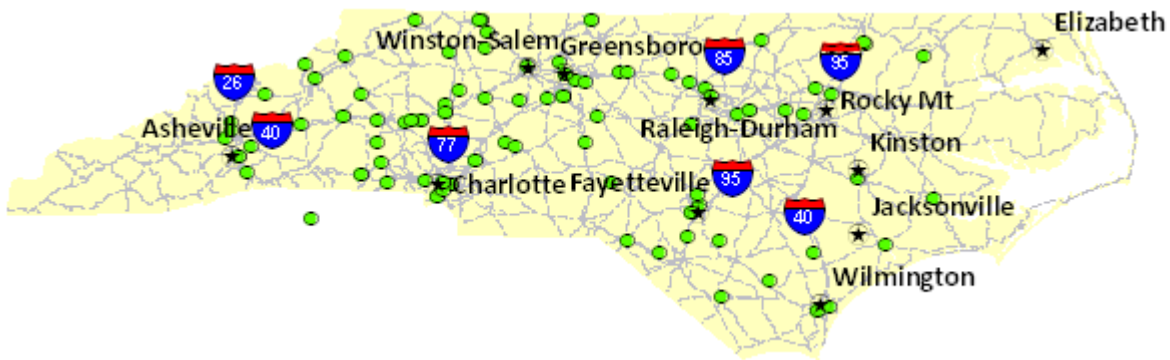


Figure 2 Locations of the Trucking Companies Responded to the Survey

Respondents reported the firm type as either private carrier (maintains its own fleet and freight), common carrier (offers services to the general public), contract carrier (offers services to shippers under specific contracts), independent owner-operator, or other. Figure 3 below shows that greatest proportion of respondents is “common carrier”. There are two respondents who said they were an “other” category, and only one reported the other category as specialized home furnishings.

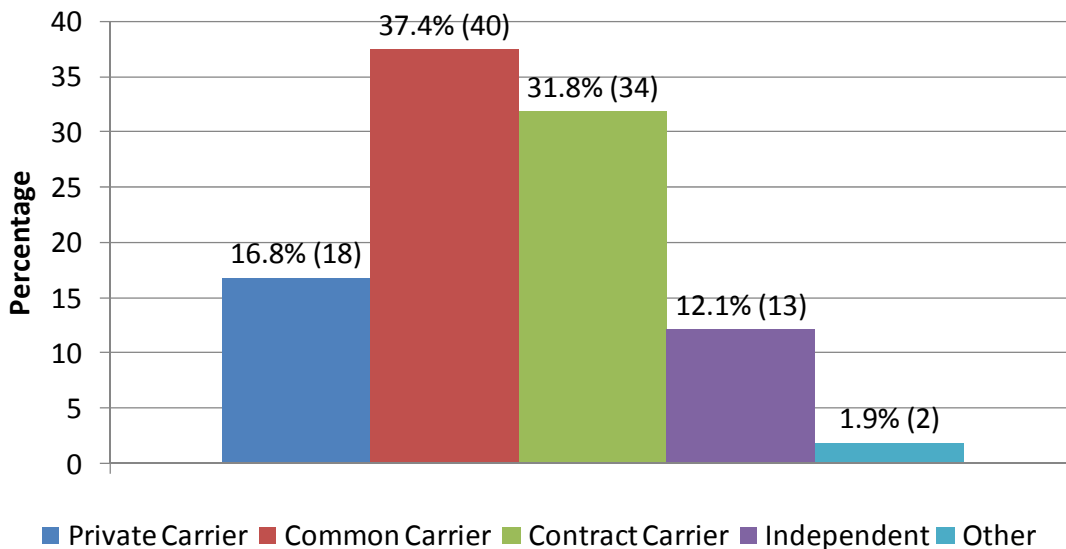


Figure 3 Types of Trucking Company (numbers in parentheses are counts)

Respondents were asked to indicate the types of services they provide (i.e., full truckload, less-than-truckload (LTL), express package, drayage, distribution and warehousing). Taken as a group, most of the companies provide full truckload services (see Figure 4). Note that the fewest companies provide drayage services. The following is a list of the types of other services that 20

percent of respondents report offering: A little bit of everything; dirt; dump trucks and tankers; home delivery (2); household goods (shipping; relocation); logging and clipping; LTL (Temperature Controlled LTL); mobile homes; ready mix concrete; solid waste; and tanker.

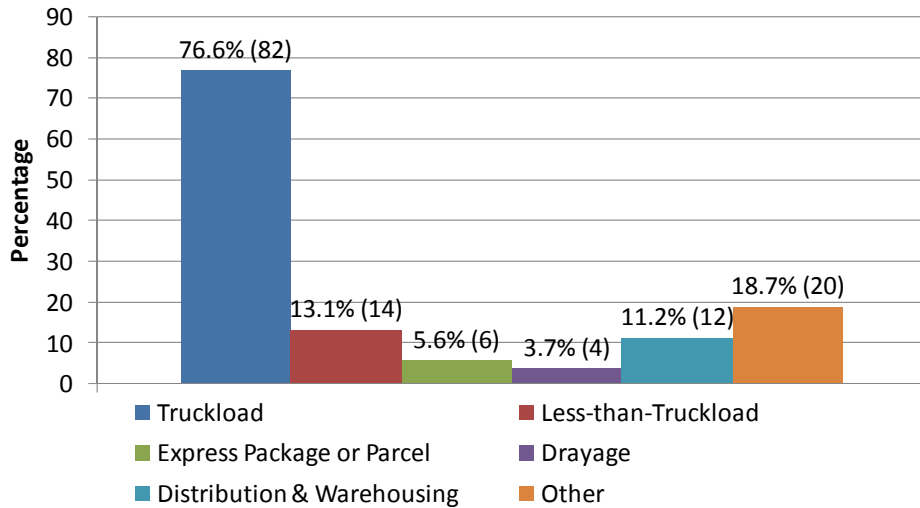


Figure 4 Types of Services Provided (numbers in parentheses are counts)

When asked about the kinds of vehicles and equipment the company operates, the greatest number reported is trailers, exhibiting a mean of 200 (see Figure 5). There were 5 companies in the samples with more than 1,300 trailers and 450 power units. More than 80% of the respondents had trailers and/or power units which are commonly used for long-haul freight movement.

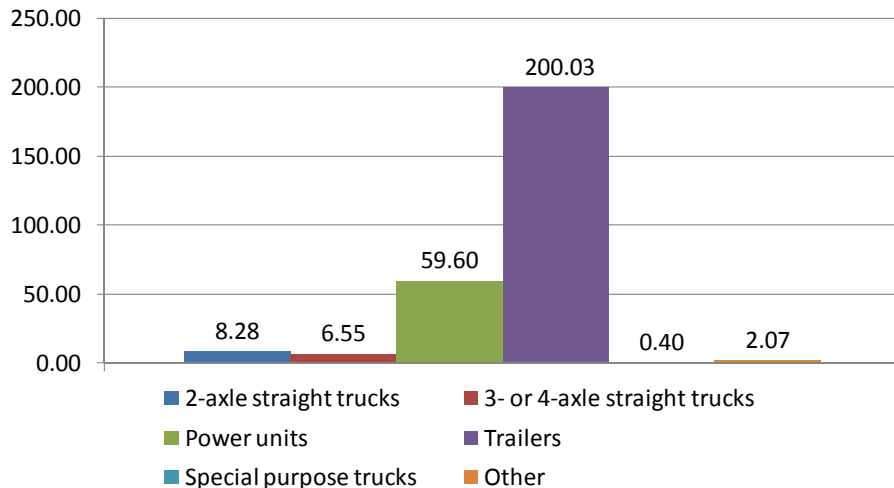


Figure 5 Number of Vehicles Operated (average of all responses)

Operations

More than half of responding companies report they are long-haul trucking companies (see Figure 6). About 16 percent report they are local, 14 percent report they operate within the state of North Carolina, and 35 percent operate in several surrounding states.

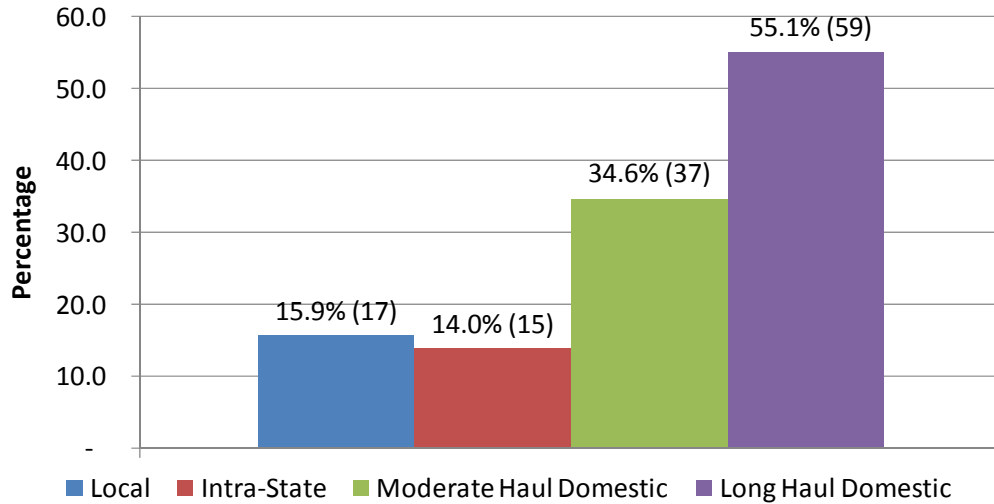


Figure 6 Geographic Coverage of Service Provided (numbers in parentheses are counts)

Respondents were asked to indicate the type(s) of commodities they typically haul. The largest percentage of respondents (about half) reports hauling general freight (see Figure 7). It is notable that only about 4 percent (4 companies) haul containerized cargo.

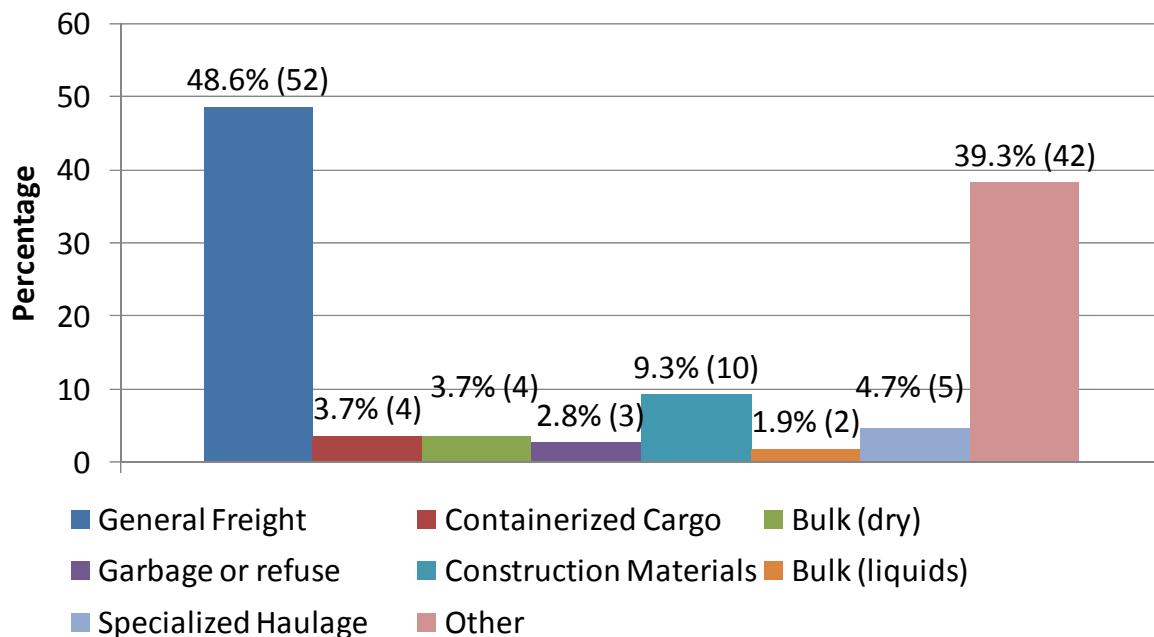


Figure 7 Types of Commodities Carried (numbers in parentheses are counts)

Almost 40 percent of responding companies report carrying commodities other than those listed in Figure 7. Included in these “other” commodities are: agricultural products; automobile parts; cable reels etc.; dirt; dry goods; electronics; farm equipment; produce (2); furniture (2); upholstery and case goods; household goods (3); oxygen, nitrogen, and helium to medical and industrial companies; pallets; paper; race cars and equipment; sand, stone, hot mix asphalt; soft drinks; steel beams, lumber, etc.; tobacco and tobacco products (2); logs (2); and U.S. mail for the post office.

The four respondents who reported hauling containerized cargo were asked to indicate the volume of containers they hauled and also asked to identify the origin and destination for that cargo. The average number of containers hauled per week, among the four respondents, is 35.33 which correspond to approximately 1,800 containers in a year. Out of the four respondents, three companies also provided the origins and destinations for the containers they carry. Interestingly, all three companies indicate that they use **seaports in other states** – not in NC – two of them reported carrying containers from ports in SC and GA to distributions centers in NC and the other company indicated they move containers from retail outlets in NC and other states to seaports in SC and GA. Even though this is not a large number to draw definite conclusions about the container movements, it is interesting to note that seaports in NC are not used at all by these companies.

On a separate question, respondents were asked to indicate the routes and corridors they typically use while in North Carolina. It is noteworthy that nearly three-fourths of respondents (74 percent) report usage of almost **all major roadways** in North Carolina. The table below is a list of those routes specifically named by respondents (most of those who use all major roads in NC did not specify particular road names). As can be seen, interstates are the most traveled routes, with I-40 being reported by 18 companies (17 percent). State roads are the least traveled.

Route	Number of Respondents Reporting Usage
I40	18
I85	12
I77	11
I95	7
US 74	5
US 321	4
I17	2
I20	2
I26	2
NC 73	2
US 421	2
NC 19 E	2
I5	1
I9	1
I10	1
I30	1

Route	Number of Respondents Reporting Usage
I74	1
I76	1
I81	1
US 21	1
US 52	1
US 70	1
US 181	1
NC 16	1
NC 18	1
NC 25	1
NC 81	1
NC 158	1
NC 903	1

From a list of intermodal terminals, respondents were asked to select the terminals the company often uses. The following table shows the list of intermodal terminals in NC from which the respondent could choose and the percentage of companies reporting often usage. A total of 17 companies (16%) in the sample use at least one terminal in NC.

Table 1 Intermodal Terminals in NC

Intermodal terminal	Percentage of Companies Reporting Often Usage
Piedmont Triad Inland Terminal (Greensboro)	3.7%
Charlotte Inland Terminal	4.7%
Port of Wilmington	2.8%
Port of Morehead	1.9%
Charlotte-Douglas International Airport	5.6%
Piedmont Triad International Airport	2.8%
Asheville Regional Airport	0.9%
Raleigh-Durham International Airport	4.7%
Wilmington International Airport	1.9%
Fayetteville Regional Airport	0.9%

Respondents were also permitted the opportunity to indicate whether the company uses intermodal terminals in other states. Only 7 companies report usage of intermodal terminals in other states (two of which do not use intermodal terminals in NC). The intermodal terminals reported by these respondents are:

- Atlanta and Orlando
- Charleston, SC & Norfolk, VA
- Indiana, Georgia, North Carolina, South Carolina, Denver, Florida

- Jacksonville, Florida
- New Orleans
- SC, GA, AL, FL.

Respondents were asked to indicate the volume of loads or shipments the company carries in an average week. Using this information, the average among all *reporting* respondents is 347 loads or shipments in an average week. The distribution of the total shipments carried by the respondents in a typical week is given in Figure 8.

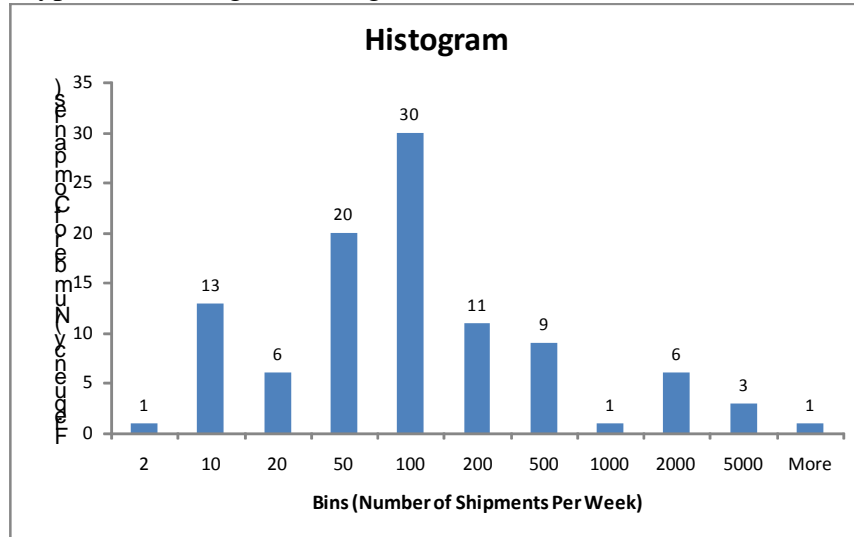


Figure 8 Distribution of the Number of Shipments Carried Per Week

Respondents were asked to consider all the company's trips in 2007 and report the percentage of trips that were empty. The average percentage of empty trips, among all reporting respondents, is 27.3 percent. Figure 9 shows the histogram of the percentage of empty trips reported. Three companies reported more than 80 percent as empty which may not be taken as reliable information. Respondents were further asked to describe their typical empty trips in terms of their origins and destinations. They were given the option to report as many as three directional movements. Empty trips that either originate or terminate in NC are summarized below. A total of 73 directional empty movements were specified. Of those, only 7 are from NC to other places, 24 are from NC to some destination in NC, and 42 are from other places to NC. Breakdown of these empty trips is given in Table 2. It is important to notice that there are more empty trips inbound to NC than outbound.

Table 2 Origins and Destinations of Empty Trips

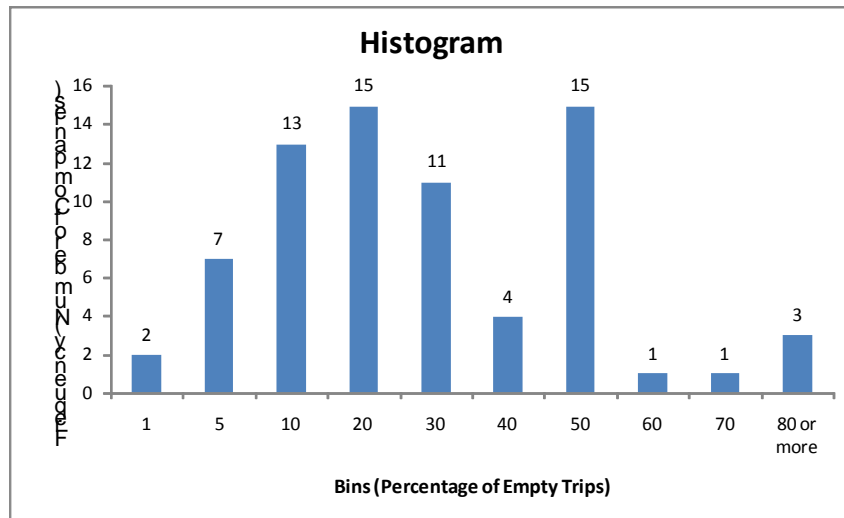
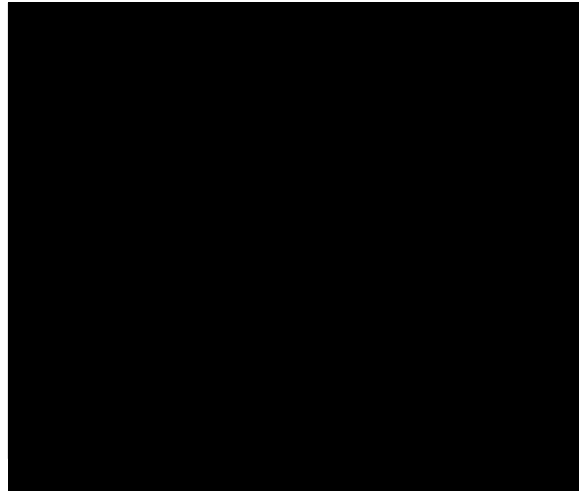


Figure 9 Distribution of the Percentage of Empty Trips

Also considering the total number of trips in 2007, respondents were asked to report the percentage of those trips that required a special permit *because the load exceeded the standard limit* (or 80,000 pounds). In this instance, only 5 respondents provide an answer greater than zero with an average of 9.2 percent (two companies entered 100 percent but these are discarded since they were deemed as inaccurate information).

Assessment of Infrastructure

Respondents were given a list of transportation infrastructure conditions and asked to assess them in terms of whether the condition causes problems for their operations. Figure 10 below shows the assessments for each of the infrastructure conditions whereas Figure 11 shows the average assessment given by the respondents (1 being not a problem and 5 a very serious problem). From Figure 10 and Figure 11, it is clear that **highway congestion** is viewed as a major problem by the respondents. In this case, more respondents give a “very serious problem” or “serious problem” assessment than for any of the other conditions. In terms of low rankings, highway congestion is followed by the number and availability of truck rest areas. On the other

hand, access and delays at intermodal terminals and ports are not perceived as problems by the respondents. It needs to be mentioned that only 16 percent of the sampled companies use intermodal terminals and ports on a regular basis. Therefore, this evaluation may or may not reflect the actual conditions at these facilities.

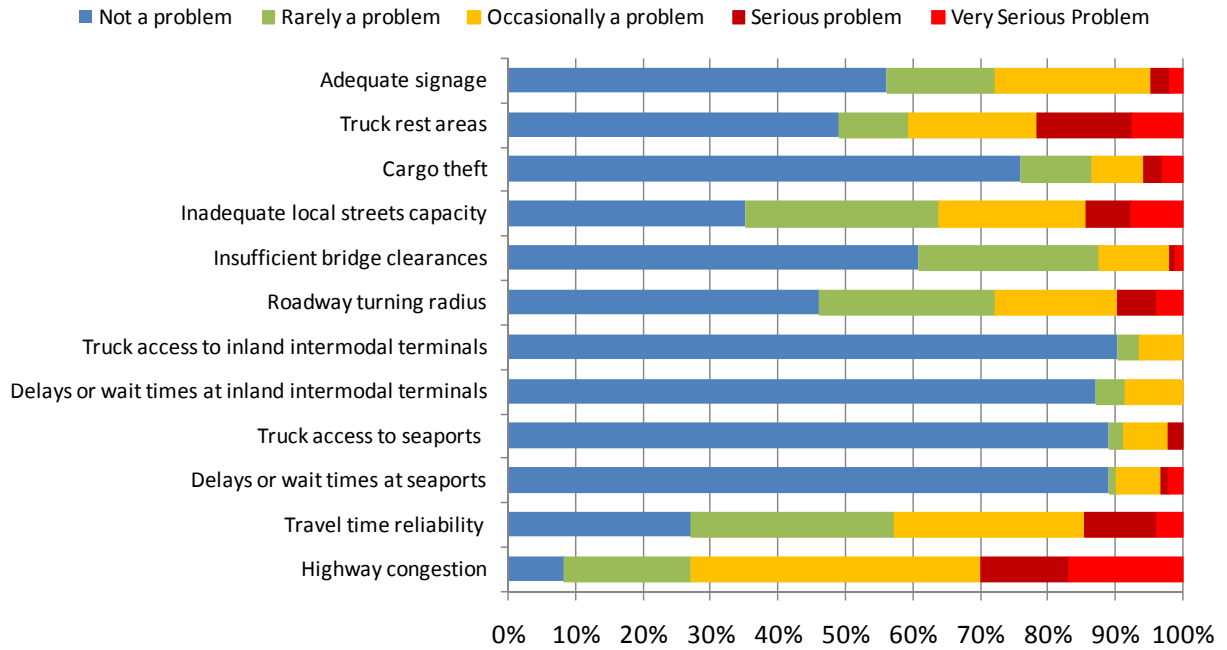


Figure 10 Ranking of Various Infrastructure Conditions by the Respondents

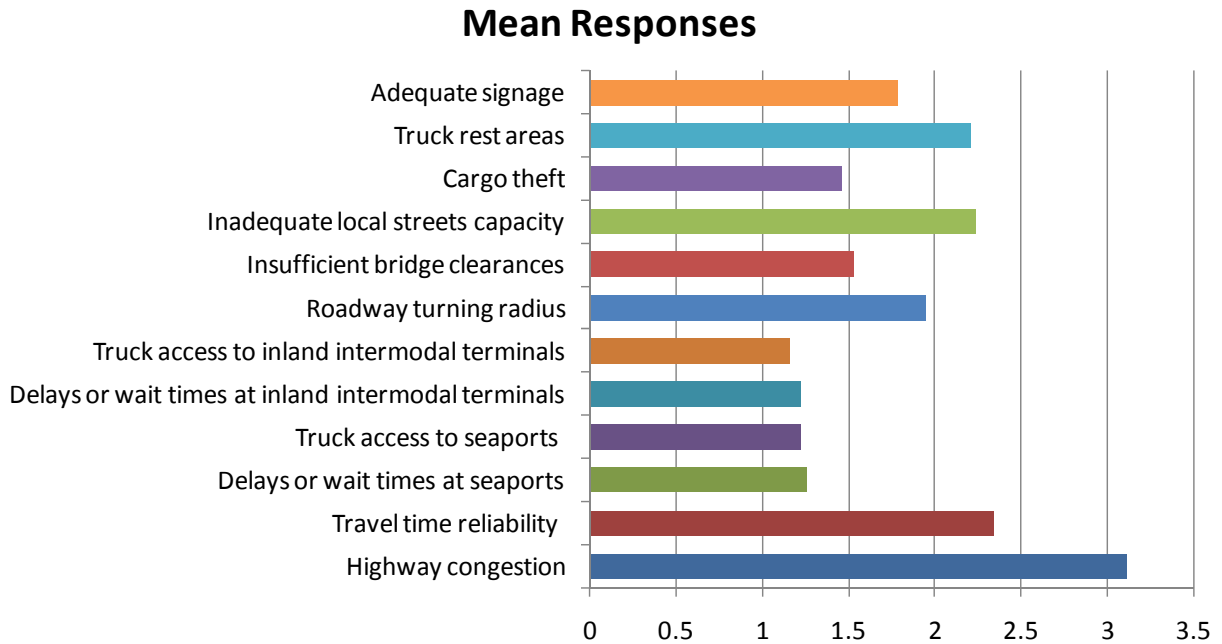


Figure 11 Average Ranking of Various Infrastructure Conditions Given by the Respondents

When the condition was assessed “serious problem (4)” or “very serious problem (5)”, respondents were asked to explain their rating in terms of where the condition occurred and when, if applicable. The subsequent listing shows the explanations accompanying “serious problem” and “very serious problem” assessments.

When and where comments for a rating of 4 or 5 for “Highway congestion”:

- All locations in N.C.
- All major cities
- Charlotte
- Charlotte and Raleigh
- Charlotte area all the time
- Charlotte area daily
- Charlotte, Greensboro
- Charlotte, GSO, WS, Hickory
- Charlotte, N.C.
- Charlotte, Raleigh, Wilmington, Greensboro
- Charlotte, Raleigh, Greensboro
- Charlotte, Winston-Salem Early AM and Afternoon
- CLT, GSO during morning & evenings
- HWY 240 and I-26
- I-26 and I-85
- I-40 East, I-85 South, I-26 both ways
- I-40; US Hwy 52
- I-77 and I-85
- I-77 between Statesville and Charlotte daily also I-40 west of Asheville to TN line
- I-95 and I-40

- I85 N of Salisbury, N.C.
- Interstate 77 North; Mile marker 65-73
- Rush hour (8:00 am and 5:00 pm) every city
- Rush hour, mornings and evenings; New Jersey, New York, and Charlotte, NC
- US74 and 76 between the hours of 7a-9a and 4p-6p
- Wilmington

When and where comments for a rating of 4 or 5 for “Travel time reliability”:

- All interstates
- Charlotte
- Charlotte area
- Charlotte, anytime of the day
- Charlotte, Greensboro, Raleigh
- Charlotte, Raleigh, Wilmington, Greensboro
- Charlotte, Raleigh, Greensboro
- Congestion I-77 and I-85
- Construction in eastern part of state
- Heavy traffic or accidents same areas as above
- HWY 240 and I-26
- I-26 and I-85
- Raleigh and Charlotte

When and where comments for a rating of 4 or 5 for “Delays or wait times at seaports”:

- Wilmington

When and where comments for a rating of 4 or 5 for “Roadway turning radius”:

- Small Towns and outside city limits
- Delivery points
- HWY 240 and I-26
- I-26 and I-85
- Secondary roads
- South Carolina area
- Urban areas

When and where comments for a rating of 4 or 5 for “Insufficient bridge clearances”:

- Cape Fear Memorial Bridge, N.C.

When and where comments for a rating of 4 or 5 for “Inadequate local street capacity”:

- All major cities
- All over
- Charlotte, Raleigh, Wilmington, Greensboro
- Delivery points
- Most cities - Charlotte, Greensboro, Raleigh, Asheville
- Residence and urban areas
- Secondary roads
- There no places to get off, very little turn around
- Urban areas
- Varies nationwide
- Wilmington
- Wilmington area

When and where comments for a rating of 4 or 5 for “Cargo theft”:

- Clanton Road, Exit 7 off I-77
- Generally Florida
- We haul cigarettes. High profile target

When and where comments for a rating of 4 or 5 for “Number of truck rest areas”:

- All Interstates
- All major interstate roads
- All over
- All the major areas
- Country wide
- Due to tightened restrictions on Commercial driver drive time, there are not enough parking/break spots to park trucks
- From N.C. to Ga.
- Greensboro
- I-40
- I-77, east/west on I-40, and more parking
- Inadequate space for trucks to turn or park
- Need more parking
- Nowhere for drivers to take required breaks except crowded truck stops
- Not enough to service the trucks on the roads
- Overcrowding
- Secondary roads 321 and 221
- Significant problem in N.C. and nationwide. Needs attention
- This is a national problem. More trucks on the highway will require more areas to take the required breaks.
- With the lack of Truck stops in the state I believe we need more rest areas for Truck Parking. This would allow trucks to park in safe areas.

When and where comments for a rating of 4 or 5 for “Signage”:

- Charlotte
- Raleigh and Charlotte
- Secondary roads

There were 12 other impediments reported by respondents. Summarized, these are:

- Access for 53 ft trailers (Highways that restrict 53' trailers; Issues of length of trailer or twins; Not enough secondary roads for 53"102)
- Congestion (Congestion on I 77)
- DOT Inspection standards
- Fuel (Fuel Prices; Price of fuel)
- Highway construction zones
- I485
- Low bridges
- NC73
- Not enough lanes (I85 Bridge over Yadkin river; I77 from Exit 23 to Exit 50; Need for more 4 lane hwys and interstates)
- Road conditions
- Road Construction
- Weather (Weather conditions [fog])

As might be expected, when respondents were asked to rate the overall transportation infrastructure in North Carolina, most of the responses are around the “average” rating (see Figure 12). However, it is clear that the overall evaluation is more positive than negative.

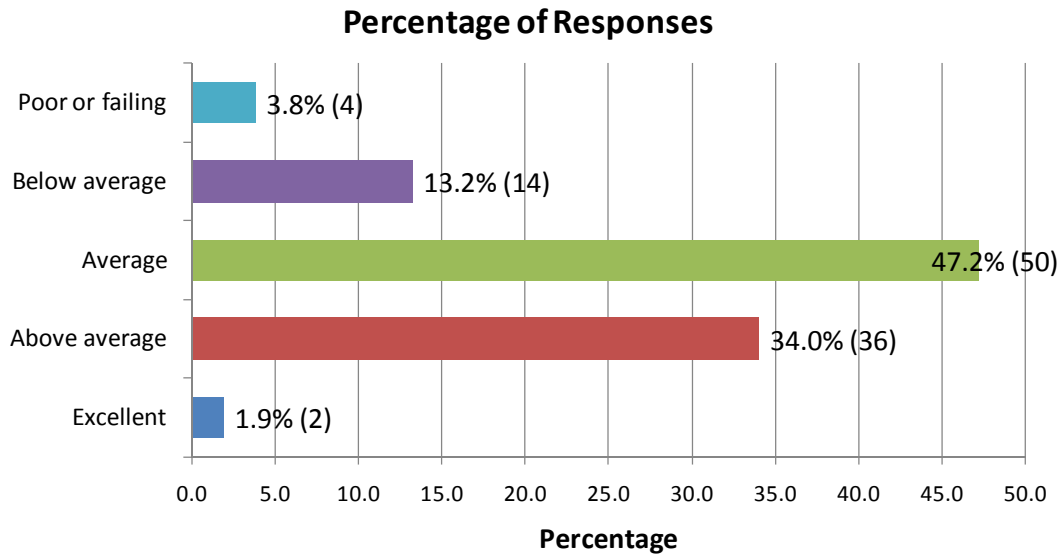


Figure 12 Overall Evaluation (numbers in parentheses are counts)

Respondents offer the following reasons for the “below average” and “poor or failing” for the overall ratings:

- Beautiful concrete roads and bridges in middle of nowhere, crumbling roads, bridges, and not enough lanes where the heavier traffic is. The old funding formula was good to build state, now congestion and throughput needs to be a priority for 25 years.
- Capital Boulevard in Raleigh is always congested.
- Especially around Charlotte
- Explain "poor or failing" or "below average" rating here.
- Improve roads
- Improvement on the transportation systems - mainly the roads
- Intersection 321, I-85, and 485 not completed. Need to finish 485
- Needs overall improvements to roads, highways, and legal system.
- Not enough lanes (I-77, I-85), too many single lanes, poor roads (potholes, etc.)
- Not enough of anything for the truck drivers.
- Not keeping up with the times and population increase.
- Road conditions have deteriorated in the last few years
- Roads are rough and not kept up.
- Roads in bad condition
- Roads should be kept up
- The capacity is not keeping up with the utilization in areas around Charlotte. I-40 is in terrible condition from Statesville, N.C., west.
- The roads need improvement and better bridges
- The secondary roads are too narrow.
- We tax all local truckers and let out of state truckers use our highways free. The price of our taxes are ridiculous. Indiana and Delaware charge \$1.00.

- While capacity is not a major issue outside of rush hour in most major cities, the overall condition of Interstate highways in NC is very poor. There are many broken spots, potholes, gaps, cracks that make for a very poor travel experience.

Final Comments

The remaining questions asked that respondents provide suggestions and comments. The first question asked for strengths of the transportation infrastructure in North Carolina. The respondents mentioned the followings as the strengths (numbers in parentheses are the total number of respondents that give the same/similar answers):

- DMV in Raleigh and DMV in SC (Permit office is good)
- Good highways (7) (Good roads for the most part; Above average highways; Good Interstate and highway system; Good road conditions; Good roads in Eastern NC and no toll roads; Good roadways in major cities; Great highways; Highways are in good condition)
- Product availability
- Highway access (Access on and off of the major roads are good; Interstate access)
- Highway locations
- Highway system, available employees for warehouse and manufacturing positions. (The road systems and bridges are in place, just need to improve paving on roads and safety of bridges. Additional highways will be needed to offset congestion issues and avoid further delays that waste dollars, fuel and time.)
- Improvements on the roadways (Construction of the highways; Continued improvements; Government made an excellent change on Hwy 117; attempt to add lanes to interstates; Interstate system increase from two lanes to four lanes state roads; widening some portions of the interstate in City areas; Some new roads I 40 & 220. Need more.
- Increased use of overhead signs alerting drivers of conditions ahead. the state should expand use of signs and alerts to the rest of the interstate system
- Interstate & Major Highways (I-40; Interstate travel; Major highways (2); Several N-S and E-W highways; The fact that North Carolina has major Interstates running North & South and West & East I think makes North Carolina appealing to Shippers and Receivers
- Loops in major cities to avoid traffic and new highways to the coast (The high urban areas are easy to get around)
- No toll roads
- Service and equipment
- Timeliness

Next, respondents were asked to indicate legislative changes that they want to see in the coming five years that would improve goods movement in North Carolina. Their suggestions are:

- 53' access (Approve secondary highways for 53'; Do as other states, do away with the length law for trucks including twin trailers)
- Another major highway to travel east-west other than I-40
- Better road system about the cities
- Better routes for trucks and additional lanes
- Bypasses (Finish; Completed 540 in Durham, North Carolina; Maintain (2))
- Change the laws that the trucks have to stay in the right 2 lanes (not to restrict the drivers to only the right lane)
- City work with Highway Division
- Fuel and fuel costs (Fuel cost has to go down and improve congestion; Fuel prices; Lower fuel price (21)
- Fuel tax relief (Less/lower taxes (5); Lower diesel fuel tax (2))

- Funding and prioritization changes. Committee seats held by designees from major metro areas increased. Example, Charlotte area represented by someone who lives nowhere near the metro area. The dumbest set up I have ever heard of.
- Highway 85 between Salisbury and Spencer needs to be wider and replace bridges, Connector road to South Gastonia to South Charlotte, and revamp the roads in Charlotte
- Highway funding needs to be used to repair the highway and not allocated to other projects (2) (New legislation to keep fuel/gas tax money for roads from being taken from that fund and used in non-highway budgets; Use all of fuel cost for highway improvements; Use highway funds to improve roads; Use the intended highway funds for the improvement of the highways.)
- Hours of service (4) (Drivers hours of service needs to be re-evaluated)
- Improve maintenance (Maintenance of infrastructure and navigation in mountain areas; improved road surfaces; Repair roads; Road improvement; Road pavements and pothole maintenance; Update the older roads)
- Improve to accommodate the increase of population or accommodate increase volume (the highways need to be updated to keep up with the growing population)
- Improve turning capacity (Highway 221 is not a great turning point for large trucks; but north of 221 is perfect)
- Increase load limits (Heavier weight limits)
- Insurance cost (2)
- More and larger truck rest areas
- More highway access
- More interstate highways in Eastern, NC
- More jobs
- More lanes (5) (Increase Interstate lanes in Charlotte and Mooresville; More truck lanes on highway; Adding a third lane to the interstate system)
- More road construction away from Raleigh and the east coast.
- More stringent restrictions on startup companies
- More roads (additional roadways)
- No toll roads for the area
- Paving of interstate highways
- More funds to improve the roads (Make sure the funds are allocated to keep up with the forecasted needs of new roads and maintenance of existing routes)
- Roads
- Sign improvements (Update the signage)
- The laws have been changed to adversely affect the trucking industry. (Tickets - train law enforcement on regulations.)
- To increase highways
- Toll booths need to be set up to tax out of state carriers
- Update the gross limitations for the trucks (The sign for a weighted bridge should state exactly what the lawful amount of weight should be. For example the sign at this time states 65,000 and the lawful weight is 55,000)
- US Highway 52 is very old, no room for improvement on road, would suggest to and a bypass structure.
- Widen roads (3) (Widen highways and secondary roads; Widen the lanes on the secondary roads)

Parallel to changes in legislation, the respondents were asked to suggest infrastructure improvements needed by 2020 to improve goods movement in North Carolina. The improvements suggested are:

- Better access to the major cities (More highway access)
- Better freight rates
- Better policing of illegal trucks leaving the legal and good trucks along.
- Bypass small towns
- Capacity at Seaports is growing and will need proper support.
- Develop the roads

- Educate general motoring public about trucks and traveling on highways
- Finish the bigger city loops.
- Fund light rail lines and ridership will be much greater than projections.
- Growing number of vehicles on highways will require road improvements. Additional rest area parking along the Interstate highway system.
- Growth areas that will need highways. Example: Greenville, Johnston County, and entire coastal area.
- Highways
- Improve Interstate system (Continued improvements in the Interstate System; Increase interstate capacity; Interstate improvements around Charlotte, especially I77 between CLT and Statesville. Widening of I40 from Statesville to Hickory; Major interstates widened, more lanes, smoother roads I-77 especially)
- Improve highways – Roads (Increase the number of four lane highways)
- Improve road congestion
- Improve bypasses (2)
- Increase the hours of driving
- Increase load limits to more pounds
- Lower fuel costs (4) (Fuel cost must go down; gas prices)
- Lower insurance rates
- Maintain roads (2) (Improved road surfaces; upkeep of roads and bridges; improve present routes; Resurfacing Highway 52; Stay up with the building of the highways and bridges - Do it before the year 2020)
- Maintain funding with projects that are already on the floor and don't continue to reduce funding
- More lanes (2) (More lanes for interstates and major highways; increase to four lanes; example - 24E between Fayetteville and Kenansville; add additional lanes; Add lanes to decrease congestion; add additional lanes to I-26; More lanes overall; Investment in adding lane capacity in Hickory area, Charlotte, GSO on Interstates, 40, 77, 85)
- More road construction away from Raleigh and the east coast.
- More roads (2) (Must build new roads)
- Need to give the small companies a tax break.
- New Congress people in Washington, DC
- New roads
- Pot holes and bridges
- Reduce taxes (2)
- Structural improvement to bridges - bypasses around urban areas.
- The law makers need to go out into the field more often before acting
- The law that the truckers are not allowed in the left-hand lanes.
- Truck only traffic lanes in congested areas around major cities.
- Trucking costs too high (The heavy highway use tax on top of the license plate cost per truck is too high)
- Use of intelligent transportation systems to monitor road conditions and alert drivers and allow reroutes
- Widen present routes (2) (where land is available to reduce impact of congestion; Widening the highways to 3 lanes to accommodate the increase traffic)

Finally, respondents were asked to make any final comments that would be passed along. These final comments are:

- Bridge safety improvement
- Consistency in 65 mph speed limits on interstate systems for all vehicles
- DMV people are trying to show too much control on I-77 route. Traveled through weigh station successfully and was given ticket for weight less two miles from home terminal.
- Do not toll existing highways. Use the highway trust fund for highway improvements (as was intended). **DO NOT LET POLITICIANS TAKE THE HIGHWAY TRUST FUND MONEY TO SPEND IN THE GENERAL FUND. WE CAN HAVE ALL THE MONEY WE NEED FOR THE BEST HIGHWAY SYSTEM IN THE COUNTRY**
- Enforce speeding and tailgating (following to close)
- Hang all the big oil companies

- If we do not get fuel cost down the nation will be hurt on materials used for everyday.
- Laws for hours of service for Team Driving should be returned to 5 hours on and 5 hours off. Also, if a driver has an accident, drug testing should be done by the officer on the scene or a medical facility.
- More highways in North Carolina need to be designated to allow 53' trailers.
- More lanes
- Need to assure that all routes capable of safely maneuvering a tractor pulling a 53' trailer are designated STAA routes.
- No need for anonymous...Thomas Toton, SVP of Cardinal. Roads and transportation is the single most important factor for a healthy N.C. economy. Eighty percent of all goods come by truck. All employees travel to work. Infrastructure can equal quality of life and makes the state more attractive for business to create jobs here. Twenty years ago our infrastructure was great. Now it is the single most impediment [sic] to business expansion. We are choking even smart growth. Complete lack of leadership!
- North Carolina weak on outbound freight (Mexico and China). Spend money wisely and perform projects carefully and correctly.
- Only the truck length law which is outdated
- Passing laws containing the codes in the state, better compensation laws, improve license and fees, and revamp the scale enforcement program. Also would like to be placed on the board in North Carolina. Please contact: Mr. Robert A Luther, Sr.; P.O. Box 55; Maples, NC 28760
- Put toll booths at each end of the state to make out-of-state trucks pay to use our roads.
- Quit harassing drivers (DMV)
- Regulations of rates, government assistance in hiring truckers because by the year 2020, the infrastructure will need it. Ensure continued growth so movement of goods are made and enforced.
- Small companies such as ours are going out of business everyday because of high fuel prices and low freight rates. We will close at the end of March for those reasons.
- Something needs to be done about the high fuel bill. We do not need toll roads. Truckers have a hard time staying in business now as it is.
- The laws need to be changed and updated. For example the weight per axle verses total weight, and truck access to the left lane in Charlotte, N.C.
- The overseas truckers are allowed to haul containers up to 92,000 lbs. U.S. truckers can only haul up to 80,000 lbs. This law needs to be changed, since the U.S. truckers are paying taxes.
- The populations are growing in N.C. areas, taxes are being collected and the roads are not being increased to the size necessary to permit the driver to conduct business.
- The recent system installed at NC weigh stations will not be adopted by most carriers because it is not part of the PrePass network. Due to this, the system installed will not reduce traffic into the stations as projected. If Prepass were used, many of the non-compliant trucks could be routed in for inspection and the compliant trucks would travel on, reducing work load at the stations, reducing emissions to stop and start, save fuel and time.
- The state of North Carolina is the 3rd highest in paying taxes
- Toll roads should be avoided. Increased fuel taxes are the preferred option. Keep highway trust funds out of the general budget.
- Would like HWY-74 to loop into a Freeway to 485
- Would like to thank the SCTA and the NCTA for the partnership and working together to improve the laws/rights for the truckers..

Appendix

Date: _____ Time: _____ Interviewer: _____

Interviewer: Hello, my name is _____, and I'm calling from the University of South Carolina. We are assisting the state of North Carolina in developing a better understanding of its transportation needs. Your firm is selected to participate in the study because you have special, first-hand experience with North Carolina's transportation system and highways. We anticipate the survey will take no more than 7 minutes to complete on the phone. Or you may prefer to go to our website to complete the survey. That URL is: <http://research.moore.sc.edu/NCTransport.htm>. [Interviewer: Pause in case you need to repeat the URL; then continue with Part I.]

Part I - Company profile

The first section gives us a picture of your company.

1. Please provide company name and location information

[Interviewer: Confirm the company name and zip code.]

Company name _____

Zip code: ____ ____ ____ ____

2. Which one of the following best describes your company?

[Interviewer: Read all options. Mark clearly.]

- Private carrier (maintains its own fleet and freight)
- Common carrier (offers services to general public)
- Contract carrier (offers services to shippers under specific contracts)
- Independent owner/operator
- Other (please specify) _____

3. What kind of transportation services does your company provide?

[Interviewer: read all choices. Multiple selections are okay.]

- Truckload
- Less-Than-Truckload (LTL)
- Express Package or Parcel
- Drayage
- Distribution and Warehousing
- Other – please specify: _____

4. How many of each of the following do you operate out of your

location? [Interviewer: Repeat for each. "How many 2-axle straight trucks?" "How many 3- or 4- . . . ?" and so forth.]

- 2-axle straight trucks
- 3- or 4-axle straight trucks
- Power units
- Trailers
- Special purpose trucks
- Other

Part II - Operations

Now we're going to turn to your company's operations.

5. What are the primary commodities being hauled by your operation? [Interviewer: Read options, but try to get respondent to provide the answers. Multiple choices are okay.]

- General Freight
- Containerized Cargo**
- Bulk (such as feeds, grain, fertilizers, pellets, etc.)
- Garbage or refuse or trash
- Construction Materials
- Bulk liquids (like Petroleum)
- Specialized Haulage (temperature controlled, heavy equipment)
- Other

[Interviewer: If "containerized cargo" is selected then ask the following additional 2 questions (5a and 5b).]

5a) How many containers do you carry on an average week or day?
 _____/week or _____/day

5b) Please tell us the origins and destinations of your typical container movements? Origins and destinations can be seaports, inland terminals, distribution centers, and retail outlets both in North Carolina and in other states. [Interviewer: up to 4 different movements can be specified. Circle appropriate "origin" response from list below. "Red" number need explanation.]

	Origin	Destination	Explanation
1	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	
2	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	
3	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	
4	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	

[Interviewer: Select "Origin" and "Destination" from the list below. Record responses in blanks above. Do not read the options unless needed for clarification.]

- 1. N.C. Seaports** (Wilmington and Morehead ports)

- 2. **Seaports in other states** (Interviewer: please ask which state?)
- 3. **Inland intermodal (rail and air) terminals in North Carolina**
- 4. **Inland intermodal terminals (rail and air) in other states**
(Interviewer: please ask which state?)
- 5. **Distribution, transload or cross-dock center in North Carolina**
- 6. **Distribution, transload or cross-dock center in other states**
[Interviewer: please ask which state]
- 7. **Retail outlets in N.C.**
- 8. **Retails outlets in other states** [Interviewer: please ask which state]
- 9. **Other, please specify]**

6. What geographic area(s) does your operation cover?

- Local (within 50 miles of location)
- Intra State (throughout the state of North Carolina)
- Moderate Haul Domestic (2-6 states, including North Carolina)
- Long Haul Domestic (Throughout the country)

7. Please list the routes/corridors most often used in North Carolina for transportation of your freight. These can include primary roads, highways, and interstates. [Interviewer: Examples would be I-85, I-40, U.S. Hwy 74. Interviewer: If more than 6 roads, check "almost all major roads in North Carolina".]

Almost all major roads in North Carolina

Record routes/corridors here:

8. What intermodal terminals (rail, water, and air) in North Carolina do you often use? [Interviewer: Emphasize "North Carolina" here. Multiple selections are okay. However, if respondent gives a different terminal in North Carolina or another state, record under "Other".]

- Piedmont Triad Inland Terminal (at Greensboro)
- Charlotte Inland Terminal
- Port of Wilmington
- Port of Morehead
- Charlotte-Douglas International Airport

- Piedmont Triad International Airport
- Asheville Regional Airport
- Raleigh-Durham International Airport
- Wilmington International Airport
- Fayetteville Regional Airport
- Other – please specify: _____

9. Do you often use intermodal terminals (rail, water, and air) in other states?

- No Yes - which terminal and where (state)?

10. How many loads/shipments do you haul on an average day or week?

_____ /week or _____ /day

11a. Considering all your trips last year (2007), approximately what percentage of these trips were empty? [Interviewer: In case respondent needs clarification, indicate these are directional trips from point A to point B.]

Percentage of empty trips _____%

11b. What are the origins and destinations of most of these empty trips? From where and to where are most empty trucks moving?

[Interviewer: Record up to three, then remind respondent we are looking for the majority or most of the empty truck movements.]

From: _____ **To:** _____

From: _____ **To:** _____

From: _____ **To:** _____

12. Again, considering all your trips last year (2007), approximately what percentage required a permit for hauling additional weight beyond the standard limit (for example 80,000lb limit).

[Interviewer: Enter zero percent if the answer is none.]

Percentage requiring permit _____%

Part III - Assessment of infrastructure

In this section of the survey, we ask your rating of specific transportation issues in North Carolina.

13. Do any of the following conditions present problems for your operations within the state? Rate from 1 to 5 where 1 is “not a problem” and 5 is “a very serious problem.” [Interviewer: If respondent says “serious problem” or “very serious problem”, ask for where the problem occurs and when it occurs.]

	1. Not a problem	2. Rarely a problem	3. Occasionally a problem	4. Serious problem**	5. Very serious problem**	If #4 or #5, Ask “Where and when, if applicable, does this occur?”
Highway congestion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Travel time reliability (uncertainty) on highways	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Delays or wait times at seaports (Wilmington and Morehead ports)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Truck access to seaports (Wilmington and Morehead ports)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Delays or wait times at inland intermodal terminals and airports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Truck access to inland intermodal terminals and airports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Roadway turning radius	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Insufficient bridge clearances (height)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Inadequate local streets capacity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cargo theft	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Number of truck rest areas on highways	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Poor Signage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

14. Are there any other major impediments that cause problems in freight movement? Please list and identify where/when these problems occur. [Interviewer: record up to three, then continue with remaining questions.]

Another impediment 1: _____

Where: _____ When: _____

Another impediment 2: _____

Where: _____ When: _____

Another impediment 3: _____

Where: _____ When: _____

15. Overall, how do you rate the transportation infrastructure in North Carolina?

- Excellent Above average Average
 Below average** Poor or failing** Don't know

[** Interviewer: If "below average" or "poor or failing" rating, ask "Can you explain why you say that?"]

Record why here: _____

16. What would you say are the strengths of the freight infrastructure in North Carolina?

Record here: _____

17. Over the next 5 years, what changes in legislation are needed to improve goods movement in the state of North Carolina?

Record here: _____

18. What infrastructure improvements are needed by the year 2020 to improve goods movement in the state of North Carolina?

Record here: _____

19. Do you have any other comments or suggestions regarding freight movement in the state? These will be passed along anonymously to the North Carolina Department of Transportation.

Record comments here: _____

Thank you very much for your help with this important study.

Appendix E: Summary of Selected Major Historical Transportation Initiatives

NORTH CAROLINA PORTS

The information summarized in this discussion of North Carolina's sea ports was drawn primarily from the North Carolina State Ports Authority website (home page www.ncports.com).

Seaport operations near Wilmington and Morehead City date back to colonial America. Wilmington port operations moved from the city's waterfront to the site of the former North Carolina Shipbuilding Company following World War II and the creation of the North Carolina State Ports Authority in 1945. The formation of the authority occurred more than 20 years after the defeat in 1924 of the first legislative effort to establish state ownership of the Wilmington and Morehead City ports. Throughout the 19th century seaport trade was dominated by naval stores. In the early 20th century this pine tar based trade continued but was complemented by a booming trade in rice and tobacco. The latter half of the 20th century brought the emergence and explosion of container trade and the evolution of North Carolina's export economy.

Today, the Port of Wilmington serves as North Carolina's container port accompanied by vibrant bulk and break bulk movement of commodities such as chemicals, cement, wood pulp, and forest products. The Port of Morehead City handles break bulk and bulk traffic, notably as a leading port for phosphate exports and the nation's second leading port for import of natural rubber. The Port of Morehead City has a deeper channel than does the Port of Wilmington. The main channel was deepened to 45 feet in 1994, making Morehead City one of the deepest draft ports on the east coast.

The North Carolina State Ports Authority also operates the Charlotte Inland Terminal and the Piedmont Triad Inland Terminal in Greensboro. These terminals, opened in the 1980s, provide U.S. Customs and Border Patrol bonded container yard operations and container storage. The inland terminals provide streamlined access to manufacturing and distribution in the southeast U.S.

As mentioned above, efforts to transition the North Carolina seaports to state ownership began in the 1920s. The concern at the time was that the state's economic health was being hampered by inadequate port facilities. The primary aggravating symptom of this situation was the high freight rates required to move commodities through the competing Virginia ports. In 1924, a referendum was put forth for the state to invest \$8.5 million in port improvements. The referendum was defeated, principally due to a lack of support in the Piedmont counties. Also as mentioned above, the North Carolina State Ports Authority was created in 1945 with the mission to develop and operate successfully competitive ports at Wilmington and Morehead City. The creation of the authority reflected a broader recognition of the economic value of the ports to the entire state.

Port improvements under the new authority were to be funded through bonds guaranteed by operating revenues. In 1949, the General Assembly approved the issuance of \$7.5 million in revenue bonds. The improvements funded by these bonds were completed in 1952 and enabled oceangoing vessel service at both ports. Recent improvements include four 100-foot gauge container cranes at Wilmington, a new 177,000 square foot warehouse at Morehead City, and state-funded berth construction at both ports.

The North Carolina State Ports Authority operates as a self-funded operating agency under the Department of Commerce. The authority owns and operates the port facilities under the oversight of a board of directors and the support and assistance of an advisory council. The North Carolina General Assembly provides direct funding and specific bond authorization as well as incentive programs such as a state ports tax credit to port customers who pay North Carolina income tax.

Given the long and complex history of the North Carolina ports, it is difficult to define and compare projected versus actual results from state investment in port facilities and from tax incentives. Nonetheless, the overall economic benefit of the ports can be assessed. A study of the 2005 port activity by Martin Associates estimated that the ports directly or indirectly supported 85,000 jobs and contributed \$299 million to statewide tax revenues. While these numbers are significant, an upside potential is evident if they are compared to estimates for the impact of 2006 operations at the Port of Savannah, namely 286,476 jobs and \$2.8 billion in state and local taxes (study by the Terry College of Business at the University of Georgia).

The North Carolina Railroad

The information summarized in this discussion of the North Carolina Railroad was drawn from the North Carolina Railroad website (home page www.ncrr.com) and *The North Carolina Railroad, 1849-1871, and the Modernization of North Carolina* by Allen W. Trelease.

A strong case can be made that the North Carolina Railroad fundamentally shaped modern North Carolina more than any other single infrastructure project. Throughout the early 19th century into the 1840s, North Carolina was widely viewed as backward and impoverished with little or no progressive vision. Furthermore, there was little unity between the mountain, piedmont, and coastal regions. This was physically manifested in the very poor condition of the state's roads and railroads. This state of affairs had reached a crisis point in 1848. The legislature that convened in November of that year was faced with the eminent construction of a trunk line linking the Richmond and Danville from the north to the Charlotte and South Carolina from the south. Governor William Graham and others feared that this would sever the state by reinforcing the economic reliance of central and western North Carolina on Virginia and South Carolina as well as precipitating continued languishing of the state's seaports.

The response that emerged was a proposal to build a new railroad from Charlotte to Goldsboro. The state would be principal owner and would contribute two-thirds of the estimated \$3 million cost with the remaining \$1 million raised through the sale of private stock. In January 1849, the railroad charter passed by a vote of 60 to 52 in the House and later by a vote of 23 to 22 in the Senate. Senate President Calvin Graves of Caswell cast the tie-breaking vote.

The ground-breaking ceremony occurred in Greensboro on July 11, 1851. The percentage of private stock deposits required before the railroad could be officially chartered was reached in 1854. In a famous speech, John Motley Morehead, the first president of the newly chartered enterprise, referred to the North Carolina Railroad as a "Tree of Life" for state. The first train traveled the entire 223 mile route from Charlotte to Greensboro in January 1856. The 96-mile

Atlantic and North Carolina Railroad opened two years later in 1858 thereby providing a continuous route from Charlotte to the Morehead City port. Although efforts aimed at merging the Atlantic and North Carolina Railroad with the North Carolina Railroad began shortly after the opening, the merger was not completed until 1989.

Until 1871, the North Carolina Railroad Company owned and operated the railroad. This period ended when the railroad was leased to the Richmond and Danville Railroad. The agreement stipulated a thirty-year lease. The lease continued in effect after the Richmond and Danville was absorbed into the newly formed Southern Railway Company in 1894. Prior to the expiration of the original lease, Southern Railway negotiated a ninety-nine year lease that took effect in 1896. Southern Railway merged with the Norfolk and Western Railway in 1982 to form Norfolk Southern. After the expiration of the lease, the North Carolina Railroad Company decided to maintain ownership of the railroad, and the State of North Carolina purchased all outstanding privately held shares in 1998 making the railroad 100% public owned. In 1999, the North Carolina Railroad entered into a fifteen-year exclusive trackage rights agreement with Norfolk Southern. This agreement is renewable for an additional 30 years.

In 2000, the General Assembly established by statute that railroad dividends are to be used exclusively for system improvements. The following years have seen a series of important improvement projects, including \$30 million in joint venture improvements between Raleigh and Charlotte with Norfolk Southern and \$10 million in improvements between Goldsboro and Morehead City.

The primary motivation for the creation of the North Carolina Railroad was to promote the economic health of the state in a manner that also created strong east to west ties. This primary motivation continues today in concert with newer considerations such as responding to an increasingly global economy and ensuring that passenger and freight transport is environmentally and economically sustainable.

The North Carolina Railroad is a public-private venture in the fullest sense. Although the railroad right of way and trackage is owned by the state of North Carolina, railroad operations are provided by Norfolk Southern and Amtrak. As mentioned above, Norfolk Southern has also invested in system improvements.

As with the state's ports, the long and complex history of the North Carolina Railroad makes it difficult to speak in terms of projected versus actual results. However, it would be difficult to overestimate the impact of the railroad on the state's economy and patterns of urban and industrial development. As one example of an early impact on an important element of the state's 19th and 20th century economy, the counties along the railroad's route raised only a little more than a quarter million pounds of tobacco out of a statewide total of nearly 12 million pounds in 1850. However, by 1860 the tobacco production of these same counties had grown to more than 3 million pounds, more than a tenfold increase in ten years. This dramatic growth returned following the Civil War and post war periods with tobacco production along the railroad reaching 5 million pounds in 1890 and exploding to 17 million pounds by 1900.

The economic importance of the North Carolina Railroad is just as strong today. A 2007 report by RTI International estimated that the North Carolina Railroad annually saves its customers \$198 million in transportation costs and contributes \$338 million to the state's economic output.

Highway Trust Fund

The information summarized in this discussion of the North Carolina Highway Trust fund was drawn from the legislation as amended (N.C.G.S. 136-175 through 136-185 [Article 14]), fiscal year 2007 progress data provided by Marie Sutton of the NCDOT Program Development Branch, and the NCGO! website (home page www.ncgo.org).

The North Carolina Highway Trust Fund was created by the General Assembly in 1989. Revenue sources for the fund include motor fuel, alternative fuel, and road taxes; motor vehicle use taxes; title and registration fees; and interest and income on the fund balance. The fund's purpose was to ensure that North Carolina would have a first-class highway system heading into the 21st century by funding the completion of a 3,600 mile multilane intrastate highway system and 211 miles of urban loop highways. By 2007, the total miles of the intrastate and loop systems had grown to 3,684 and 379 miles, respectively. In 1989, 1,843 miles of the designated intrastate system was already complete leaving 1,757 miles to be completed. The original plan anticipated completion of the intrastate system and urban loops by 2003. However, due to cost escalation and project delays, approximately 901 miles of intrastate highways and 224 miles of urban loops were yet to be completed as of the end of fiscal year 2007. The current estimated cost of the remaining miles exceeds the total estimated cost from 1989 (\$7.7 billion versus \$5.3 billion for the intrastate system and \$5.5 billion versus \$4.5 billion for the urban loops).

The decision to create the Highway Trust Fund was founded on the recognition of the importance of an adequate and well-maintained highway system to the economic health of the state. Although subsequent legislation has broadened the funding categories beyond the original intrastate and urban loop systems, this basic foundation remains intact. However, as the brief history above illustrates, the Highway Trust Fund as currently structured will not be able to fund completion of the envisioned projects. Overall, the North Carolina Department of Transportation estimates that with the current funding sources there will be a \$65 billion funding shortfall relative to transportation needs over the next 25 years. Organizations such as NCGo! are working to develop solutions to this shortfall. Toll projects administered by the North Carolina Turnpike Authority are also part of the solution.

It is difficult to isolate the economic impact of the elements of the Highway Trust Fund that have been constructed and to estimate the economic benefit that would accrue if the intrastate and loop systems were fully complete. However, it is clear that the intrastate and loop highways are vital to the state's economic health and that they are a key component to the statewide freight logistics system.

The Global TransPark

The information summarized in this discussion of the North Carolina Global TransPark was drawn from the NCGTP website (home page www.ncgtp.com) and firsthand knowledge of the

authors. Information on the AllianceTexas development was drawn from development's website (www.alliancetexas.com).

The genesis of the Global TransPark in North Carolina occurred in the years leading up to and including 1990 as John Kasarda, Director of the Frank Hawkins Kenan Institute of Private Enterprise, began to formulate and promote a concept for "global air cargo industrial complexes." The global air cargo industrial complex vision was based on a worldwide network of high tech developments that merge airside facilities capable of servicing the world's largest air cargo planes with on-site just-in-time manufacturing and intermodal connections to all surface transportation modes. Within this context the vision had specific implications for North Carolina as a prime location for a first tier facility given its mid-Atlantic location and proximity to a significant majority of the U.S. manufacturing and consumer markets. Dr. Kasarda presented his ideas to North Carolina leaders, including then Governor James Martin.

In 1991, Dr. Kasarda published the concept in *Economic Development Quarterly* and *Portfolio: A Quarterly Review of Trade and Transportation*. That same year, Governor Martin endorsed the concept in his State of the State address, and the General Assembly created the North Carolina Air Cargo Airport Authority (now the North Carolina Global TransPark Authority). The North Carolina Department of Transportation commissioned a two-part study in February 1991 to 1) analyze air freight flows across the state and 2) study the feasibility of the proposed global air cargo industrial complex. The feasibility study was completed in February 1992. The study recommended conversion of a military airfield as the first choice site. In describing the necessary site characteristics, the feasibility study asserted that "Excellent access to the interstate and state highways and rail systems will be essential to operational success."

Following the feasibility study, the newly formed authority solicited requests for proposal from across the state for the location of the proposed facility. Eleven community partnerships submitted proposals, and the authority selected Kinston as the preferred site. Based on an initial evaluation of existing airfields within the state, the feasibility study stated that "Kinston has suitable land for expansion subject to some wetlands" and "Existing highway links are limited."

With partial funding from the Federal Aviation Administration (FAA), the authority initiated a master planning effort. The master plan was completed in 1994. In the same year, the FAA determined that a full environmental impact statement would be required for the development. The Global TransPark's first tenant, Mountain Air Cargo, was announced in 1994 and began operations in 1996. The Global TransPark was designated as a Foreign Trade Zone #214 in 1996 as work continued on the environmental documentation. The environmental impact statement was completed in 1997 after which design begins on the runway extension. The TransPark experienced a disappointing marketing setback in 1998 when Federal Express selected Greensboro's Piedmont Triad International Airport as the site for a major regional freight hub. The TransPark Center, a 33,000 SF training and conference center was completed in 2000. The final phase runway extension to 11,500 ft. was completed in 2002. The following air cargo and industrial facilities are currently operational:

- GTP 1 – 56,000 SF Manufacturing. Built 2005
- GTP 2 – 19,000 SF Manufacturing/Warehouse. Built 2005

- GTP 3 – 25,000 SF Manufacturing; 2,500 SF Office. Built 2005
- GTP 4 Hangar – 17,000 SF Hangar; 2,100 SF Office. Built 2004
- North Cargo Building – 56,000 SF Warehouse & 2,800 SF Office. Built 2001
- South Cargo Building – 4,100 SF Warehouse. Addition built 2002

The decision to pursue the creation of a manufacturing and logistics site centered around an air cargo facility was driven by the desire to keep North Carolina at the forefront of the global economy that was emerging at the end of the 20th century. The concept developed by Dr. Kasarda was compelling. When the focus shifted to selecting a site for the complex, further issues came into play such as regional economic development and job creation needs. Given that the requisite highway and rail connections were not in place at the Kinston Regional Jetport, it is clear that the desire to provide economic stimulus to Eastern North Carolina played a significant role in the final site selection. Available land for development and proximity to the I-95 corridor and North Carolina's deep water ports are important positive traits of the Kinston site. However, the vital need to provide improved direct freeway and rail connections have been recognized from the beginning.

The North Carolina Global TransPark Authority is an independent state agency under the North Carolina Department of Transportation. The authority is the owner/operator of the publicly owned facilities. In 1993, the Global TransPark Foundation was established as a 501(c)(3) nonprofit corporation. The foundation was created to foster and accelerate development using funds from private tax-exempt contributions. The General Assembly also created the North Carolina Eastern Region Commission in 1993. The scope of the commission is a 13-county region expected to derive direct economic benefit from the Global TransPark. Commission funds were generated through a \$5 per year motor vehicle fee within the region collected from July 1994 through June 1999. The motor fee generated \$15 million to which the General Assembly added \$7.5 million. The commission funds are available through development loans to counties within the region. Ultimately, the majority of the Global TransPark's capital investment and economic impact will come through private sector manufacturing and goods movement activities plus the supporting service industries.

It is widely held that the Global TransPark has fallen far short of projections for industrial development and job creation. While there is certainly truth to this sentiment, the pronouncements generally fail to acknowledge that the original feasibility study forecast of 59,000 direct, indirect, and induced jobs created by the year 2000 was predicated on immediate development on a site with adequate airfield facilities, available land for industrial development, and existing direct limited access highway and rail connections. Comparisons are often made between this total job number to actual on-site jobs which is currently in the hundreds. Objective assessments must be made by comparing direct employment to direct employment and total employment to total employment. More importantly, because the original estimates assumed excellent highway and rail access, a strong case could be made that the starting point for the development projected by the feasibility study and the master plan has not yet been reached. As a point of comparison, the feasibility study predicted 28,000 direct employment by the year 2000. Again it is important to recognize that this forecast assumed a fully connected and fully

functional complex operational in the early 1990s. This estimate is essentially identical to the direct employment reported for the AllianceTexas as of December 31, 2006.

The overall impact to North Carolina resulting from the Global TransPark remains small compare to the predictions and the potential. However, as was stressed in the discussion above, the essential criteria of excellent highway and rail connections is still lacking at the TransPark site. For example, although rail and highway access to the Morehead City port is somewhat adequate, there is essentially no rail access to the state's container port at Wilmington. It is unlikely that significant industrial development such as was envisioned by the feasibility study and master plan can occur prior to the correction of the highway and rail access deficiency.

However, it could be argued that the impact of the concept has already been validated if the Piedmont Triad and Charlotte air cargo-based developments are considered. In addition to the need to correct the modal access deficiencies at the TransPark site, it will also be important to view the Kinston complex in the context of a statewide logistics network including the logistics hubs such as the Greensboro and Charlotte developments.

International Port at Southport

The information summarized in this discussion of North Carolina International Port was drawn primarily from the North Carolina State Ports Authority website (home page www.ncports.com).

Although container operations at the Port of Wilmington are robust, the terminal is 26 miles from the sea buoy, and the Cape Fear River site does not allow for the depth of channel and turning basin size to accommodate post-Panamax container ships. In response to this situation, the State Ports Authority is pursuing the development of a world-class international port near the Brunswick County town of Southport and adjacent to the Sunny Point Military Ocean Terminal. The site is on the west bank of the Cape Fear River much closer to the open ocean. If built, the port will be approximately 10 miles from the sea buoy with a channel depth of 50 feet. The authority purchased the 600-acre site in 2006. Currently, a pro forma business plan is being developed, and the authority is working with the state's congressional delegation to secure funding for an Army Corps of Engineer's Reconnaissance Study. Although the history of the international port initiative is recent, interestingly the business leaders of Southport changed the town's name from Smithville to Southport in 1887 in an antebellum effort to promote their desire to transform the town into a major southern port city. Therefore, if the international port becomes a reality it will literally fulfill a 100 year old vision.

The State Ports Authority's decision to pursue development of the North Carolina International Port is driven by a desire to position North Carolina to be a major player in the 21st century global economy and bolstered by recognition of the trends of increased container traffic and larger container ships. The final decision of whether to go forward with the development will hinge on the economic and environmental feasibility of providing the onsite and supporting infrastructure. The authority has recently received approval to proceed with preparing an environmental impact statement. Environmental questions related to issues such as channel dredging and wetlands and coastal zone preservation loom large. Project costs will also be monumental. Current estimates are in the range of \$1.7 billion for the port facilities and \$600

million for related infrastructure to provide highway and rail access. However, if the project proves to be feasible, the positive economic impact to North Carolina could be equally staggering. A 2008 study by Martin Associates estimates that by 2030, the North Carolina International Port could support the creation of nearly half a million jobs statewide with an accompanying impact of \$1.2 billion annually in increased state and local tax revenue.

Examples of Major Freight Initiatives in Other States

A brief review of two initiatives outside of North Carolina follows. One is a logistics plan, namely the California *Good Movement Action Plan*. The other example is the Alliance Global Logistics Hub development near Fort Worth, Texas. These examples were selected to provide useful perspective for evaluating North Carolina's logistics history and for charting a more aggressive freight logistics initiative in the State.

California Goods Movement Action Plan

Information summarized in this discussion was drawn directly from the *Goods Movement Action Plan*.

The *Goods Movement Action Plan* published in January 2007 was the culmination of a two-phase process that grew out of the Schwarzenegger Administration's goods movement policy published in January 2005 under the titled *Goods Movement in California*. The Phase I report was published in September 2005 provided the foundation for the action plan by characterizing "the 'why' and the 'what' of the State's involvement in goods movement" and providing an inventory of "existing and proposed goods movement infrastructure projects" across the state. Building on this foundation, the January 2007 document is a "is a statewide action plan for goods movement capacity expansion, goods movement-related public health and environmental impact mitigation and community impact mitigation, and goods movement-related security and public safety enhancements" that "presents the 'how,' 'when,' and 'who' required to integrate" the envisioned goods movement activities. The overarching administrative policy goal for the *Goods Movement Action Plan* is to "to improve and expand California's goods movement industry and infrastructure in a manner which will:

- Generate jobs.
- Increase mobility and relieve traffic congestion.
- Improve air quality and protect public health.
- Enhance public and port safety.
- Improve California's quality of life."

The plan is organized in terms of established priority corridors and regions and presents approximately 200 candidate actions recommended for further study. The actions are categorized in the following time frames:

- Immediate (immediate implementation)

- Short-term (0-3 years)
- Intermediate-term (4-10 years)
- Long-term (10+ years)

The immediate actions generally include operational improvements that do not require significant capital investment or construction activity. The preliminary combined capital investment estimate for the candidate actions is \$15 billion.

The plan provides assistance to the California Transportation Commission in setting project priorities by outlining a “series of ‘solution sets’ of high priority projects that can produce corridor-wide improvements and lay a foundation for future project and action implementation.” Finally, the action plan includes bond funding recommendations for strategic use of the \$3.1 billion in bond authority provided by the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006.

Alliance Global Logistics Hub

Information on the Alliance Global Logistics Hub was drawn from the AllianceTexas website (www.alliancetexas.com).

The Alliance Global Logistics Hub is the core development of AllianceTexas, a 17,000 acre master planned that includes 6,700 single family homes in addition to commercial retail space. The Alliance Global Logistics Hub is virtually identical to the Global TransPark concept. The main difference is that the Fort Worth Alliance Airport, linchpin of the Alliance Global Logistics Hub, serves only cargo and general aviation flights, i.e. there is no scheduled passenger service. The Fort Worth Alliance Airport is a joint venture of Hillwood Properties, the City of Fort Worth, and the Federal Aviation Administration. Airport construction began in 1988, and the airport opened in December 1989. The airport is owned by the City of Fort Worth and operated by Alliance Air Services. In addition to the state of the art airport, the Alliance Global Logistics Hub operates as Free Trade Zone #196 and includes BNSF Railway’s Alliance Intermodal Facility, direct access to two class I railroads, direct connections to state and interstate highways, and Fedex’s Southwest Regional Sort Hub.

As mentioned above, the economic impact of the AllianceTexas development as of December 2006 included an estimated direct employment of approximately 28,000 with indirect employment of approximately 67,000. The year 2006 total economic impact was estimated at \$2.77 billion. Although private investment represents nearly 95% of total investment, the public investment in supporting infrastructure has been nearly \$350 million. By contrast, the public investment thus far in the Global TransPark is on the order of \$100 million.

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Appendix F: Tourism, Transit, and Military

NC Statewide Logistics Plan—Tourism

The North Carolina Tourism Industry

Overview

Tourism is one of North Carolina's primary industries and is therefore quite important for the State's future economic development. Clearly, North Carolina has an abundance of natural, cultural and heritage resources that provide an excellent opportunity for continued growth in tourism.

A recent study by Global Insight revealed that 64.5 million people visited the State in 2005, creating an economic impact of \$15.5 billion. Tourism ranked as the 9th largest private industry in the State, and as the 8th largest private sector employer (184,600 jobs directly employed in the tourism business, with another 150,700 indirectly supported). One of every 12 NC workers owes his/her job to tourism.

Looking at both 2005 and 2006, some other pertinent facts about NC tourism include (NC Department of Commerce, 2005, 2006):

- The majority of visitors are traveling for leisure purposes (70-85%); 15-30% are business travelers.
- Approximately 40% of overnight visitors are from elsewhere in the State. About 35% come from other southeastern states.
- North Carolina ranked sixth in person-trip volume in 2006, behind California, Texas, Florida, New York and Pennsylvania. (It ranked eighth in 2005.)
- About 85% of visitors come by automobile/RV. Only 4-13% come by plane.
- Almost one-half of tourists stay in a hotel, motel or resort. Another 40-50% stay in a private home. The rest stay in a condo, timeshare, B&B or RV Park/Campground.

The NC "Travel Tracker" from the NC Department of Commerce reports that for 2006:

	Coast	Piedmont	Mountains	Total
Airplane Deplanements	706,064	20,645,230	284,856	21,636,150
Visitors to Welcome Centers	3,159,551	3,171,471	2,285,040	8,616,062
State Park Visitors	4,170,678	6,187,132	1,999,324	12,357,134
National Park Visitors	3,605,001	136,679	15,300,197	19,041,877

Note: this information is also available for each of the seven Economic Development Regions.

In addition to what are typically thought of as "tourists," a related issue is the number of people who own second homes in the State. As of 2005, there were over 130,000 such second homes. An example is residents of Florida who own second homes in the NC mountains and spend their summers there "cooling off."

In its Economic Development Strategic Plan, the NC Economic Development Board states:

“The Economic Development Board will work in full partnership with North Carolina’s business community to facilitate the retention and expansion of North Carolina’s tourism, film, and sports industries and to encourage strategic new investment, to insure that these industries continue to flourish and contribute optimally to the statewide and local economy, and to develop and support arts and cultural resources as key economic assets of the State.”

The Strategic Plan articulates a long-term goal and supporting objectives toward this end.

Goal 7: Maintain and Strengthen Tourism, Film, and Sports Industries; Preserve, Protect, and Promote Our State’s Cultural, Natural, and Heritage Assets.

- *Objective 7.1: Ensure Expansion and Continued Development of Cultural and Heritage Tourism, Craft, and Film Industries in North Carolina.*
- *Objective 7.2: Protect and Promote Our Natural, Cultural, Artistic and Heritage Assets.*
- *Objective 7.3: Develop and Utilize Cultural Resources to Support Broader Economic Development.*

Tourism is likely to grow significantly in the state if only because of population growth. By 2030, population is projected to grow by another 3.5 million to 12.2 million, an increase of 52 percent over 2000.¹ People who live in the state will undoubtedly take at least some of their trips and vacations within the state.

The Distribution of Tourism

Tourism obviously occurs throughout the State. More specifically, the Global Insight study reported the following:

Area/Region	Share of Statewide Tourism Spending	Growth in Spending (CAGR 2003-2005)
Piedmont Area	53.4%	5.8%
Carolinas (Charlotte region)	21.1%	5.5%
Triangle	18.0%	5.7%
Triad	14.2%	6.4%
Coastal Area	29.2%	3.0%
Southeast	12.5%	3.6%
Eastern	9.1%	2.7%
Northeast	7.6%	2.4%
Mountain Area	17.4%	6.3%
Total	100.0%	NA

Global Insight went on to characterize the three major areas as follows:

Piedmont Area:

¹ U.S. Census Bureau, Population Division, *Interim State p Projections*, 2005.

- Well-known for golf courses, lakes and recreational areas. Also for camping, shopping and museums.
- Charlotte, Piedmont-Triad and Raleigh-Durham International airports are located here.
- Lowe's Motor Speedway hosts NASCAR events.
- Over 21,000 seasonal second homes.

Coastal Area:

- NC has one of the largest operational ferry systems in the country.
- A variety of outdoor/nature-based activities including fishing, surfing and sailing.
- Small towns along the coast are supported by farming and fishing.
- Over 67,000 seasonal second homes.

Mountain Area:

- Home to the Blue Ridge Parkway and the Biltmore Estate ("America's Castle").
- Some of the activities include hiking, skiing, white water rafting, shopping, museums, and historical sites.
- Over 46,000 seasonal second homes.

The Logistical Impacts of Tourism

Tourism creates many of the same impacts on goods movement and infrastructure as do the people who live in the state. First of all, there needs to be places to stay in order for most tourism to occur, whether it's in hotels, motels, rental cottages or houses, condos, campgrounds or RV parks. This has significant implications for logistics. Access roads must be available or be constructed, as well as other important infrastructure facilities such as water and sewer lines. The lodging facilities have to be built, maintained and operated. This involves the movement of construction materials, goods and supplies, the use of small and large trucks, and even the movement of employees who work at the lodging facilities.

Second, tourists usually come to visit "attractions," whether they are beaches, golf courses, ski resorts, museums, historic sites, or state or national parks. These too must be built, maintained and/or operated, and require access roads and supporting infrastructure.

Third, tourists need to get to their desired destinations. The vast majority of overnight visitors to North Carolina arrive by automobile, but even the small number who arrive by plane (or train, or bus) generally need to rent a car to get around. This has important implications for interstate highways, state roads, bridges, parking facilities, airports and train and bus stations. To the extent that these transportation facilities are clogged with tourists (and employees at tourist facilities), the movement of goods and materials is hampered.

As just one example, many of the visitors to the northern Outer Banks come from places further north, such as Virginia, Maryland and DC. To get to rapidly-developing areas like Duck and Corolla, they have to drive as far south on the Currituck County mainland as Point Harbor, drive across the Wright Memorial Bridge to Kitty Hawk/Southern Shores, then drive north again on Highway 12 which is both narrow and frequently congested. The intersection of US 158 and US

12 in Kitty Hawk is generally a nightmare on summer weekends, especially Friday night and Saturday, with backups that can last several hours. Because of the constrained geography as well as local opposition, the prospect of widening US 12 is unlikely. This has led to strong local pressure to build a new bridge (the Mid-Currituck Bridge) further north, in order to relieve this chokepoint.² (Such a facility would not only improve access to this area, but would facilitate evacuation in the event of a hurricane.) A similar issue is the replacement of the Bonner Bridge which connects Hatteras Island with the northern Outer Banks.

Fourth, while in North Carolina tourists dine, shop, buy beach and other recreational equipment, fill their cars with gas, etc. This results in a constant need to move goods and supplies from distribution locations to restaurants and stores. These activities also create garbage and waste that then has to be hauled away and disposed of.

Fifth, some recreational activities have specific infrastructure implications. For example, bicycling is a common activity on the Outer Banks due to its temperate climate and flat terrain. A 2004 study by the Institute for Transportation Research and Education found that many visitors were attracted to the Outer Banks for the purpose of bicycling, that the state and local investment in bicycle facilities such as bicycle paths and lanes was a significant factor in this, and that the economic impact of bicycling to the northern Outer Banks was \$60 million annually. A similar example is the need for ferry boat service on certain parts of the Outer Banks. Not only do these ferries transport tourists and/or their cars, but also needed supplies to the islands.

An issue that needs to be considered here is the seasonality of tourism. Obviously, the preponderance of tourism is during the summer (or at least during the warmer months when people can spend time outdoors). Of course, some tourism is also winter-oriented, e.g. skiing. The impact of this tourism on infrastructure is therefore limited to those months. However, it should also be realized that many tourist areas are putting more and more effort into becoming year-round destinations (or almost year-round).

Mitigating the Logistical Impacts

There are a number of possible ways to facilitate the growth of tourism in North Carolina and to mitigate its adverse impacts on logistics and infrastructure. The most obvious one is to build more infrastructure—construct more bridges, widen roads, improve/expand airport facilities, etc. etc. Of course, this will not always be possible due to land or budget constraints, or local opposition.

Another approach is to improve the efficiency of the existing transportation infrastructure. There are two main ways of doing this:

1. Utilize more public transportation in areas that have a high concentration of tourists such as beaches, national parks, and ski resorts. Public transportation can be combined with remote parking facilities in order to keep more cars from entering highly-congested areas.

² Eastern Carolina University has recently received a contract from the NC Turnpike Authority to study the feasibility of constructing a toll bridge across the Currituck Sound. Estimated cost: \$340-\$745 million.

2. Transportation Demand Management (TDM). This technique seeks to reduce or shift demand for transportation. For example, shifting delivery of goods or garbage pickup to early morning or evening hours can keep many trucks off the road during times of tourist-induced traffic congestion. Or, especially in vacation destinations like the Outer Banks, moving more guest check-ins to Sunday rather than Saturday so that all tourists are not arriving and departing on the same day.

Finally, another strategy that can be considered is expanding the intercity bus and rail network so that more tourists can reach their destinations without using an automobile.

Disasters

Disasters can have important implications for both tourists and infrastructure. Disasters can take many forms: natural (hurricanes and/or floods, snow/ice storms, etc.), or man-made (a nuclear plant meltdown, a terrorist attack, etc.) The most likely form of disaster in North Carolina that would affect tourists is a hurricane on the coast during tourist season. If the hurricane is of sufficient severity to require the evacuation of people, the need for transportation infrastructure becomes acute because of the limited access of many of the coastal areas.

An analysis of possible disasters and potential solutions thereto is beyond the scope of this paper. In addition, the State and many local governments have developed (or are developing) disaster plans for their respective areas.

Some Unknowns

1. Will global warming/climate change impact tourism in NC? For example, will there be more demand for vacations in the mountains if the summers get hotter and hotter? (As noted above, the fastest growth in tourism spending between 2003 and 2005 occurred in the mountains.) Or if climate change leads to serious water shortages in parts of NC, will this impact tourism in some unknown way?
2. Will the increasing cost and/or the diminishing supply of gasoline lead to less tourism? Because the vast majority of tourists travel here via auto, this could become a significant factor.

Conclusions

Tourism is a key component of the State's economy. By most accounts tourism (or "leisure and hospitality") is a growth industry, both in North Carolina and nationwide. (In-state tourism will grow if for no other reason than because many more people will be living here by 2030.) This creates a dilemma of sorts—as tourism is promoted and grows, it at the same time creates its own infrastructure and logistical needs which may compete with other such needs. However, it's not as if tourism should be constrained because it may interfere with the movement of other goods and freight. A way needs to be found to accommodate both needs.

The issue is complex and for the most part specific to the various tourist destinations involved. A much more detailed study would be necessary to sort out and quantify the various impacts, and to develop solutions where such impacts are undesirable. As pointed out by Gene Brothers, a professor in NC State's Department of Parks, Recreation and Tourism:³

“There are some things which you have outlined which have been talked about and discussed within the industry such as disaster evacuation and congestion at destinations. This is a critical consideration as the key destinations within the state are becoming more densely developed. There have been some significant planning solutions applied but most destinations are unique in terms of spatial distribution of accommodation, transport and attractions so unique solutions are required. It is unfortunate for most destinations that the "pain" of growth and development needs to become severe before the planning and search for solutions begins.”

³ Private e-mail communication (2/29/08)

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Some Key Tourist Attractions by Area

Coast

- Atlantic Beach
 - Fort Macon State Park
 - NC Aquarium at Pine Knoll Shores
- Aurora—Fossil Museum
- Bald Head Island
- Bath—Historic Bath Historic Site
- Beaufort
 - Beaufort Historic Site
 - NC Maritime Museum
- Creswell—Pettigrew State Park
 - Somerset Place
- Currie—Moore’s Creek National Battlefield
- Edenton—Historic Edenton State Historic Site
- Elizabeth City—Museum of the Albemarle
- Greenville—Museum of Art
- Hertford—Newbold-White House
- Jacksonville—Camp LeJeune
- Kenansville
 - Cowan Museum
 - Liberty Hall
- Kinston—CSS Neuse State Historic Site and Governor Caswell Memorial
- Kure Beach—Fort Fisher State Historic Site
- Lake Waccamaw—Lake Waccamaw Depot Museum
- Murfreesboro—Brady Jefcoat Museum
- New Bern
 - Attmore Oliver House/New Bern Civil War Museum
 - Croatan National Forest
 - Firemen’s Museum
 - Tryon Palace Historic Sites and Gardens
- New Holland—Mattamuskeet National Wildlife Refuge
- Ocean Isle Beach—Museum of Coastal Carolina
- Outer Banks
 - Cape Hatteras/Cape Lookout National Seashore
 - Pea Island National Wildlife Refuge
 - Fort Raleigh National Historic Site
 - Elizabethan Gardens
 - Lindsay Warren Visitor Center
 - Roanoke Island—Lost Colony
 - Frisco—Native American Museum and Natural History Center
 - Hatteras—Graveyard of the Atlantic Museum
 - Nags Head—Jockey’s Ridge State Park

- Ocracoke—David Williams House Museum
- Rodanthe—Chicamacomico Lifesaving Station Historic Site
- Wright Brothers National Memorial
- Plymouth—Port O’Plymouth Museum
- Swansboro
 - Hammocks Beach State Park
 - Worthy is the Lamb
- Washington—NC Estuarium
- Wilmington
 - Battleship North Carolina
 - Brunswick Town State Historic Site
 - Cape Fear Museum
 - Cape Fear Serpentarium
 - Orton Plantation Gardens
 - Poplar Grove Historic Plantation
 - Thalian House
 - Wilmington Railroad Museum
- Windsor—Hope Plantation

Piedmont

Eastern Heartland

- Dunn—General William C. Lee Airborne Museum
- Fayetteville
 - Airborne and Special Operations Museum
 - Cape Fear Botanical Garden
 - Fascinate-U Children’s Museum
 - Fayetteville Museum of Art
 - First United Presbyterian Church
 - Fort Bragg
 - 82nd Airborne Division Museum
 - John F. Kennedy Special Warfare Museum
 - Museum of the Cape Fear
- Goldsboro
 - Charles B. Aycock Birthplace Historic Site
 - Cliffs of the Neuse State Park
- Halifax—Historic Halifax State Historic Site
- Kenly—Tobacco Farm Life Museum
- Lumberton—Robeson County Showcase Museum
- Newton Grove—Bentonville Battleground State Historic Site
- Pinehurst—Pinehurst Resort
- Raleigh-Durham-Chapel Hill area (numerous attractions)
- Southern Pines—Weymouth Woods Sandhills Nature Preserve
- Tarboro—Blount Bridger’s House
- Troy—Uwharrie National Forest

Western Heartland

- Albemarle
 - Morrow Mountain State Park
 - Stanley County Museum
- Asheboro
 - NC Aviation Museum
 - NC Zoological Park
- Catawba—Murray’s Hill Historic Complex
- Charlotte area (numerous attractions)
- Cleveland—Peter Ney’s Grave
- Dallas—Gaston County Museum of Art and History
- Danbury—Hanging Rock State Park
- Ellerbe—Rankin Museum
- Greensboro-Winston-Salem area (numerous attractions)
- Hickory
 - Arts and Science Center of Catawba Valley
 - Catawba Science Center
 - Hickory Museum of Art
- Level Cross—Richard Petty Museum
- Lexington—Davidson County Historical Museum
- Mooresville—Lazy 5 Ranch
- Mount Airy—Mount Airy Museum of Regional History
- Mount Gilead—Town Creek Indian Mound State Historic Site
- Newton—Catawba County Museum of History
- Pinnacle—Horne Creek Living Historic Farm
- Salisbury
 - Grimes Mill
 - Josephus Hall House
- Seagrove—NC Pottery Center
- Spencer—NC Transportation Museum
- Statesville
 - Children’s Museum of Iredell County
 - Fort Dobbs State Historic Site
 - Iredell Museum of Arts and Heritage
- Welcome—Richard Childress Racing Museum

Mountains

- Blowing Rock
 - Heritage Museum
 - Mystery Hill
 - Tweetsie Railroad
- Boone
 - Appalachian Cultural Museum
 - Hickory Ridge Homestead Museum

- Horn in the West
- Cashiers—Whitewater Falls Scenic Area
- Cherokee
 - Museum of the Cherokee Indian
 - Oconaluftee Indian Village
 - Santa's Land Park and Zoo
 - Unto These Hills
- Chimney Rock—Chimney Rock Park
- Cullowhee
 - Judaculla Rock
 - Mountain Heritage Center
- Dillsboro—Great Smoky Mountains Railroad
- Flat Rock—Carl Sandburg Home National Historic Site
- Fontana Village Resort
- Forest City—Rutherford County Farm Museum
- Franklin
 - Ruby Mines of the Cowee Valley
 - Scottish Tartans Museum
 - Standing Indian Mountain
 - Wayah Bald
- Great Smoky Mountains National Park
- Hendersonville—Jump-Off Rock
- Lake Lure
 - Bottomless Pools
 - Lake Lure Tours
- Linville
 - Grandfather Mountain
 - Linn Cove Viaduct and Visitors Center
- Linville Falls
 - Linville Caverns
 - Linville Falls Recreation Area
 - Linville Gorge
- Little Switzerland—Emerald Village
- Maggie Valley—Ghost Town in the Sky
- Morganton—Old Burke County Courthouse
- Murphy—Fields of the Wood
- Nantahala National Forest
- Saluda—Pearson's Falls

Source: Planetware: Your Unlimited Travel Guide to the World (www.planetware.com, accessed 2/15/08)

NC Logistics Study—Public Transportation Component
NC Public Transportation Systems

Passenger Rail

Services in Operation:

Amtrak and the North Carolina Department of Transportation cooperate to provide intercity rail passenger service in the state. Six trains operating daily in both directions serve 16 stations throughout the state including:

- The *Silver Meteor* operating between New York City and Florida, with stops in Rocky Mount, and Fayetteville. The southbound and northbound trains pass through North Carolina during late night and early morning hours.
- The *Silver Star* operating between New York City and Florida, with stops in Rocky Mount, Raleigh, Cary, Southern Pines, and Hamlet. The southbound train travels through the state during the evening, while the northbound train passes through North Carolina during the morning.
- The *Palmetto* operating between New York City and Savannah, with stops in Rocky Mount, Wilson, Selma, and Fayetteville. The southbound and the northbound trains travel through North Carolina during the early afternoon.
- The *Crescent* operating between New York City and New Orleans, with stops in Greensboro, High Point, Salisbury, and Charlotte. The northbound and the southbound trains travel through North Carolina during early morning hours.
- The *Carolinian* operating between Charlotte and New York City, with stops in Charlotte, Kannapolis, Salisbury, High Point, Greensboro, Burlington, Durham, Cary, Raleigh, Selma, Wilson, and Rocky Mount. The southbound train travels through the state in the late afternoon and evening, with a scheduled arrival in Charlotte at 8:14. The northbound train travels through the state in the morning, departing Charlotte at 7:40 am.
- The *Piedmont* operating between Raleigh and Charlotte, with stops in Raleigh, Cary, Durham, Burlington, Greensboro, High Point, Salisbury, Kannapolis, and Charlotte. The southbound train departs Raleigh at 7:05 am on its approximately three-hour trip. The northbound train departs Charlotte at 5:30 pm.

Amtrak Thruway™ Bus service provides connecting service between High Point and Winston-Salem for passengers on the *Carolinian* and the *Piedmont*.

Ridership:

Total annual passenger ridership on the six passenger trains scheduled through North Carolina during Federal Fiscal Year 2007 (FFY 07) and the change in ridership from FFY 06 are shown in the table below:

Train	FFY 2007 Ridership	Change from FFY 06
Silver Meteor	291,735	+6.9%
Silver Star	329,132	+5.7%
Palmetto	156,998	+7.5%
Crescent	263,136	+4.4%
Carolinian	256,212	+5.2%
Piedmont	50,551	-6.1%

Annual passenger boardings plus alightings at North Carolina stations for FFY 07 are shown in the table below.

Station	Boardings + Alightings
Burlington	13,646
Cary	22,919
Charlotte	109,347
Durham	39,436
Fayetteville	46,968
Gastonia	1,716
Greensboro	72,947
Hamlet	4,153
High Point	19,003
Kannapolis	9,081
Raleigh	119,024
Rocky Mount	51,195
Salisbury	17,126
Selma-Smithfield	10,436
Southern Pines	4,500
Wilson	38,054
North Carolina Total	579,569

Potential new routes:

Several potential new routes are under consideration for implementation of passenger rail service within North Carolina. They include:

- Raleigh-Richmond via Henderson and Norlina—this route is the preferred line for the Southeast High Speed Corridor, and would utilize the CSX Transportation S-line between Raleigh and Petersburg, VA. The tracks have been removed between Norlina and Petersburg.
- Salisbury-Asheville—this route would restore passenger rail service to Asheville, and would most likely offer an across-the-platform connection to other north-south trains at Salisbury.
- Raleigh-Wilmington—two potential routes are under consideration. One route would pass through Goldsboro, and would require constructing a connecting track between the North Carolina Railroad and the CSX tracks, as well as replacing the track between Wallace and Castle Hayne that was removed in the 1980s. The other route would pass through Fayetteville, and would require construction of a connecting track at Pembroke between the CSX A-line and the Hamlet-Wilmington line.

Intercity Bus

Greyhound Lines, Inc. and its Carolina Trailways affiliate operate intercity bus service primarily along Interstate Highway corridors in North Carolina, as described below. Major bus routes operate in the following corridors:

- I-95—between Richmond, VA and points north, and Savannah, GA and points south. Six daily trips in each direction, with stops in Fayetteville and on some schedules, Raleigh.
- I-40/I-85—between Richmond and points north, and Atlanta, GA and points south. Eight daily round trips between Richmond and Atlanta, with stops in Raleigh and Charlotte. One trip in each direction stops in Rocky Mount. In addition, five daily trips in each direction are operated between Raleigh and Charlotte with stops in Durham, Greensboro, High Point Winston-Salem, Salisbury, and Concord-Kannapolis.
- I-77/US 52/I-85—between Wytheville, VA and points north, and Columbia, SC and points south. Three daily trips in each direction, with stops in Winston-Salem, and Charlotte, and in Concord and Salisbury, on one northbound trip.
- I-40/US 17—between Raleigh and Savannah, GA via Wilmington and Myrtle Beach. Two daily trips in each direction, with stops in Smithfield, Goldsboro, Wallace, and Wilmington.
- US 70—between Raleigh and Camp LeJeune. Two daily trips in each direction with stops in Smithfield, Goldsboro, Kinston, New Bern, and Jacksonville.
- US 64/US 17—between Raleigh and Norfolk, VA. Two daily trips in each direction; however, two routes are utilized. Both routes have stops in Rocky Mount, with one route continuing with stops in Wilson, Greenville, Washington, Williamston, Edenton, and Elizabeth City. The other route operates with stops in Ahoskie.
- I-40/I-85—between Knoxville, TN and Charlotte. One daily trip in each direction with stops in Waynesville, Asheville, Spartanburg, SC and Gastonia.
- I-40—between Knoxville, TN and Winston-Salem. One daily trip in each direction with stops in Waynesville, and Asheville.

Public Transit

In State Fiscal Year (FY) 2006, the most recent period for which data are available, the 106 North Carolina public transportation systems provided 55,972,623 passenger trips utilizing 2,457 vehicles. Transit systems can be classified as being “urban” or “rural” depending upon their major federal funding source. A brief summary of both types of services operated in North Carolina follows:

1. Urban transit systems operate in cities with a wide range of populations—from Jacksonville to Charlotte. In addition, two transit agencies operate regional services in the Research Triangle area (Raleigh-Durham-Chapel Hill-Cary) and the Piedmont Triad area (Greensboro-High Point-Winston-Salem). Most urban transit systems operate both fixed-route service using 30-40 foot buses, and demand-response (dial-a-ride) services using smaller vehicles such as vans. Demand-response service is typically operated to serve passengers with mobility or other impairments that prevent them from accessing fixed-route service. Summary statistics for FY 2006 for North Carolina urban transit systems include:
 - 21 city systems (Asheville, Cary, Chapel Hill, Charlotte, Concord, Durham, Fayetteville, Gastonia, Goldsboro, Greensboro, Greenville, Henderson, Hickory, High Point, Jacksonville, Raleigh, Rocky Mount, Salisbury, Wilmington, Wilson, and Winston-Salem)

- 49,021,532 total annual passenger trips
 - 882 peak period vehicles operated
2. Rural transit systems operated in each of the state's 100 counties. They operate primarily within a single county (75 systems) but six systems operate in multiple counties, and four systems operate service in both the major city and its surrounding county. Rural systems typically operate demand-response service using vans or body-on-chassis vehicles. Summary statistics for FY 2006 for North Carolina rural transit systems include:
- 85 systems—71 single-county systems that provide transportation for the general public as well as clients of human service agencies; 4 single-county systems that provide transportation for clients of human service agencies; 6 multi-county systems; and 4 city-county systems
 - 6,951,091 total annual passenger trips
 - 1,575 vehicles operated

Plans—Completed/Currently in Progress

Passenger Rail

Southeast High Speed Rail Corridor⁴

The Southeast High Speed Rail project involves the development, implementation, and operation of high-speed passenger rail service in the Washington, DC-Richmond, VA-Raleigh, NC-Charlotte, NC corridor to reduce travel time for intercity passenger rail service. Nine alternative routes or route segments were evaluated.

The report recommends the alternative that uses the North Carolina Railroad corridor between Raleigh and Charlotte, and the CSX Transportation S-line between Raleigh and Petersburg, VA, modified with passenger connectivity to Winston-Salem. This alternative was found to score best on five of ten evaluation criteria—annual ridership, annual air to rail diversions in 2025, net operating contribution, capital cost efficiency, and areas of engineering complexity. That alternative scored second best for four other criteria—annual auto to rail diversions in 2025, net energy reduction, net reduction in NOx emissions, and average total travel time. Finally, that alternative was among the lowest for potential wetland impacts, and has the lowest potential impacts to threatened and endangered species.

Western North Carolina Passenger Rail Study⁵

This study investigated the feasibility of restoring passenger rail service in the Salisbury to Asheville rail corridor, with potential intermediate stops in Statesville, Hickory, Valdese, Morganton, Marion, Old Fort, and Black Mountain.

⁴ *Southeast High Speed Rail Corridor Washington, DC to Charlotte, NC: Study Area Alternatives Recommendation Report*, March 5, 2002.

⁵ *Western North Carolina Passenger Rail Study: Summary Report*, North Carolina Department of Transportation, March 2001.

The study recommended an incremental approach to implementing service, starting with developing an Amtrak Thruway Bus service while work progressed to reestablish passenger train service. Bus service was recommended to continue from Asheville to Knoxville, TN. The initial bus service was envisioned to be incorporated into the NCDOT Intercity Bus Program. The Asheville service would connect in Salisbury with existing Amtrak service via the *Carolinian* and *Piedmont*, and operate Friday through Monday, the period of heaviest travel.

In addition to operating passenger service, stations would need to be rehabilitated and/or constructed at most stops, passing sidings would need to be extended and added, and passenger equipment would need to be purchased and/or rehabilitated for this service.

Cost recovery and ridership targets were proposed to evaluate the performance of the new service. A revenue-to-cost ratio of 25 percent and a daily average of 35 passengers per train mile were proposed as targets to be met following three years of operation, with the ridership target to increase to 55 passengers per train mile, and to 75 passengers per train mile after ten years.

Southeastern North Carolina Passenger Rail Study⁶

This study built on an earlier study that examined three potential passenger route options from Raleigh and Charlotte to Wilmington. Results from the previous study indicated strong interest in passenger rail service from Wilmington to the Northeastern U.S. and to Raleigh. Track improvements needed to reintroduce passenger train service would also benefit freight rail service by adding capacity and reliability, and could provide a freight transportation alternative that currently does not exist. The Wilmington to Charlotte route generated the lowest interest, ridership and revenue, and was removed from further consideration.

This study added an evaluation of a route from Wilmington to Rocky Mount to the two Raleigh-Wilmington routes. The study investigated the impacts of basic, moderate, and major track and signal improvements on travel time, estimated ridership, and revenue projections. In addition to reinstalling 27 miles of track between Wallace and Castle Hayne that had been removed in the 1980s in order to operate the Raleigh-Goldsboro-Wilmington route, other new tracks would be required in order to operate each of the three routes.

The Wilmington-Rocky Mount was rejected from further consideration on the basis of relatively low ridership potential and relatively high capital costs and relatively low revenues.

Further investigation of the Raleigh-Goldsboro-Wilmington route and the Raleigh-Fayetteville-Pembroke-Wilmington route was recommended. In addition, the study discussed the economic benefits of restoring the Wallace-Castle Hayne track. Reopening the line between Wilmington and Goldsboro would provide a second rail line to Wilmington and to the U.S. Military Ocean Terminal at Sunny Point (MOTSU), as well as providing direct rail access to markets north and west of Wilmington. Rail freight to/from the north could move directly to the port, saving 128 miles. In addition, rail improvements along the Goldsboro route could also benefit the Global TransPark (GTP), if track were to be extended from that line to the GTP site.

⁶ *Southeastern North Carolina Passenger Rail Study*, North Carolina Department of Transportation, July 2005.

The study recommended implementing passenger rail service from Wilmington to Raleigh via Goldsboro and Fayetteville in phases as funds become available. Passenger rail service could start with implementation of commuter rail service from Selma to Raleigh, which could be extended to Goldsboro and/or Fayetteville (using existing tracks). Through passenger rail service on one or both corridors could then be developed in partnership with freight railroads.

North Carolina Railroad Company Shared Corridor Track Expansion Study—Commuter Rail⁷

The North Carolina Railroad (NCR) owns and manages a 317-mile mostly single track rail line between Charlotte and the Morehead City Port Terminal. The NCR has a freight operations agreement with Norfolk Southern Railway and Amtrak operates passenger trains between Selma and Charlotte over the line. The line carries over 70 Norfolk Southern freight trains and eight Amtrak passenger trains daily.

The purpose of this study is to investigate the potential use of the corridor for commuter rail, and to provide information to regional and local organizations for planning and cost assumptions as they consider the feasibility of commuter rail options utilizing the NCR corridor. Completion of the study is anticipated in July 2008.

The study will consider two segments of the corridor—Burlington to Greensboro, to serve the Piedmont Triad area; and Goldsboro to Burlington, to serve the Research Triangle area. Service assumptions are four morning and four evening trains. HNTB is conducting the study, which will assess infrastructure requirements (track, bridges, railroad signal systems, facilities, etc.) and costs.

Scott Saylor, President of the NCR, in remarks to the 21st Century Committee, envisioned the NCR in 2020 with:

- 50% more double tracking in place, primarily between Charlotte and Raleigh;
- A dozen more freight trains daily to the Intermodal facility at the Charlotte airport;
- Freight shipments growing from the present 1.5 million to 2 million annual carloads; and
- Commuter rail service linking the Piedmont, Triangle, Metrolina, and Eastern North Carolina.

The NCR is about half way through a \$160 million capital investment program that will run through 2012 to improve safety, speed, and capacity.

Potential Triad Commuter Rail Lines⁸

This study reviewed nine rail corridors in the Piedmont Triad—five corridors radiating out of Winston-Salem and four passing through Greensboro to identify corridors with the greatest

⁷ *North Carolina Railroad Company Shared Corridor Track Expansion Study—Commuter Rail*, from the NCR website http://www.ncrr.com/track_expansion_study.pdf and Scott Saylor's Remarks to the 21st Century Committee, January 16, 2008, http://www.ncrr.com/speech_saylor_21st_cent.pdf

⁸ *A Review of Potential Triad Commuter Rail Lines*, NCDOT Rail Division in cooperation with HDR Engineering of the Carolinas, December 2002.

potential for commuter rail service, the current level of use of the lines, and corridors in danger of abandonment. The six rail lines that were believed to have the greatest potential for supporting commuter rail service included:

- The Norfolk Southern Railway (NS) “K Line” from Winston-Salem to Greensboro;
- The North Carolina Railroad (NCR) line between Greensboro and Burlington;
- The NS “L Line” between Winston-Salem and Mocksville;
- The NS and Yadkin Valley Railroad line from Winston-Salem to Rural Hall and Mount Airy;
- The Winston-Salem Southbound Railway line from Winston-Salem to Lexington; and
- The NS Main Line between Reidsville and Salisbury, through Greensboro, High Point, and Lexington.

All lines except the NS “L Line” were in use at the time of the study. Traffic ranged from two trains per week on the Rural Hall to Mt. Airy line segment to 29-36 trains per day on the Lexington-Salisbury segment of the NS Main Line. Amtrak operated on the NCR line and the segment of the NS Main Line between Greensboro and Salisbury. The NS “L Line” and the Rural Hall to Mt. Airy segment were considered in danger of abandonment.

The Greensboro, High Point, and Winston-Salem stations were deemed to be located well to serve commuter rail passengers; however, construction of a platform was also recommended closer to downtown Winston-Salem, since the former station is not located within walking distance to downtown offices and businesses.

The Transit 2001 Technical Report⁹

The Transit 2001 Commission was appointed by Governor Hunt in September 1995 to provide recommendations on how to improve public transportation in North Carolina for the 21st Century. The technical report provides a four-year action agenda (1997-2001) to expand and enhance public transportation as well as recommending funding mechanisms to accomplish those goals.

The technical report also called for changes to land use planning and development that would result in development that could more easily be served by transit and facilitate increases in transit ridership.

Notable recommended actions included the following short- and mid-to long-term activities:

- Completing plans for regional rail in the Research Triangle and busways in Charlotte
- Implementing service improvements to reduce Raleigh to Charlotte passenger rail travel time to less than three hours (with an ultimate goal of providing two-hour service)
- Implementing passenger rail service to Asheville and conducting studies of eastern North Carolina passenger rail service(s)
- Preserving corridors for future rail passenger services

⁹ Prepared for the Transit 2001 Commission by the North Carolina Department of Transportation, with assistance of TransManagement, Inc., Cambridge Systematics, Inc., Kimly-Horn and Associates, The Lawrie Group, January, 1997.

- Expand transit services from the 1997 level of 0.39 bus hours per capita to at least 0.5 bus hours per capita in smaller urban areas, to at least 0.75 bus hours per capita in the Piedmont Triad, Asheville, Fayetteville, and Wilmington, and to at least 1.0 bus hours per capita in the Charlotte and Research Triangle areas.
- Updating legislation that authorizes concepts such as transportation demand management
- Increasing state funding for transit, including recovery of general fund revenues provided from NCDOT
- Passing legislation to expand local authority to raise and use revenue for transit

Charlotte 2030 Transit System Corridor Plan¹⁰

The Charlotte Metropolitan Transit Commission adopted the 2030 Transit Corridor System Plan in November 2006. The plan consists of transit improvements in five corridors. Once complete, the plan will include 25 miles of commuter rail, 21 miles of light rail, 16 miles of streetcar, 14 miles of bus rapid transit as well as an expanded bus transit network. The plan also fosters development along transit lines.

The proposed service with the greatest impact on future freight rail service is the North Corridor Lynx Purple Line, scheduled to begin operation in 2012, will utilize the existing Norfolk Southern Railway “O Line” north from Charlotte to Mooresville, also serving Huntersville, Cornelius, and Davidson.

The Charlotte Area Transit System (CATS) projects the following for the year 2030:

- 52 million annual riders
- 463 buses and 67 rail cars
- 55 transit stations
- Transit’s share of all trips to Center City Charlotte will be 25-40% once transit is in place on all five corridors (year 2025)

Piedmont Authority for Regional Transportation *Piedmont Triad Seamless Mobility Plan*¹¹

The Piedmont Triad Seamless Mobility Plan, being conducted between November 2007 and July 2008, will assess how current transportation functions are accomplished and services provided by each of the transit systems in the area. The plan will describe various functions that might be coordinated and recommend actions to maximize utilization of resources and provide seamless transit services throughout the area. The plan will also include a timetable for implementing actions as well as identify the parties to be responsible for those actions.

¹⁰ 2030 Transit System Corridor Plan, on the Internet at

<http://www.charmeck.org/Departments/CATS/Rapid+Transit+Planning/2030+Transit+Corridor+System+Plan.htm>

¹¹ <http://www.partnc.org/mobility.html>

NC Military Base Infrastructure Needs

Introduction

This section focuses on current and future gaps in the logistics infrastructure that serves military bases in North Carolina. These findings are based primarily in interviews conducted with high-ranking officers and civilians in the logistics command chains at Fort Bragg and Camp Lejeune, the state's two largest bases and should apply to the other military bases and installations around the state. Findings are presented in three categories: the need to preserve service quality in key corridors, the need to remove key bottlenecks, and the need to add new facilities. Each of the major modes involved in freight movement—highway, rail, port, and air—is discussed below.

Need to Preserve Service Quality

Currently, the logistics infrastructure that the State of North Carolina has provided to serve military bases generally performs well. However, some parts of that infrastructure are under strain and may see declining service quality in the coming years. The first category of gap identified in this section was therefore the need to preserve service quality in key corridors and at key places.

Highways

On the highway side, I-95 is obviously the key facility serving the military bases clustered in Eastern North Carolina. I-95 provides service to Washington, DC; the bases of Virginia; the important Port of Norfolk; the Ports of Charleston and Savannah; and the bases in South Carolina, Georgia, and Florida. Service levels provided by I-95 through North Carolina are generally adequate today, but are likely to decline by 2020 or 2030 without intervention by the State. Preserving a good quality of service on I-95 through North Carolina will be key for military logistics.

Other highway links are of concern as well. Fort Bragg officials cited NC-87 toward Sanford as a key highway link that is facing declining service levels in the future. NC-87 from Spring Lake to the Sanford area has been widened recently, but the roadside is developing fast and service levels are already declining. Camp Lejeune officials cited NC-24 from Jacksonville to I-40, NC-24 from the Camp to US-70 (the highway route to Cherry Point Marine Corps Air Station), and US-17 from Jacksonville to Wilmington as key links that have been upgraded to four lanes but may see declining service levels for trucks in the future due to growth in the surrounding areas. The State should take the necessary steps to insure good levels of service for trucks on these routes in the future.

Railroads

There is also a need to preserve rail levels of service in key corridors. The bases count on rail for many needs, include inbound shipments of fuel and outbound shipments of fighting equipment. Rail is the easiest way to move a tank, for example. The corridors of greatest concern for North Carolina military bases are the North Carolina Railroad to Morehead City and CSX to Wilmington. Camp Lejeune manages its own railroad that connects to the North Carolina Railroad in Havelock, and is aware that maintenance of that line, and particularly the trestle over the White Oak River, is critical.

Ports

There is also a need to preserve existing port levels of service. The military appreciates the flexibility to potentially ship through several different ports for any given operation. North Carolina military bases count on good service through Morehead City and Wilmington if needed, but will also ship through Charleston, Norfolk, and other ports. Fort Bragg officials pointed out that the armed services have established large stockpiles of equipment on bases in the Middle East, so in the future there may not be as much need for large surges of equipment through East Coast ports on emergency terms as there was five or so years ago. Nonetheless, preserving good levels of service through North Carolina ports to preserve the options available to the military is important.

Need to Remove Key Bottlenecks

When challenged to identify future bottlenecks (2020 and 2030) to ensuring service levels was as good or better than today, interview subjects identified the following areas:

Highway Bottlenecks

In terms of highway access, a key Fort Bragg bottleneck is the need to route trucks through the streets of Fayetteville to reach the base from I-95. Base logisticians are counting on completion of the new I-295 (Fayetteville Loop) to relieve this bottleneck. The new Loop has been designed with a truck only ramp to Fort Bragg, in fact, for just this purpose.

Fort Bragg officials cited the current US-421 through Sanford as an important highway bottleneck. This is the route their trucks could use to get to Greensboro and points to the north and west. However, the current highway traverses downtown streets and is not well suited to large truck volumes. Completion of the US-421 bypass around Sanford from NC-87 south of town to US-421 north of town would relieve this bottleneck and be of great benefit to Fort Bragg logistics.

Camp Lejeune officials cited several highway bottlenecks. NC-24 between the truck gate and the entrance to the new Jacksonville Bypass is the most obvious bottleneck hampering operations. The new Bypass has helped truck traffic to the Camp a good deal, and the planned new Camp gate will likely help as well. Nonetheless, the last mile or two of a truck's journey into the Camp is likely to be inefficient now and will become increasingly inefficient in the future without improvements to NC-24. Even small improvements like better signing to direct trucks from the end of the Bypass to the Camp's truck entrance would help, officials say.

Several North Carolina military bases would benefit from the completion of I-795 from I-95 to I-40, bypassing the current bottleneck in Goldsboro. Travel times from Camp Lejeune to Virginia destinations would be cut by about 15 minutes, for example.

One highway bottleneck important to both Fort Bragg and Camp Lejeune is NC-24 from I-95 to I-40. This is the most direct route between the two bases, and many convoys desire to travel back and forth for training and other purposes. A majority of the road is currently two lanes, and therefore not suited to military convoy travel. Pushing forward with plans to widen this link is important to the bases.

Rail Bottlenecks

The key rail bottlenecks identified by North Carolina base officials are in yards and with regard to the availability of locomotives. Fort Bragg officials report that the typical current travel time via rail from their gate to the Port of Charleston is 18 hours, while Camp Lejeune officials report that the typical travel time via rail from their gate to the Port of Wilmington is 36 hours. Reducing those times, or at least maintaining those times in view of greater future demands on the rail system from other freight traffic and passenger traffic, will require improvements. In fact, a faster and/or more direct rail connection to Wilmington emerged as the top priority improvement desired by the logisticians at Camp Lejeune interviewed for this project.

Restoration of rail service on the line from Wallace to Wilmington might also be helpful in this regard. The rail journeys from Camp Lejeune, Cherry Point Marine Corps Air Station, or Seymour Johnston Air Force Base to Wilmington currently have to go northwest at least as far as Selma, then southwest through Pembroke, before turning eastward to Wilmington. Restoration of rail service from Wallace to Wilmington, which would allow direct rail service from the North Carolina Railroad at Goldsboro to Wilmington, would shave many miles and likely many hours off of the current journey to the Port of Wilmington.

Port Bottlenecks

Two key port-related bottlenecks are apparent. First, the last few miles of a truck's trip into the Ports of Wilmington or Morehead City have to be made on city streets, which are often congested. The truck trip into the Port of Morehead City, in fact, is made on the main street through downtown and passes the main entrance to Atlantic Beach. Bypass routes to both ports are planned, and would help serve military logistics needs when they are in place. Second, both ports suffer from shortages of space for storage and staging of military equipment. The loading of military equipment onto ships is an intricate act, made much more difficult when there is limited temporary storage and staging space.

Need to Add New Facilities

As the military bases in North Carolina grow, and the economies and populations of the surrounding areas also grow, new facilities will also be needed to allow good levels of service to be maintained for freight movements to and from the bases.

Highway Capacity Needs

For the highway mode, new facilities that would help insure good logistics service to North Carolina military bases in the future include I-73 and I-74 across the southern tier of counties, a widened (four-lane) NC-24 and NC-27 from Charlotte to Harnett County, and a four-lane connection through northeastern North Carolina toward Norfolk. Trucks originating in Charlotte, the Triad, or Wilmington and serving several military bases in North Carolina would use and could benefit from a new I-73 and I-74. Likewise, a four-lane NC-24 and NC-27 that would connect to I-485 in the Charlotte area, I-73 and I-74 south of the Triad, and I-295 in the Fayetteville area would also see much military logistical use in all likelihood. Trucks from North Carolina military bases destined for the Port of Norfolk—a large trip generator—currently face the prospect of a very long freeway route through Richmond to I-64, a more direct but slower trip via I-95 and the four-lane US-58, or an even more-direct and even slower trip via US-13 or US-17 with some two-lane highway sections. A more direct four-lane or freeway route

from Williamston or New Bern, perhaps, to Norfolk would need to be planned in conjunction with the Commonwealth of Virginia and would be a boon to military shippers.

Rail Capacity Needs

New rail links that emerged from discussions with Camp Lejeune officials and that might prove productive were a bypass for the North Carolina Railroad around downtown Morehead City and a direct rail connection from Jacksonville to Wilmington. If a rail bypass of downtown Morehead City could also result in new staging and storage areas heading into the Port—a real need as mentioned above—this would be a major benefit to the bases. As mentioned above, more timely and direct rail service from Camp Lejeune to the Port of Wilmington was the top priority of those officials interviewed for this project, and as such the feasibility of new tracks along US-17 or NC-53 should be explored.

Port Capacity Needs

All military logisticians interviewed for this project supported the new port facilities proposed for Southport. As mentioned above, the military will not ship exclusively through one port at all times, and appreciates available capacity and capabilities at multiple ports. To the extent that the new port at Southport would provide additional high-quality capacity, military shippers would benefit from the additional flexibility. Fort Bragg does not generally move cargo through the Port of Morehead City. However, Camp Lejeune does utilize the Port of Morehead City and would benefit from the proposed new facilities there as well.

Air Cargo Needs

In the air freight arena, Fort Bragg and Camp Lejeune officials saw potential benefits in facilities at the Global Transpark in Kinston. The air freight capabilities at and near military bases in Eastern North Carolina are already quite good. However, a secure space next to a large runway in which to preposition material and maintain, at the least, a redundant air freight capability would provide advantages.

Conclusion

Military bases are a key economic engine in North Carolina. The bases have grown in the State in part because the infrastructure available to move freight is quite excellent. However, growth planned at the bases and expected in the surrounding areas may put this good service in peril in the future. This section has outlined three categories of needs for infrastructure to serve military bases in the future, include the needs to:

- Preserve service quality;
- Remove key bottlenecks; and
- Add new facilities.

In each of the three categories there were entries for the highway, rail, and port modes.

In reviewing the lists of needs presented above, it is apparent that the activities proposed would benefit many people and institutions besides North Carolina military bases. Highway, rail, or port improvements may be initiated or targeted for military bases, but other users may in the end enjoy larger benefits.

It is also apparent that the list of needs presented above contains mostly projects that are already at least in the planning stages. Only a new rail link from Camp Lejeune to Wilmington stands out (at least to the members of the project team) as a particularly new idea. The rest of the list of needs contains items that have been discussed or are well underway. Serving the logistical needs of military bases in North Carolina in 2020 or 2030 may be fairly summarized, then, as executing current plans and proposals.

Appendix G: Infrastructure

Air Freight Infrastructure

Introduction

Until 1978, the U.S. government, through the Civil Aeronautics Board (CAB), regulated many areas of commercial aviation such as fares, routes, and schedules. The Airline Deregulation Act of 1978, however, removed many of these controls, thus changing the face of civil aviation in the United States. After deregulation, unfettered free competition ushered in a new era in passenger air travel. North Carolina's experience with airline deregulation has perhaps been as volatile as any state in the country. There are considerably more commercial carriers in the State now than previous to deregulation. The advent of all-cargo carriers is an industry that has evolved since deregulation.

Air freight traffic in North America is forecast by the International Air Transport Association (IATA) to increase at an average annual growth rate (AAGR) of 3.9% from 2007 through 2011. Freight demand is driven by economic growth, globalization and trade, but also faces increased competition from other modes such as shipping. The most dynamic freight markets are those associated with economies that are both fast-growing and rapidly integrating into the global economy. Asia and the Pacific Rim countries are expected to realize an AAGR of 5.4% over the same period.

Impact on North Carolina

Although air freight makes up only one or two percent of the weight of cargo shipments in the State, it makes up approximately 10 percent of the value of North Carolina cargo shipments. In terms of air cargo shipped and received, North Carolina's airports are categorized by three tiers. First tier airports are those with service to multiple connecting hubs and origin-destination markets. These airports are all international airports and serve the state's three largest metropolitan areas – Raleigh/Durham, Charlotte, and Piedmont Triad. All three provide international service, and these three provide cargo facilities that handle between 180 million and 360 million total pounds of air freight shipped out or received annually.

North Carolina's second tier of commercial airports in terms of freight includes airports with service by multiple air freight carriers. Second tier airports with some freight business include Asheville, Wilmington/New Hanover County, New Bern/Craven County, and Rocky Mount/Wilson. These four commercial airports ship and receive between one and five million pounds of air freight annually.

The third tier of airports that have a combination of commuter air service and general aviation, as well as air cargo, include two other commercial carrier airports -- Fayetteville and Person County -- and three military air bases -- Seymour Johnson, Cherry Point, and Pope Air Force base.

Over 98 percent of all cargo originations and destinations in North Carolina flow are handled by the three Tier 1 airports. The growth of North Carolina's air cargo facilities has been even more robust than growth nationwide. From 1999 to 2006, originations increased by 242% in North Carolina, as compared to 185% nationally. From 2000 to 2006, it's 327% in N.C. and only 168% nationally.

Table 0-1 Freight Originating at NC Airports, 1999 – 2006 (in thousand pounds)

Code	Airport	1999	2000	2001	2002	2003	2004	2005	2006
AVL	Asheville Regional	275	846	769	1,141	1,160	976	1,126	1,350
CLT	Charlotte Douglas International	77,416	63,612	50,130	75,691	152,934	165,275	167,056	144,205
EWN	Craven County Regional	0	0	0	369	1,509	1,533	1,545	1,918
FAY	Fayetteville Municipal	81	75	33	8	48	35	27	43
GSB	Seymour Johnson Air Force Base	0	0	0	0	1,663	0	2	160
GSO	Piedmont Triad International	6,489	5,265	10,628	31,236	84,338	82,413	89,309	88,337
ILM	New Hanover County	453	411	359	553	1,238	1,310	1,333	1,230
NKT	Cherry Point MCAS	0	0	0	497	0	351	190	0
POB	Pope Air Force Base	16	0	64	227	103	493	218	95
RDU	Raleigh-Durham International	13,666	8,665	24,883	40,372	93,259	105,183	106,419	98,555
RWI	Rocky Mount-Wilson	0	4	17	4	16	1,960	2,107	969
TDF	Person County	0	0	0	1	16	0	54	45
	All other commercial airports	12	26	12	0	2	14	99	58
	Total for NC (in thousand lbs.)	98408	78904	86895	150099	336286	359543	369485	336965
	% increase (loss) per year, NC		-19.80%	10.10%	72.70%	124%	6.90%	2.80%	-8.80%
	Total US database (in million lbs.)	17,497	18,624	22,286	27,288	38,840	41,816	49,033	49,851
	% increase per year, US		6.40%	19.70%	22.40%	42.30%	7.70%	17.20%	1.60%

Source: <http://www.transtats.bts.gov>; US Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics

Table 0-2 Freight Terminating at NC Airports, 1999 – 2006 (in thousand pounds)

Airport	1999	2000	2001	2002	2003	2004	2005	2006
Asheville Regional	500	1,154	921	1,137	1,147	709	384	314
Charlotte Douglas International	82,532	73,145	58,372	86,630	168,852	175,949	195,631	163,615
Craven County Regional	0	0	3	503	2,070	2,293	2,281	2,295
Fayetteville Municipal	370	280	121	48	129	118	101	48
Seymour Johnson Air Force Base	0	0	0	0	4	0	0	0
Piedmont Triad International	6,846	6,017	15,241	36,917	91,190	93,605	94,275	92,151
New Hanover County	421	425	425	873	2,366	2,461	2,505	2,392
Cherry Point MCAS	433	0	0	133	0	510	811	59
Pope Air Force Base	26	24	0	193	477	205	126	105
Raleigh-Durham International	15,617	12,129	34,444	56,569	119,249	132,059	122,161	122,858
Rocky Mount-Wilson	1	1	31	0	0	84	34	76
Person County	0	0	0	0	0	0	0	0
All other commercial airports in NC (estimated)	0	0	0	0	0	100	100	100
Total for NC (in thousand pounds)	106746	93175	109558	183003	385484	408093	418409	384013
% Increase (or loss), NC Airports		-14.80%	17.80%	67%	110.60%	5.90%	2.50%	-8.20%

In 2002, there were 13 air cargo airports in North Carolina. However the freight business at small airports is highly volatile, and five of the public airports handling cargo in 2002 (Hickory, Winston-Salem, Southern Pines, Kinston and Greenville) were no longer reporting cargo

business in 2006, according to the USDOT database. The 2006 airports that had freight service are in Figure 0-2. In that year, almost 98 percent of air freight originating in the state was handled by the three major airports. Four “second tier” airports combined handled almost two percent of the shipments, with another five airports showing some air freight shipments in 2006.



Figure 0-1 North Carolina Air Cargo Airports, 2002¹²

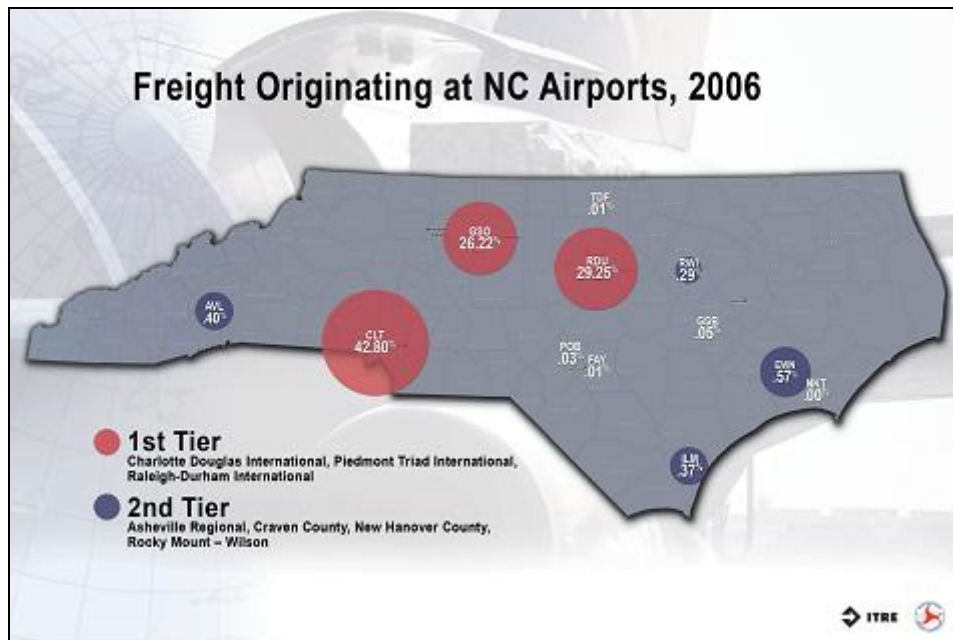


Figure 0-2 North Carolina Air Cargo Airports, 2006

Much of the success of regional industrial and business expansion initiatives over the past two decades in the three major urban regions in the state has been attributable to the transportation system in the region, and in particular the range of services and amenities found at the region’s

¹² Source: North Carolina Forums on Freight Mobility and Economic Prosperity, Integrated Proceedings, Prepared by UNC Charlotte Center for Transportation Policy Studies for the NCDOT, Rail Division, September 2005.

major air transportation facilities. For example, more than 600 daily departures (serving both passenger travel and in-hold cargo) from Charlotte Douglas provide service to 150 cities nationwide and to several off-shore markets. Commercial airlines and all-cargo carriers combined serving Charlotte carry approximately 200,000 tons (400 million pounds) of domestic and international cargo annually. Twenty cargo carriers and more than 60 freight forwarders service the airport. It is the 36th largest cargo airport in the US. Other features are direct connections landside to Interstate routes I-77, I-85, and the I-485 circumferential loop around Charlotte.

The following maps and illustrations for North Carolina’s three major cargo airports show the potential for growth of air freight in the State. Destinations of all-cargo flights are not projected, but a significant portion of air freight business at Charlotte Douglas, as well as other major airports, is carried in the hold of passenger jets. Projections of air freight into the next decade show the value of air cargo growing from \$29 billion in 1998, to \$72 billion in 2010, and \$126 billion in 2020. Charlotte Douglas in March 2008 announced that the \$320 million third runway is on schedule and should be completed by early 2010. This needed addition will provide additional capacity for air freight as well.

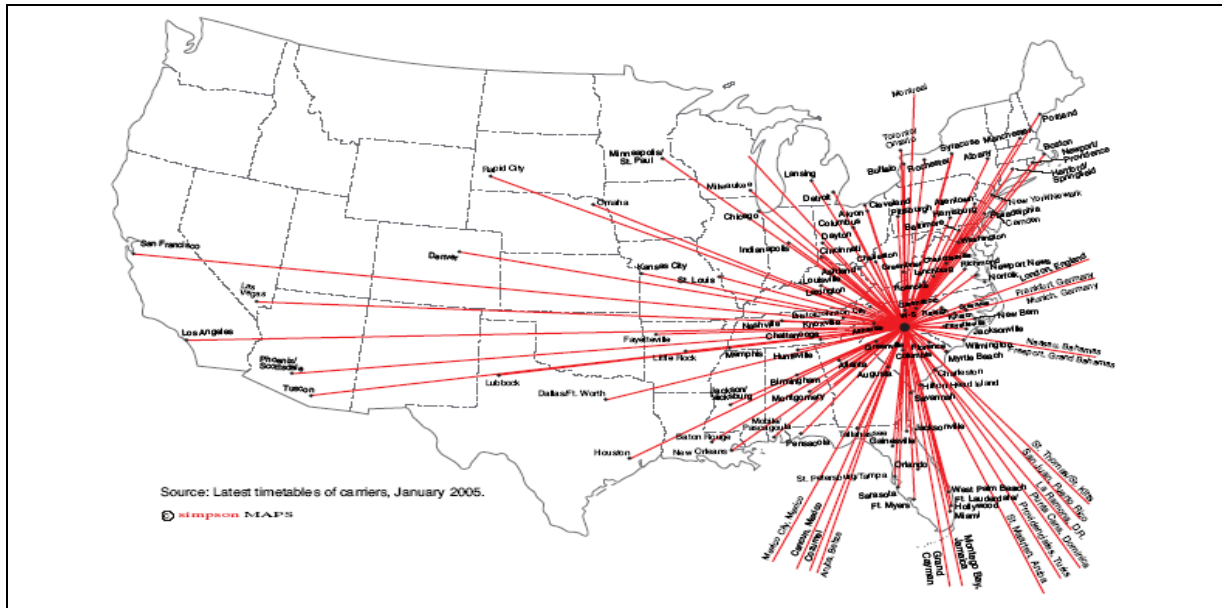


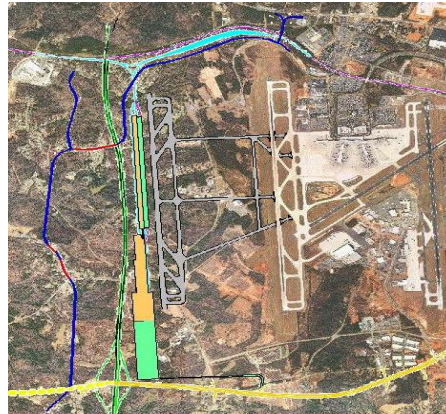
Figure 0-3 Destinations from Charlotte Douglas International (CLT), 2005

Source: Charlotte Douglas International Airport Public Information Office

Charlotte Douglas is currently in a growth mode in terms of air freight operations, and overall is the 18th largest air carrier airport as recently as 2003. The City of Charlotte Aviation Department is involved in a planning process to move up as a more prominent national hub for air freight. A new partnership with CSX has been developed over the past several years, and a new intermodal terminal with rail, truck and air interface is currently in the planning stage, as shown in Figure 0-4. This inland port would potentially replace the current facility that is located just north of Charlotte’s Uptown area.



Current Intermodal Facility



Future Intermodal Facility

Figure 0-4 Planned Intermodal Hub at Charlotte-Douglas International Airport

Source: Charlotte Douglas International Airport Public Information Office

As another example of the level of expansion potentially available at these major air terminals, the RDU cargo complex at the north end of the airport opened in the early 1990s with approximately 900,000 sq. ft. of cargo warehouse space available to be developed by cargo carriers. RDU's long range master plan calls for the development of the opposite side of International Drive with approximately the same ability to double the total space. This expansion, if developed, would replace Park and Ride Lot #4; and airside infrastructure would need to be developed to access the site from the east side runway. There are no current plans for that site to be developed.



Figure 0-5 Destinations from Raleigh-Durham International (RDU), 2006

Source : Raleigh-Durham International Airport, Customer Service & Organizational Support Office



Figure 0-6 Destinations from Piedmont Triad International Airport (GSO), 2008

Source: Piedmont Triad International Airport Public Information Office

In the next year, a major distribution hub being developed by Federal Express (FedEx) at GSO will open. FedEx’s Mid-Atlantic hub at GSO has seen the following milestones:

- Project announced in April 1998;
- Selected URS to do the EIS in July 1998;
- Final EIS released in November 2001;
- ROD issued in December 2001;
- Certification for air quality in August 2003;
- 401 Water Quality Certification issued in November 2003 by NCDENR;
- 404 Wetlands Permit issued in December 2003 by the Army Corps of Engineers;
- Lease began with Fed Ex in 2006
- Road work completed mid-2008
- Operations expected to begin in July-August 2009

In terms of financing, the State of North Carolina approved funding for the FedEx facility in the amount of \$52 million for road construction in 2001. Federal funding of \$124 million was initially approved for runway and taxiway construction in March 2002.

This “snapshot” of one of the major air freight handling facilities (at GSO) is representative of a projection nationally of significant growth in air freight. In the Atlanta region, for example, overall air cargo is expected to expand by about 150 percent from current levels until 2030. In that same time period, shipments of electrical equipment, which is a major commodity produced in the Atlanta region, is expected to grow by over 500 percent. There is no reason to believe that similar growth would not be experienced at North Carolina’s three major airports.

Another feature that must be taken into account for all air service is that restricted military air space in eastern NC is among the largest proportions of military airspace in the country. These restrictions are related to the large military presence in eastern NC including Camp Lejeune, Fort

Bragg, Seymour Johnson Air Force Base, Pope Air Force Base (currently being merged with Ft. Bragg), Cherry Point, and Elizabeth City’s Coast Guard Station. The fact that North Carolina’s Outer Banks is well known as the “birthplace of aviation” (the site of the historic Wright Brothers inaugural flight at Kitty Hawk in 1903) illustrates the history and importance of aviation in the State. The future role of air cargo in the State will be tied to the ability to continue to add capacity to handle increasing volumes of air cargo.

An additional method for measuring the impact of air cargo logistics in the State as well as the Nation is to examine the relationship among the various modes over time. Table 0-3 illustrates the nation-wide changes in value, tons carried, and ton-miles for each mode. The growth of air cargo in the decade between 1993 and 2002 was more pronounced than any of the other modes. Commentary about the relative changes in truck, rail, and water (which are to some extent competing modes) will be discussed in the next section. But in terms of value, these data confirm not only that air cargo primarily consists of high value commodities, but that these changes indicate that growth in value more than doubled the increase in value of commodities carried by either truck, rail, and water. Although representing only a small fraction of the weight and productivity of the overall freight picture, the increase in this decade in tons shipped and ton-miles also exceeded that of the other modes. There are no data available specifically for North Carolina, but there is no indication that freight logistics in this state’s major airports is any different from the country as a whole.

Table 0-3 Modal Shifts in Value, Tonnage, and Ton-Miles: 1993 and 2002 (1)

Mode of Transportation	Percent change between 1993 and 2002		
	Value	Tons moved	Ton-miles
Overall total (CFS plus out-of-scope estimates)	45.3	18.4	23.8
Truck	42.2	26.4	55.5
Rail	39.2	19.9	29.9
Water	39.9	10.2	-16.9
Air	96.7	45.9	63.2
Pipeline	-8.7	3.8	27.0
Multimodal combinations (2)	67.0	-7.5	36.7
Other modes	53.4	-7.6	-17.3
(1) 2002 data are preliminary.			
(2) Multimodal includes the traditional intermodal combination of truck and rail plus truck and water; rail and water; parcel, postal, and courier service; and other multiple modes for the same shipment.			

SOURCE: U.S. Department of Transportation, Bureau of Transportation Statistics, primarily based on 1993, 1997, and 2002 Commodity Flow Survey data.

It has been more than a century since the Wright Brothers launched the first manned, powered aircraft flight on the dunes at Kitty Hawk, and over the course of that century, air transport has become an indispensable component of the passenger and freight transportation systems in this country. But, “*airfreight is essentially multimodal. Hardly any cargo starts or finishes at the airport [with notable exceptions, of course]. Most [air cargo] moves in a carefully adjusted, sometimes integrated air-road logistical framework. Without such a framework overall, origin-destination efficiency is seriously compromised.*” (Raven, John; *TIACA Times*, the journal of The International Air Cargo Association, Summer, 2002.) This concept of a balanced, integrated

freight transport system is essential for decision-makers at the state and local levels in North Carolina to plan for the future.

SWOT Analysis - Air (Strengths, Weaknesses, Opportunities, Threats)

This analysis is conducted primarily as an assessment of air freight, but the inter-connectivity of trucks to air, rail and marine terminals, leads us to incorporate related issues affecting other freight transport systems as well.

Strengths.

- Growth of the State's population accompanied by new and expanding "high tech" businesses, plus the continuation of the State's role as a manufacturing center, indicates a continuing growth market for air freight as well as the highway/truck freight business. (See also "Threats," and the comment on North Carolina's and America's place in the Global Economy.)
- With the completion of the Fed Ex terminal at Piedmont Triad International Airport (GSO), it is expected that substantial secondary logistics-related businesses will emerge in developable areas near the airport. The potential exists for GSO to become one of the major cargo-handling airports in the country.
- Overall continuation of air cargo growth over the past decade at Raleigh-Durham International Airport (RDU) is expected to continue. Available ramp space on the airport's north ramp for additional freight facilities provides a significant capability for additional air cargo capital investments and operations. This potential also exists at other airports in the state, particularly Charlotte, Greensboro, as mentioned above, and Craven County/Global TransPark (EWN).
- All three major airports in the State are adequately served with ground access directly to air cargo facilities on site.
- As the specialized manufacturing sectors of health and safety technologies, communication and electronic components, pharmaceuticals and biomedical products, etc. , continues to grow throughout the State, these and other high-value shipments will continue to have an increased demand for air cargo services
- The comparable distances between the state's major airports (approximately 80 to 90 miles from Charlotte to Greensboro, and the same from Greensboro to Raleigh-Durham), provides a favorable accessibility to customers from the Piedmont Crescent and for customers in the western and eastern regions of the State.

Weaknesses.

- Overall economic conditions worldwide affect commerce and trade in many ways. There exists a relatively modest potential for growth of intermodal freight movement, especially in other parts of the State outside the Piedmont Crescent (Charlotte to Raleigh-Durham).

- On the demand side of the equation, current trends are that shippers are growing (1) from national markets to global markets; (2) from a primarily manufacturing economy to a service economy; and (3) developing evolutionary logistics systems “quick time” and “just-in-time.”
- On the other hand, the supply side, carriers and overall transportation systems are moving (1) from modal fragmentation to cross-modal coordination; and (2) from system construction to system optimization. North Carolina State government is not organized to address these intermodal/ cross-modal coordination issues with the power and credibility needed to bring about helpful and needed changes in recruiting industry and assisting the private sector in a rapidly growing economy.
- These trends reflect the fact that freight transportation modes must be responsive to the growing amount of far-flung intermodal supply chains, and the demand for increased freight traffic and resulting congestion along trade corridors and at ports, airports, and border crossings. Infrastructure needs to be planned and programmed to reflect these market realities.
- In North Carolina, planning between modes and across agency representation (e.g., Commerce and Transportation) appears to the public, and probably to responsible officials, to be non-existent.
- Capacity deficiencies and lack of designating and/or enforcing non-truck lanes has a significant impact on congested corridors in extended morning and evening peak hours. Similarly, all-truck lanes have not been implemented in North Carolina.
- The concept of “sustainability” in funding for future multimodal corridors and facilities is not currently thoroughly understood nor taught in logistics curriculums.
- Life-cycle costing and budgeting of infrastructure projects, including multimodal facilities, is also in need of better understanding and education/research initiatives.

Opportunities.

- As a recent member of a multi-state effort called the I-95 Corridor Coalition created by AASHTO and supported by the FHWA, the States along the east coast, and major metro regions, the opportunity exists to expand participation by the NCDOT in this Coalition to include air, rail, truck, and seaport intermodal issues.
- Based on the initiative of UNC System President Erskine Bowles over the past year, a team of researchers and community leaders from across the state have produced a plan for improving the quality of life for North Carolinians in many different areas. One of the major findings of the study is that the University System “should more actively engage in enhancing the economic transformation and community development of North Carolina’s regions and the State as a whole.” (*Final Report, University of North Carolina Tomorrow Commission*, December 2007).
- The UNC System, as well as private universities in the state, should create new programs linking together the disciplines of transportation logistics, finance, economics, and public policy.

- The North Carolina Tomorrow initiative, going forward, should also focus on educating the public on the relationships of freight mobility and economic well-being. Other opportunities include the following:
- Benchmark intermodal freight performance data, beginning next Fiscal Year for the State as a whole, as well as for corridors of critical state interest, plus major metropolitan areas.
- Define projects of strategic and regional interest to work for measurable network improvements. Near-term projects to achieve early wins in several parts of the state would include the development of additional double track on high volume sections of the State's rail network and on those sections that are presently handling, or are projected to handle, passenger rail service. .
- Create freight/logistics planning regions for both the Departments of Commerce and the Department of Transportation to represent the same geographic areas and work together in the 14 field divisions of the NCDOT to create positions and hire staff with capabilities in regional multimodal freight planning, and incorporate those resources in MPO and RPO planning activities.

Threats.

- The Global Economy will continue to provide disruption by seeing American jobs continue to be transferred off-shore, and the competition of growing economies like China and India, plus others in the Pacific Rim, will likely slow the growth of the U.S. as a whole, including the State. This will further heighten the competition among states for new jobs, investments in new companies, start-ups, and the overall economy of states and communities.
- THE OIL CRISIS. It is here now! The cost of crude oil and the volatility that it brings to all types of jet fuel, petroleum and gasoline, diesel fuel, lubricants, etc. All these will cut into the profit margin for airlines, railroads, marine freight, and trucking firms. Finding solutions to this is a global problem, nationwide problem, and state problem at the highest levels of government.
- "Airlines in general are in a better financial position than they were five years ago. But the challenges of the last five years have left the industry with little or no financial safety-net. The next five years offer significant demand growth opportunities for airlines, but competition for that growth will be strong as new capacity increases at an increased rate. Further cost efficiencies, rational capacity management and greater operational flexibility are necessary to translate the improvements already achieved into a stable and profitable industry over the next five years." (Ref. *IATA Economic Briefing, Passenger and Freight Forecasts*, November 2007)
- One very specific observation in the "threat" category: the overall tightening and competing budgetary demands for State General Funds will lessen the ability of the Aviation Division to provide as much high level service to the State's smaller airports as it has in the past.
- North Carolina needs a freight strategic planning process to respond to changing customer service requirements, both domestically and internationally. This requires an active partnership between agencies of government, as well as between government and

industry. This partnership should include carriers, shippers, logisticians, economic development officials, researchers and academic institutions, and security interests to:

- Continually review and define both current and emerging issues and trends;
 - Translate these into actionable items;
 - Prioritize items into a multiyear statewide logistics business plan;
 - Implement those items;
 - Provide accountability to executive leadership.
-

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Highway Infrastructure

Introduction

North Carolina's public road system comprises over 103,000 miles, the 16th largest of all U.S. states. The North Carolina Department of Transportation has direct responsibility for 79,031 miles of this network (over 76.6%), with the balance managed by cities/towns (19.5%), Federal agencies (3.1%) or other jurisdictions (0.7%)¹³. Of particular note, the size of NC's highway system that is the direct managed by the state is second only to Texas, a state with nearly three times the total system size (304,171 miles.) Explaining this seeming disparity is that unlike Texas and (effectively) all but two other states¹⁴, North Carolina has no county-owned DOTs that maintain the secondary road system. While North Carolina's choice of DOT organization model avoids some of the inherent duplication associated with have both state and county DOTs, it does significantly broaden NCDOT's mission when compared to a typical state DOT.

As described in other chapters of this report, in recent years North Carolina has experienced a number of changes that have impacted its ability to match its historic image as "the Good Roads state." Among these factors are the following:

- Rapid but uneven population growth, creating considerable highway congestion around the state's larger urban areas (especially near Charlotte and Raleigh);
- Shifts in employment patterns (associated with declines in our traditional, manufacturing-focused industries,) resulting in changing freight and traffic patterns;
- Increasing volumes of highway freight traffic, especially along key Interstate freight corridors, that have accelerated highway wear and deterioration;
- Increasing vehicle fuel costs and changes in land-use patterns;
- Aging transportation infrastructure, much of which was originally constructed around the same time, creating a bubble of infrastructure investment needs as these facilities begin to reach the end of their lifespan; and,
- Significant increases in materials costs highway construction and maintenance projects, effectively reducing NCDOT's ability to address problems within its funding stream.

North Carolina Highway Freight Patterns

As Table 4 indicates, trucks move more freight in North Carolina than any other mode, both in terms of volume and value, and truck volume is expected to grow throughout the state over the next 20 years. FHWA projections¹⁵ indicate that much of the growth will occur in urban areas and on the Interstate highway system, which is demonstrated by a comparison of Figure 7 and Figure 8.

¹³ All calculations and data are derived from Table HM-10 - Roadway Extent, Characteristics, and Performance - Highway Statistics 2005 – FHWA, <http://www.fhwa.dot.gov/policy/ohim/hs05/hm/hm10.htm>

¹⁴ The other state DOT's with similar responsibilities are Virginia and West Virginia.

¹⁵ http://www.ops.fhwa.dot.gov/freight/freight_analysis/state_info/north_carolina/profile_nc.htm

Table 4 Freight Shipments by Transportation Mode To, From, and Within North Carolina 1998, 2010, and 2020¹⁶

	Tons (millions)			Value (billions \$)			Tons (percentage)			Value (percentage)		
	1998	2010	2020	1998	2010	2020	1998	2010	2020	1998	2010	2020
State Total	511	756	944	426	820	1,324	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
By Mode												
Air	<1	1	2	29	72	126	<0.1%	0.1%	0.2%	6.8%	8.8%	9.5%
Highway	426	641	808	381	719	1,152	83.4%	84.8%	85.6%	89.4%	87.7%	87.0%
Rail	79	104	121	15	26	41	15.5%	13.8%	12.8%	3.5%	3.2%	3.1%
Water	5	7	9	1	2	3	1.0%	0.9%	1.0%	0.2%	0.2%	0.2%

Note: Percentages may not add to totals due to rounding.

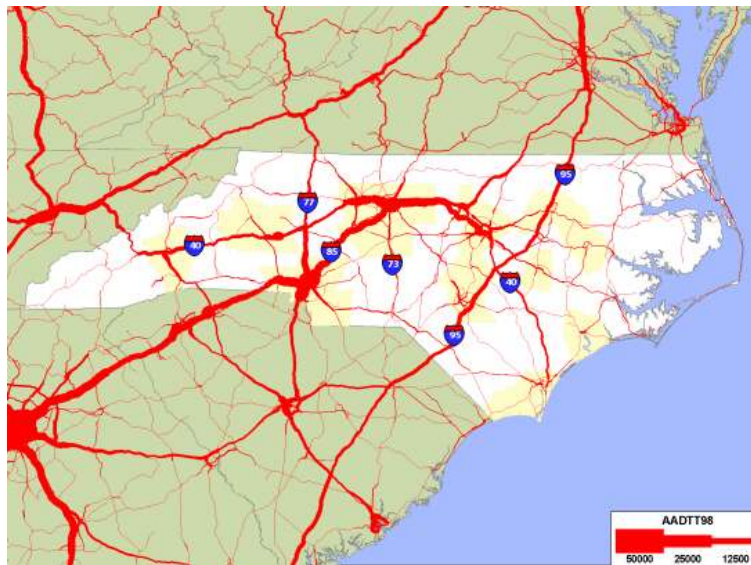


Figure 7 Estimated Average Annual Daily Truck Traffic: 1998¹⁷

¹⁶ Adapted from http://www.ops.fhwa.dot.gov/freight/freight_analysis/state_info/north_carolina/profile_nc.htm

¹⁷ http://www.ops.fhwa.dot.gov/freight/freight_analysis/state_info/north_carolina/profile_nc.htm

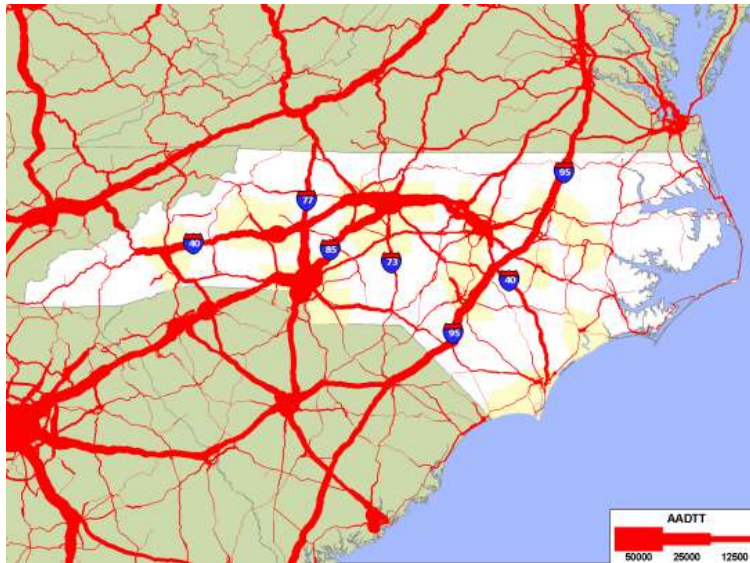


Figure 8 Estimated Average Annual Daily Truck Traffic: 2020¹⁸

NCDOT Response to Growing Infrastructure Need Gap

The NCDOT has engaged in a number of efforts and initiatives that are relevant to this project, three of which particularly warrant description and discussion:

1. “Strategic Highways Corridors Concept Development Report,” issued in October 2005;
2. “2006 STP Mid-Cycle Update – Technical Report,” and
3. NC Truck Network Model Project.

Strategic Highways Corridors Initiative (SHC)

NCDOT’s website¹⁹ for its Strategic Highways Corridors initiative describes this effort as follows:

“The primary purpose of the Strategic Highway Corridors initiative is to provide a network of high-speed, safe, reliable highways throughout North Carolina. A primary goal is to create a greater consensus towards the development of a genuine vision for each Corridor - specifically towards the identification of the desired facility type (freeway, expressway, boulevard, or thoroughfare) for each Corridor. Buy-in towards this vision and desired facility type would affect decision-making through the project improvement process, i.e., affecting funding decisions, project planning decisions, design decisions, access decisions (driveway permit approval), and local land use decisions. “

“The Strategic Highway Corridors (SHC) initiative represents the first major implementation step to be advanced under the update of North Carolina's Long-Range Multimodal Statewide Transportation Plan. The Statewide Transportation Plan, adopted by the Board of Transportation (BOT) in September 2004, is the product of an intensive, three-year planning process to greatly enhance a focus on providing and supporting a truly modern, well-maintained, and multimodal transportation system. “

¹⁸ http://www.ops.fhwa.dot.gov/freight/freight_analysis/state_info/north_carolina/profile_nc.htm

¹⁹ <http://www.ncdot.org/doh/PRECONSTRUCT/tpb/shc/concept/>

“This concept provides a tangible, first step for maximizing the use of highway infrastructure and limited financial resources. The formal recognition of the SHC concept confirms the Department's commitment to emphasize greater planning and investment in the State's highest use facilities - those facilities that play a critical role in statewide mobility and regional connectivity. “

Stated Goals²⁰:

- Protect North Carolina's taxpayer investment in critical highway corridors
- Enhance major corridor mobility within and to destinations just outside North Carolina
- Enhance connectivity of travel within and just outside North Carolina
- Partner with stakeholders and all vested agencies to create a clear vision for each corridor
- Influence the project level decision-making process to achieve broader goals through funding, project planning, design, access and land-use decisions
- Support a statewide vision and identification of a desired facility type– freeway, expressway, boulevard or thoroughfare– for each corridor

Key points:

- Emphasized the need for partnering between NCDOT, the NC Departments of Commerce and the NC Department of Natural Resources as a means to achieving the project goals;
- Identified 55 “strategic highway corridors” for North Carolina (see Table 5, placed later in this document);
 - The selected corridors account for approximately 7% (6.82%) of the entire state-maintained highway system (78,844 miles), yet they carry approximately 45% (45.4%) of the state’s traffic.
 - Includes connections to the central business districts of major cities, airports, military bases, and state ports.
 - Corridor selection was coordinated with Virginia, South Carolina, Georgia, and Tennessee to ensure connectivity to the appropriate facilities across North Carolina’s borders.
- Defined a “vision” (overall design and operational picture) for each corridor;
- Described six strategies for implementation:
 1. Education
 2. Long-Range Planning
 3. Project Planning and Design
 4. Land Use
 5. Corridor Protection
 6. Driveway Permits and Traffic Signals.

²⁰ http://www.ncdot.org/doh/PRECONSTRUCT/tpb/shc/pdf/SHC_Brochure.pdf

Statewide Transportation Plan

In 2006 NCDOT performed a mid-cycle update of its federally-required²¹ transportation planning document, the Statewide Transportation Plan (STP.) The following concerns precipitated the need for this update²²:

- Increasing shortfalls between identified transportation infrastructure needs and revenue forecasts (\$84 Billion in needs versus \$55 Billion in revenues)
- Decision Constraints
 - Restrictions on how state/federal dollars could be spent (reducing NCDOT's ability to set priorities)
 - Growing maintenance backlog versus need to add capacity
- Lack of performance measures for prioritizing transportation investment needs.

To address these concerns, the 2006 STP update introduced a NCDOT-developed decision tool to rationalize transportation infrastructure investment decisions, the North Carolina Multimodal Investment Network (NCMIN). The NCMIN is designed as follows²³:

- Created a classification methodology that grouped facilities by:
 - Level of Interest & Importance,
 - Type of Travel Served, and
 - Usage and Benefit.
 - It does NOT group facilities by urban vs. rural.
- Identified three tiers of facilities, based on importance to the State's overall transportation infrastructure and encompassing all modes (highways/rail/air/water)
 - Tier 1: Statewide,
 - Tier 2: Regional and
 - Tier 3 Subregional.
- Emphasized the *unique* contribution of each transportation asset
 1. Statewide Tier
 - Long-distance trips & highest travel demand
 - Connect larger population centers throughout the State
 - Large scale projects; full control of access facilities
 - Ex. All Interstates, all NHS routes, RDU Airport
 2. Regional Tier
 - Connect regional centers and surrounding counties

²¹ Required under ISTEA & TEA-21 transportation funding documents.

²² http://www.ncdot.org/doh/operations/dp_chief_eng/maintenance/road_main/PerfBasedMgt/Statewide.pdf

²³ http://www.ncdot.org/doh/operations/dp_chief_eng/maintenance/road_main/PerfBasedMgt/Statewide.pdf

- High levels of demand; travel distances typically shorter
 - Heavy commuter routes
 - Ex. NC Routes, Charlotte commuter rail, Hickory Airport
3. Subregional Tier
- Short-distance trips & low levels of demand
 - Local land access function to businesses & residences
 - Ex. Secondary Road system, Local Transit System
- Recommended that the State prioritize transportation infrastructure investments according to the following criteria:
 - Blend of Modernization & Statewide Tier Investment
 - Creates a focus on preserving/upgrading the existing transportation system
 - Targets investment in statewide mobility
 - Only addresses 2/3 of all projected needs (during to gap in needs versus projected funding).

NC Truck Network Model Project²⁴

In July 2005 NCDOT funded North Carolina State University and the Institute for Transportation Research and Education (ITRE) to prepare a prototype statewide truck network. The primary objectives of the project were:

1. To select a model framework that can be used in North Carolina to conduct policy assessments for Strategic Corridors, especially regarding truck traffic.
2. To implement the prototype model and validate base year truck flows.
3. To forecast future truck traffic on the NC network.
4. To demonstrate the use of the model for policy, systems-level or project-level decisions.

As of March 2008, the first two objectives have been accomplished and the project is scheduled to be completed by June 30, 2008.

The base year long haul truck data was based on FHWA Freight Analysis Forecasting origin-destination data for North Carolina including origins and destinations outside North Carolina. Short haul and back haul truck traffic were generated using simplified trip generations rates. Base year 2006 truck traffic estimates (Figure 9) in North Carolina are validated by over 400 truck traffic counts throughout the state. This figure supports statements found in the 2006 State Transportation Plan update indicating that only 7% of the state's highway system carries 45% of the state's total vehicles²⁵.

²⁴ From "Executive Summary" (of the NC Truck Network Model Project,) provided by Dr. John Stone of NC State University, March 11, 2008.

²⁵ "The Strategic Highway Corridors Concept Development Report," North Carolina Department of Transportation Planning Branch, October 2005, page ES-1.

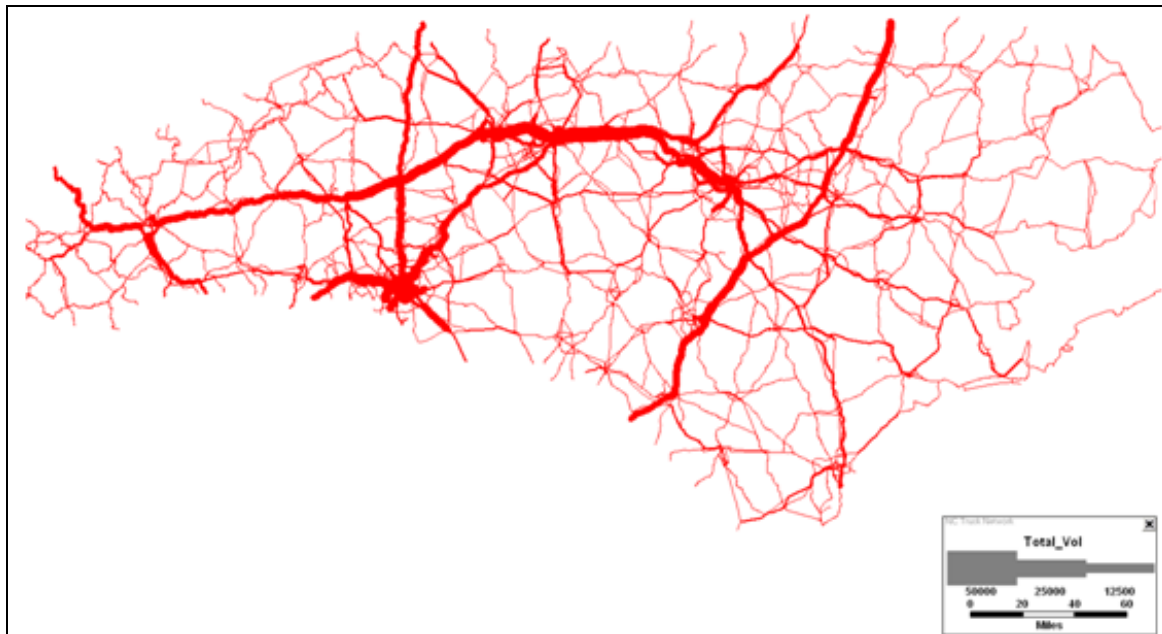


Figure 9 2006 Truck Volumes Forecast

This figure appears consistent with FHWA projections and suggests that trends towards increasing congestion in the Charlotte, Triad and Triangle metro areas are likely to continue.

Limitations to the Truck Network Model

Only ADTT (average daily truck traffic) is estimated for the network model, not total vehicle traffic including automobiles. Since the model does not include automobile trips and truck-only traffic is usually far below roadway capacity, the current network model is not built with the capacity-constrained traffic assignment feature. The network is sensitive to input speed but not to traffic volumes on the highway. Consequently any network changes for scenario testing will have to be expressed in terms of speed changes to the network links affected. Thus, network improvements from adding lanes (capacity) will not make the model estimate different traffic volumes on the highway.

Long haul truck traffic forecasts depend on national estimates produced by FHWA. Short haul North Carolina truck traffic is based on employment (0.1 ADTT/employee). This total average rate does not recognize individual NAICS²⁶ categories of employment. The rate is at the lower end of the rates reported in literature in the US, and it does not show intense truck activity such as that experienced at trucking hubs. The latter is partly due to the aggregation of truck activity locations into counties, as counties serve as traffic analysis zones in this model.

Summary of NC Planning Efforts

The essential, shared themes of the described initiatives is that North Carolina must provide greater priority to maintenance and construction projects along the major travel corridors (Interstates and other highways that represent the statewide travel network) and do so in a

²⁶ NAICS is short for the North American Industry Classification System, a set of industry categories standardized between the U.S. and Canada.

systematic, coordinated fashion that will ensure optimal system connectivity for now and the future.

Highway Freight Infrastructure Gaps

To address our current and long-term highway freight infrastructure needs, North Carolina must ensure that the high-volume roads that move much of our state's freight be provided priority attention in terms of maintenance (to ensure operational performance) and congestion relief (to relieve current and projected bottlenecks.) Specific routes and/or other issues that need priority attention include the following:

1. Roads identified as belonging to the "National Truck Network²⁷," which are routes that have been approved for use by vehicle sizes authorized under the Surface Transportation Assistance Act of 1982 (STAA). Such vehicles include 53-foot single trailer and 29-foot twin trailer combinations. (See Figure 10 for details.)
2. Urban interstates and interstate connectors that already are experiencing moderate to severe congestion, primarily around North Carolina's largest metropolitan areas (i.e., the greater Charlotte metro area, the Triad and the Triangle).
3. North Carolina roads identified as "High Priority Corridors on National Highway System²⁸" (essentially future Interstate highways,) which include the following:
 - A. Future I-73 routes:
 1. United States Route 220 from the Virginia State line to State Route 68 in the vicinity of Greensboro;
 2. State Route 68 to I-40;
 3. I-40 to United States Route 220 in Greensboro;
 4. United States Route 220 to United States Route 1 near Rockingham; and
 5. United States Route 1 to the South Carolina State line.
 - B. Future I-74 routes:
 1. The I-77/United States Route 52 connector to United States Route 52 south of Mount Airy, North Carolina;
 2. United States Route 52 to United States Route 311 in Winston-Salem, North Carolina;
 3. United States Route 311 to United States Route 220 in the vicinity of Randleman, North Carolina;
 4. United States Route 220 to United States Route 74 near Rockingham;
 5. United States Route 74 to United States Route 76 near Whiteville; and

²⁷ <http://reports.oah.state.nc.us/ncac/title%2019a%20-%20transportation/chapter%2002%20-%20division%20of%20highways/subchapter%20e/19a%20ncac%2002e%20.0426.html>

²⁸ <http://www.fhwa.dot.gov/planning/nhs/hipricorridors/index.html> , accessed May 4, 2008.

6. United States Route 74/76 to the South Carolina State line in Brunswick County.
 - C. Raleigh-Norfolk Corridor, Raleigh, North Carolina, to Norfolk, Virginia.
 - D. Route 29 Corridors from Greensboro, North Carolina, to the Virginia State line.
 4. Improved highway connections between Charlotte and Wilmington.
 5. Specific problems/areas identified through interviews and/or surveys with trucking industry stakeholders, including the following:
 - A. Truck parking. Truck drivers (and trucking firms) continue to struggle with the shortage of legal places to park while resting.
 - B. 53-foot trailers. 53-foot trailer are effectively the standard of the truckload shipping industry but many North Carolina roads are not authorized for such trailers. A February 25, 2008 advisory letter issued by the Office of the North Carolina Attorney General²⁹ effectively expands the number routes available to such trailers but does not definitively address this issue.
 6. Other highway focus areas included addressing specific trucking industry concerns, “last mile” issues (connector roads), and where intermodal junctions occur (discussed in the other modal sections.)

²⁹ “Advisory Letter: Interpretation of N .C. Gen. Stat . § 20-115.1(b),” written by Ebony J. Pittman, North Carolina Assistant Attorney General, February 25, 2008.

Table 5 Strategic Highways Corridors List

Note: Corridor Numbering Sequence is from West to East across North Carolina

Corridor 01:	Chattanooga, TN to Asheville (US 64, US 74, I-40)
Corridor 02:	Chattanooga, TN to Hendersonville (US 64, NC 280)
Corridor 03:	Atlanta, GA to Cherokee (NC 60, US 74, US 441)
Corridor 04:	Atlanta, GA to Asheville (US 23, US 441, US 74, I-40)
Corridor 05:	Anderson, SC to Knoxville, TN (NC 107, US 74, US 441)
Corridor 06:	Knoxville, TN to Wilmington (I-40)
Corridor 07:	Asheville to Greeneville, TN (I-26, US 25, US 70, NC 208)
Corridor 08:	Greenville, SC to Asheville (US 25, NC 225, I-26)
Corridor 09:	Spartanburg, SC to Johnson City, TN (I-26)
Corridor 10:	Asheville to Boone (I-26, US 19E, NC 105)
Corridor 11:	Asheville to Gastonia (I-26, US 74)
Corridor 12:	Spartanburg, SC to Boone (US 221, NC 105)
Corridor 13:	Boone to Wytheville, VA (US 421, US 221)
Corridor 14:	Spartanburg, SC to Wilkesboro (NC 18)
Corridor 15:	Gastonia to Johnson City, TN (US 321)
Corridor 16:	Spartanburg, SC to Petersburg, VA (I-85)
Corridor 17:	Shelby to Lincolnton (NC 150)
Corridor 18:	Charlotte to Wilkesboro (NC 16)
Corridor 19:	Lincolnton to Concord (NC 73)
Corridor 20:	Boone to Winston-Salem (US 421)
Corridor 21:	Rock Hill, SC to Wytheville, VA (I-77)
Corridor 22:	Rock Hill, SC to Monroe (NC 75)
Corridor 23:	Charlotte to Florence, SC (US 74, US 601)
Corridor 24:	Charlotte to Wilmington (US 74)
Corridor 25:	Charlotte to Fayetteville (NC 24, NC 27, NC 87)
Corridor 26:	Charlotte to Raleigh (NC 49, US 64)
Corridor 27:	Statesville to Raleigh (I-40, US 64)
Corridor 28:	Statesville to Salisbury (US 70)
Corridor 29:	Charlotte to Winston-Salem (I-85, I-285, US 52)

- Corridor 30: Wytheville, VA to Myrtle Beach, SC (I-74, I-77, US 52, US 311, US 220, US 74)
- Corridor 31: Florence, SC to Salisbury (US 74, US 52)
- Corridor 32: Myrtle Beach, SC to Martinsville, VA (I-73, US 220)
- Corridor 33: Greensboro to Danville, VA (I-785, US 29)
- Corridor 34: Rockingham to Raleigh (US 1)
- Corridor 35: Raleigh to Henderson (US 1)
- Corridor 36: Burlington to Danville, VA (NC 87, I-785, US 29)
- Corridor 37: Winston-Salem to Kitty Hawk-Nags Head (US 158)
- Corridor 38: Chapel Hill to Danville, VA (NC 86)
- Corridor 39: Sanford to Durham (US 15, US 501)
- Corridor 40: Fayetteville to Greensboro (NC 87, US 421)
- Corridor 41: Rockingham to Fayetteville (I-74, US 74, US 401)
- Corridor 42: Fayetteville to Raleigh (NC 87, NC 210, US 401)
- Corridor 43: Wilmington to Fayetteville (I-20, US 74, NC 87)
- Corridor 44: Raleigh to Nags Head (US 64)
- Corridor 45: Raleigh to Washington (US 264)
- Corridor 46: Raleigh to Morehead City (US 70)
- Corridor 47: Fayetteville to Morehead City (NC 24, US 70)
- Corridor 48: Florence, SC to Petersburg, VA (I-95)
- Corridor 49: Florence, SC to Wilmington (I-20, US 76, US 74)
- Corridor 50: Wilmington to Wilson (I-40, NC 403, US 117, US 264)
- Corridor 51: Myrtle Beach, SC to Wilmington (I-74, US 17, I-20, US 74)
- Corridor 52: Wilmington to Norfolk, VA (US 17)
- Corridor 53: Wilmington to Norfolk, VA (I-40, NC 24, NC 11, US 13)
- Corridor 54: Jacksonville to Kinston (US 258)
- Corridor 55: Hatteras to Norfolk, VA (NC 12, US 158, NC 168)

Port Infrastructure

Introduction

Historically, the US transportation system has been based through a combination of public, private and public/private joint investments. While port facility ownership/investments range from privately-owned bulk, liquid or dry cargo ports, to publically-owned container facilities, most ports can more accurately be described as joint public-private investments, as detailed below.

Ports throughout the US (including North Carolina ports) typically do not receive public appropriations for operations. However, many (also including NC ports) do receive public grants in support of their capital budget requirements. “Lessons learned” from ports with the most success in recent years include the need for both public and private infrastructure investments in seaside and landside freight connections. Accordingly, any discussion of North Carolina freight infrastructure investments must include port activities and their required modal connections.

Rewards have been enormous for those U.S. ports that took early lead in the 1960s and 1970s in making necessary infrastructure investments the US. The ports of Seattle, Tacoma, Los Angeles and Long Beach, Houston, Savannah, Charleston, Norfolk, and New York/New Jersey have become the major gateway ports for containerized cargo. Economic impact of those investments has yielded significant returns in terms of large increases in employment and trade as their shares of container traffic have increased. They have also become choice destinations for U.S. imports and entry points for land-bridge operations. As a result, between 1999 and 2005 the ports of Charleston, Savannah and Norfolk saw their container traffic increase by 7.1%, 12.7% and 7.4% respectively as their shares of US trade increased.³⁰ (See Table 6 for details.) In 2003 these ports were ranked seventh, eighth and eleventh in terms of volumes of traffic handled, and 60.27%, 69.27% and 69.14% respectively of the ships calling there carried containers. In comparison the Wilmington, N.C. port was ranked twenty-eighth in terms of traffic volume and only 12.85% of the ships calling there were container ships while the Morehead City Port did not handle any container ships.

Table 6 Comparison of Ports

Port	Vessel type and total capacity (thousands of dwt)									
	Total		Tanker		Dry-bulk		Containership		Other general cargo	
	Calls	Capacity	Calls	Capacity	Calls	Capacity	Calls	Capacity	Calls	Capacity
Savannah, GA	2,087	87,789	262	10,140	233	6,894	1,258	61,219	334	9,536
Charleston, SC	2,024	85,090	165	7,407	162	6,471	1,402	63,776	295	7,437
Virginia Ports, VA	1,539	70,066	83	5,078	197	10,110	1,064	47,606	195	7,272
Wilmington, NC	506	18,693	227	8,350	85	2,929	65	2,939	129	4,476

http://www.bts.gov/publications/state_transportation_statistics/state_transportation_statistics_2004/html/table_03_06.html accessed 2/27/2008.

³⁰ U.S. DOT (2007) *American Container Ports: Delivering the Goods*. Research and Innovative Technology Administration, Bureau of Transportation Statistics, Washington, D.C.

The growths of US container ports are expected to continue in future with international trade doubling by the year 2020³¹. Moreover, with the recent weakening of the US dollar, export trades have grown at much higher rates than imports. Commodity flows to international markets has led to additional port investment in the private and public sectors toward more bulk cargo facility development. Additional factors favoring east coast port investment include the following:

- Expansion of the Panama Canal;
- Construction of larger container ships (post-panamax ships) capable of handling 12,000 TEUs (twenty equivalent units of containers);
- Expectations that west coast container ports will continue to experience capacity problems when these new mega containerships begin operating;
- Forecasts that Central America could become the destination of large container ships using the Panama Canal, and from there smaller container ships will deliver shipments to U.S. via east and Gulf coast container ports³²;
- Predictions that include shifts in global industrial patterns, with Southeast Asia and India becoming major players in trade³³; and
- Forecasts that future U.S. trade with India and Southeast Asia will be via the Suez Canal and the east coast ports including those in North Carolina³⁴.

If these forecasts hold, east and Gulf coast ports will be handling many container ships in the future and these ships will require major investments in equipment and facilities.

In anticipation of the anticipated changes in global shipping patterns and volumes, various port authorities and states have invested heavily in port development, and to increase and protect their shares of this traffic. In comparison and despite its \$190 million port improvements program (detailed later), the State of North Carolina has lagged behind. Accordingly, the State of North Carolina and its ports could benefit from additional port investments, as we described in the sections that follow.

Port Infrastructure

In 1945 the North Carolina General Assembly created the North Carolina Port Authority. This entity controls our two state ports – in Wilmington and Morehead City. Effectively, Morehead City serves as the state’s bulk commodity port while Wilmington serves as the state’s container port. The NC Port Authority also maintains inland terminals in Greensboro and Charlotte to support intermodal trucking operations. The subsections that follow detail these operations.

³¹ North Carolina Department of Transportation (2005) *Concept Development Report: Strategic Highway Corridors*. NCDOT Transportation Planning Branch, Raleigh, N.C.

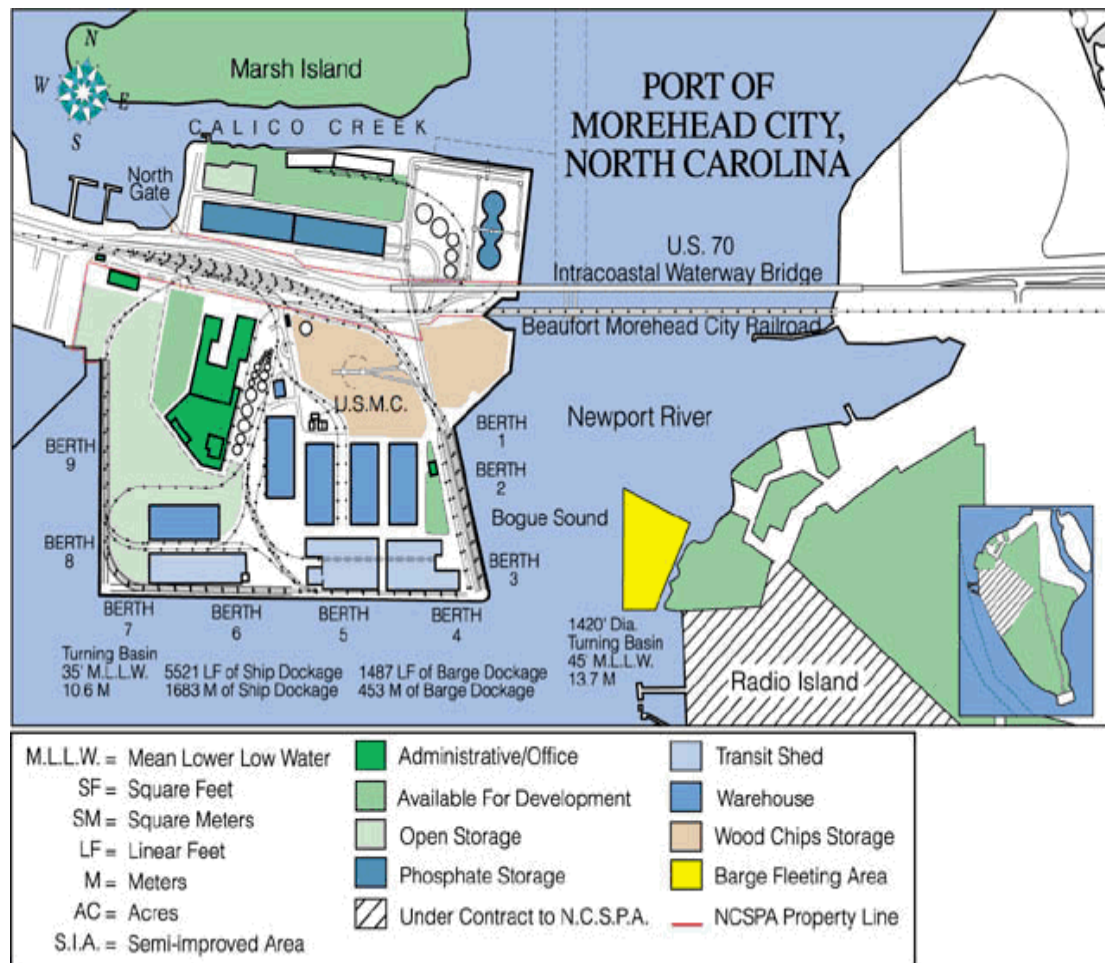
³² West R (2008) *Shifts in Global Trade Patterns - Meaning for North Carolina*. Paper presented to North Carolina Futures Committee, February 29, 2008, Wilmington, N.C.

³³ West R (2008) *Shifts in Global Trade Patterns - Meaning for North Carolina*. Paper presented to North Carolina Futures Committee, February 29, 2008, Wilmington, N.C.

³⁴ West R (2008) *Shifts in Global Trade Patterns - Meaning for North Carolina*. Paper presented to North Carolina Futures Committee, February 29, 2008, Wilmington, N.C.

Port of Morehead City

Characteristics: Figure 11 shows a map of the Port of Morehead City.



<http://ncports.com/web/ncports.nsf/pages/Map%20of%20Port%20of%20Morehead%20City?OpenDocument>

Figure 11 Port of Morehead City

This port is located just four miles from the ocean and has 5500 linear feet of ship dockage and 1487 linear feet of barge dockage. Its East turning basin has a diameter of 1350 feet and a depth of 45 feet, while its West turning basin has a radius of 1100 feet and a depth of 35 feet. Despite these characteristics it is by far the smaller in terms of capacity and total freight handled when compared to the Wilmington port. Table 7 and

Table 8 show that the channel depth of the Morehead City port is 45 feet inside the harbor, and that the width of the channel is between 400 and 820 feet. Also the port has nine berths two of which have modern ship loaders, and it has a channel leading to the ocean that is 45 feet deep, an ocean bar that is 450 feet wide with a depth of 47 feet, and there are depths ranging between 35 and 45 feet at mean low water level inside the harbor. Berths one, two and three in Figure 11, for example, have depths of 45 feet while berths four through nine have depths of 35 feet. Although the depths of berths four through nine are reasonable they may not be competitive when compared to other ports. For example, the Port of Charleston in South Carolina has a depth of 47

feet at its entrance and 45 feet elsewhere at mean low water level thus allowing very large container ships to use it.³⁵

Table 7 Characteristics of Port of Morehead City

Description	Feet	No.	Availability	Capacity
Wharf Length	5500			
Total Number of Berths		9		
Drybulk (Warehouse)			Yes	225,000 tons capacity
Conveyor system			Yes	
Ship loader			Yes	
RORO ramp			Yes	
Open storage dry-bulk facility			Yes	1000 tons/hour, 2 million tons annual capacity
Deck height above mean water level		10		
Unrestricted apron Width	45			
Ocean bar				
a) Channel depth: Mean low water level (ocean)	47			
b) Channel width Inside harbor	450			
a) Channel depth: Mean low water level	45			
b) Channel width	400-820			
East turning basin				
a) Depth: Mean low water level	45			
b) Diameter	1,350			
West Turning basin				
a) Depth mean low water level	35			
b) Radius	1100			
Depth: mean low water level				
a) Berths 1, 2, and 3	45			
b) Berths 4-9	35			
Foreign Trade Zones			Yes	
a) site 1				190,374 square feet of warehouse main terminal
b) Site 2				40 acres undeveloped

Source:<http://ncports.com/web/ncports.nsf/a5e75a4ee8d2dc808525666a005c2487/54a2dbc6ec30f45f85256ff300526b00?OpenDocument> accessed 2/16/2008

Table 8 Characteristics of Port of Morehead City (Continued)

Description	Number	Availability	Capacity/Description
Equipment			
a. Gantry cranes	2	Yes	115tons
b. IHI container cranes	1	Yes	40 long tons with 115 feet outreach, 63 feet backreach

³⁵ http://www.scspace.com/webhelp/Channel_depth_and_width.htm accessed 2/22/2008.

c. Mobile crane	2	Yes	equipped with grapple and bucket 30 tons
d. Mobile crane	1	Yes	140 tons
d. Lift trucks	39	Yes	4000 – 70,000 tons capacity
d. Certified truck scale	1	Yes	
e. Constant Motion rail scale	1	Yes	
Staging Area			
a. Covered, warehouse storage with sprinkler		Yes	457,564 squared feet
b. Transit storage shed			353,765 squared feet
c. Open storage			14 acres paved
d. Rail access to storage area		Yes	
Rail/Highway Access			
a. Switching railroad (Carolina Rail services)		Yes	
b. Norfolk-Southern access		Yes	
c. 2 surface tracks, 2 platform level tracks, 2 depressed tracks		Yes	
d. U.S. 70 highway		Yes	
e. I-95, I-40, US Hwy 17, NC 24		Yes	

Source: <http://ncports.com/web/ncports.nsf/a5e75a4ee8d2dc808525666a005c2487/54a2dbc6ec30f45f85256ff300526b00?OpenDocument> accessed 2/18/2008

The Morehead City port handles dry-bulk and break-bulk shipments. Most imports coming through the port are from Venezuela, Indonesia and Turkey and mostly the exports it handles are to China, India and Brazil. (See the Appendix tables.) The port uses an array of equipment including two gantry cranes, an IHI container crane, four mobile cranes and 39 lift trucks. It has a 457,566 square feet covered sprinkler-equipped warehouse storage space, a 353,765 square feet transit-storage shed and 14 acres of open storage. Additionally, it has a warehouse with a capacity of 225,000 tons for dry-bulk, an open storage dry-bulk facility with annual capacity of 2 million tons, a foreign trade zone site with 190,374 square feet of warehouse space and an undeveloped foreign trade zone covering 40 acres. Across the port on Radio Island is a fully serviced land 150 acres in size, available for industrial purposes.³⁶ This island is linked to the mainland by a bascule bridge.

The Morehead City Port is served by networks of rail and highway systems that provide easy access to distribution centers. Norfolk-Southern provides rail services to the port, and the Morehead and South Fork Railroad provides switching. In addition the port can be accessed by both U.S. Highway 70 and US Highway 17 and N.C. 24. However, its main access is U.S. 70 to Arendell Street, which is a local road and not designed to interstate standards. A secondary access is by Market Street.

Traffic: Table 9, Figure 12 and Figure 13 show 10-year trends in the distribution of total freight movements, break-bulk, bulk and containers. Additionally, the table shows trends in port usage in terms of ships and barges served. From these figures and table, Morehead City Port does not handle containers; most of its traffic is bulk shipment. In Figure 12 ship movements have

³⁶ <http://ncports.com/web/ncports.nsf/pages/Port%20of%20Morehead%20City?OpenDocument> accessed 3/3/08

remained very low at less than 200 a year and barge movements have steadily declined from a high of 740 in 1997 to a low of 191 in 2003. After 2003 barge movements started increasing. Assuming that ship and barge arrivals are evenly distributed throughout the year the Morehead City Port in 2006 handled about 1.13 and 0.449 barges and ships per day respectively.

In terms of tonnage, bulk shipments are between eight to 12 times break-bulk shipments. From Figure 13 annual break-bulk shipments handled by this port has remained relatively flat since 1997 while there have been large fluctuations in bulk shipments. Starting from a very high tonnage level of 2.954 million in 1996, bulk shipments declined to 2.693 million in 1998 and remained relatively flat till 2001. Thereafter, they dropped sharply to their lowest level of 1.541 million in 2003. Since 2003, bulk shipments have slowly increased but recently have started decreasing.

Table 9 Morehead City Port 10-Year Trend in Tonnage, Ships and Barges

Year	Break bulk	Container	Bulk	Total	Ships	Barges
1997	319,088	0	2,635,301	2,954,389	199	740
1998	292,989	0	2,400,198	2,693,187	181	713
1999	190,868	0	2,366,180	2,557,048	157	648
2000	185,236	0	2,436,683	2,621,919	137	540
2001	240,203	0	2,516,973	2,757,176	177	521
2002	213,583	0	1,294,005	1,507,588	132	209
2003	243,574	0	1,296,618	1,540,692	153	191
2004	214,948	0	2,000,643	2,215,591	168	250
2005	315,440	0	2,115,309	2,430,749	156	348
2006	375,998	0	1,922,386	2,298,384	164	411

Source:<http://ncports.com/web/ncports.nsf/a5e75a4ee8d2dc808525666a005c2487/9b1bfc6c6f6d579f85257050006da103?OpenDocument>
accessed 2/16/2008

<http://ncports.com/web/ncports.nsf/a5e75a4ee8d2dc808525666a005c2487/ce4d9001085ec25a85257050006fa3e4?OpenDocument> accessed
2/16/2008

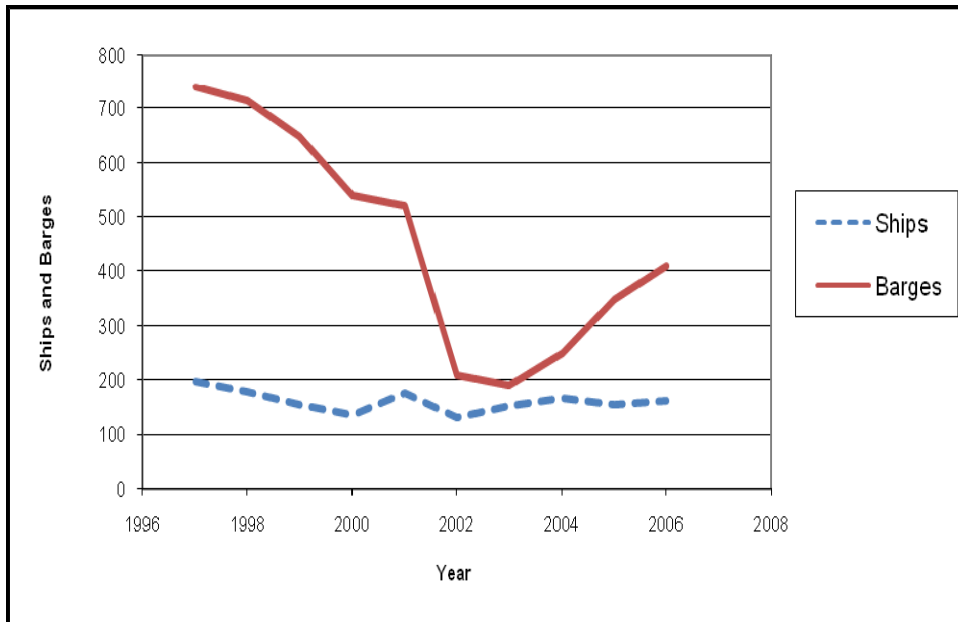


Figure 12 Morehead City Port - Ship and Barge Traffic

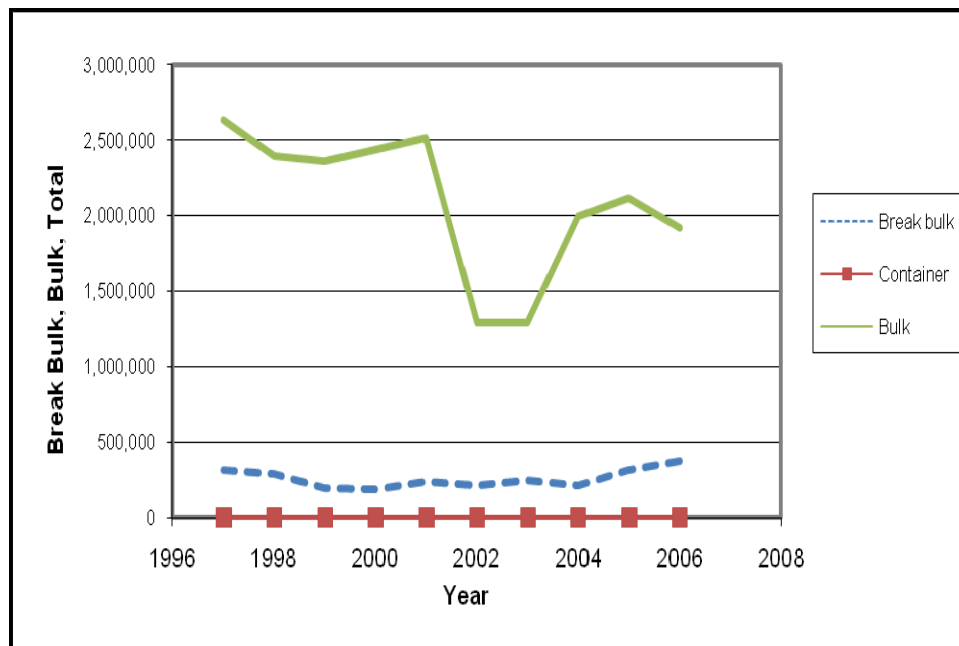


Figure 13 Morehead City Port - Tonnage Handled

Two of the top five exports from this port are general merchandise and military hardware. Figure 14 shows that both exports have been declining. However, military exports increased from 1999 and peaked in 2004 at 14,590 tons. Since then there has been a sharp decline in exported military hardware going through this port by 57.51% to 6,199 tons. Comparatively, exports of general merchandise have been declining consistently since 2001. In 2006 the total exports of general merchandise were 1,271 tons compared to 7,566 tons in 2001.

While the evidence shows that some exports have declined trends in three of the top five imports, asphalt, scrap metal and rubber, Figure 15 provides contrasting results. In general, scrap metal and rubber imports have been increasing, but the tonnage of scrap metal largely fluctuates. Concerning asphalt imports, Figure 15 also reveals a discernible trend; i.e., oscillations between peaks and lows.

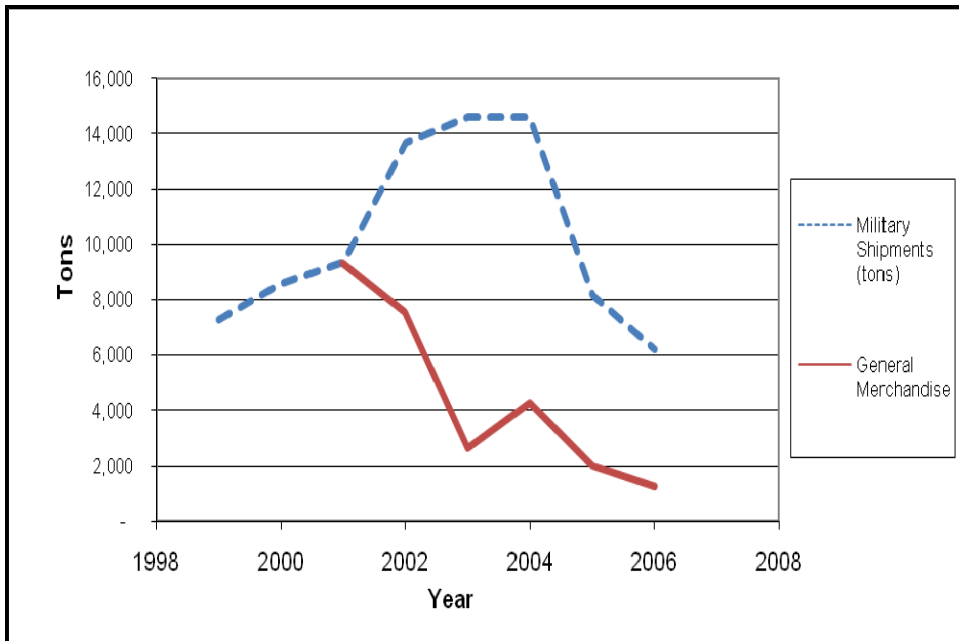


Figure 14 Morehead City Port: Exports - Military and General Merchandise

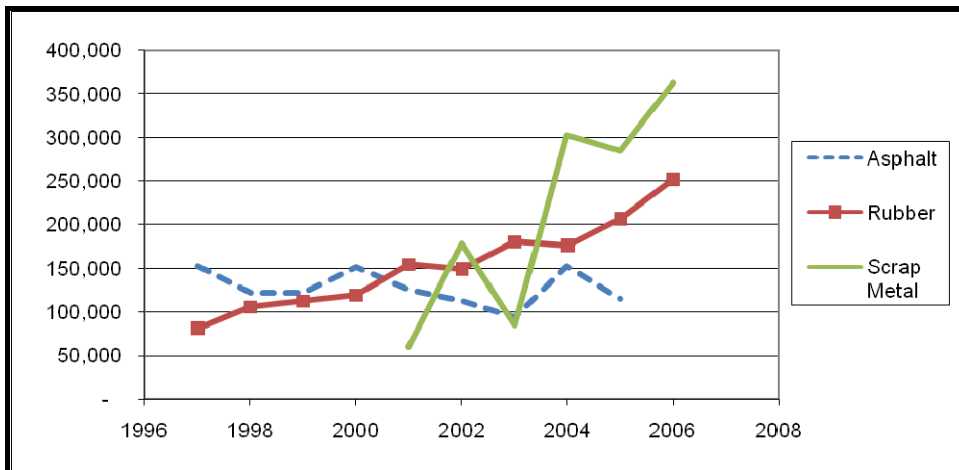


Figure 15 Trends in Some Major Imports

Port of Morehead City: Strengths, Weaknesses, Opportunities and Threats

Review and analysis of the Morehead City Port data and information reveal the following strengths, weaknesses, opportunities and threats³⁷ :

Strengths

- **Location:** It is located near the center of the Southeast market making it accessible to a major consumer base.
- **Availability of developable land on Radio Island:** There are approximately 150 acres of fully serviced land on Radio Island that can be used for industrial purposes.
- **Available capacity:** There is unused capacity at this port in terms of berths.
- **Fast turnaround by ships:** There are very few ships calling at this port. This is an advantage because it means that ships can load and unload quickly and leave port thereby reducing dwell time and per diem costs.
- **Barge traffic:** This is a multipurpose port with the capability to handle barge traffic. Unfortunately, information from the Port Authority suggests that shipping companies do not see barge traffic as profitable and have made strategic decisions to reduce their investments in barge traffic (except for bulk oil.)
- **Ability to handle RORO traffic:** The port has a roll-on roll-off ramp to handle ships using that service such as for the importation of vehicles and heavy equipment.
- **Absence of congestion in ocean channel:** Because few ships call at this port there is no congestion in the ocean channel leading to the port and inside the port.
- **Access to Class 1 railroad:** This Port is serviced by Norfolk Southern Railroad. Being a Class 1 railroad it has an expansive network and able to handle traffic to anywhere in the U.S. through equipment interchanges with other railroads. However (as noted under “weaknesses,”) the modal connections are suboptimal.
- **Increased warehouse capacity:** The Morehead City Port recently added 177,000 square feet of warehouse capacity and this has increased its ability to handle dry-bulk freight. In addition it has modern loading equipment to handle bulk freight.
- **Competitive advantage:** Compared to the Port of Wilmington NC, the Morehead City Port dominates the South American trade and splits the India and Far Eastern trade almost equally with the Port of Wilmington according to the information in Tables A.1 and A.2. Its shares of these markets are 64.58% and 50.75% respectively.

Weaknesses

- **Difficulty in attracting business:** The location of the port near Norfolk, Virginia puts it in a competitive disadvantage to attract traffic. This disadvantage is

³⁷ These strengths, weaknesses, opportunities and threats are done without regard to the internal organizational structure of the State Port Authority. The main focus is in terms of the infrastructure.

worsened by the poor quality of rail and highway networks providing access to the port, making the port less attractive as the entry point for imports.

- **Shallow water depth:** The water depth inside this port (especially the West turning basin depth of 35 feet) limits its competitive advantage in terms of its ability to handle large ships when compared to the Port of Norfolk which has 50 feet depth for some of its berths. Similarly, it may not be competitive when compared to the Port of Portsmouth (43 feet) Newport News (37-40 feet), Charleston (42 feet) and Wilmington NC (44 feet).
- **Over investment:** Because few ships use this airport there is an appearance of overinvestment in facilities and equipment making it difficult to attract new public capital.
- **Inadequate rail access:** Although there is rail access to this port, the quality of the service may be a major reason why port usage is low. Inadequate rail access limits the types of shipments that can be handled by the port. For example, since railroads are major players in intermodal services they are unable to provide better service when they do not have good access to ports; the trains are slow and use local roads.
- **Inadequate road access:** There is no road of interstate quality serving this port. U.S. 70 is the only direct access by way of the Intracoastal Waterway Bridge over the Newport River. Market Street also provides some access to this port. For the port to be competitive good quality multi-lane roads are needed to link it to other highway systems. Secondary highways with their many traffic lights increase truck trip times and reduce the ability of firms to maintain just-in-time production schedules and rely on the port for regular deliveries.
- **Absence of container traffic:** This port does not have container traffic and heavily relies on bulk commodities. Largely, this is due to a strategic decision by the State Port Authority to keep the port this way since its core business is bulk shipment. It is also due to the absence of good rail and road networks linking the port to production sites. In the past private port investors have shunned this port in favor of other locations for new container facilities because it did not have large tracts of land though it had deeper waters. (They considered the 150 acres on Radio Island too small.)

Opportunities

- **Proximity to Global Transpark:** The port is very close to the Global Transpark in Kinston NC. This offers motor carriers serving this port the opportunity to have backhaul loads.
- **Nearness to military bases:** The port's nearness to military bases also increases its potential to be used for military purposes.

Threats

- The growth of this port is threatened by three nearby ports: Norfolk, Wilmington and Charleston.

Port of Morehead City Recommendations

- **Maintain focus on bulk shipment:** Previous efforts by the Port Authority to make this a container port failed because it does not have good rail and motor carrier access and enough land to support a container port. Studies by Norfolk Southern Railroad that evaluated alternative plans to provide direct rail access to the port showed such an investment was not cost effective. Moreover, the closeness of this port to Norfolk, VA makes it not competitive as a container port. Recognizing this limitation the State Ports Authority made a strategic decision to focus on bulk shipment at this port. This focus should be maintained.
- **Deepen the water inside harbor:** The water inside the West turning basin is 35 feet and it is shallow and does not allow large ships to call at this port. Deepening it to 38 feet which is what engineering studies by the Port Authority show is feasible will enhance the competitiveness of this port.
- **Link rail and highway systems to port:** The rail and highway systems at and near the Port of Morehead city must be able to handle the bulk and break-bulk traffic to be generated. This requires planning and designing a linked transportation system that allows easy access to the port and interchange of cargo to facilitate intermodal movements. The highway access must be such as to reduce truck congestion on ramps, local access roads, and roads leading to the port. To this end it is required that some of the roads leading to the port be upgraded to near-interstate standards, their ramps rebuilt to handle the heavy flow of truck traffic when this port is fully developed, or a new highway built altogether.
- **Construct West lead track:** This is the primary access to the busiest berths in the port and it is in need of replacement and upgrading to heavier rail.
- **Relocate rail on Radio Island:** A single track serves Radio Island. Relocation of this track will improve operations and cargo volumes while increasing distance to nearby residential development. This is consistent with long term plans to reduce traffic congestion on US Highway 70 in this area.
- **Upgrade US-70 to near interstate standards:** At present there is no interstate or a limited access highway serving Morehead City but secondary roads. And NCDOT has not slated improvements on any road leading to the port “nor (*have*) funds (*been*) designated for a north-south coastal highway extension ... from Raleigh to the Eastern Region’s coastal areas”.³⁸ For the port to grow it requires an efficient highway network to pick up and deliver shipments. Therefore, Highway 70 should be upgraded to interstate standards. This involves building six by-passes including the Carteret and Havelock by-passes.
- **Upgrade Market Street:** Consideration should also be given to upgrading Market Street to a limited access highway.

³⁸ Market Services Inc. (2004) *Competitive Assessment for North Carolina Eastern Region*. Wilmington, N.C.

- **Replace Newport River bascule bridge³⁹:** This bridge serves Radio Island. If Radio Island is developed it is foreseen that it would attract heavy truck and rail traffic whose flow will be slowed by operating this bridge. It is, therefore, recommended to build a bridge with enough clearance to allow ships to pass freely under it.
- **Develop Radio Island:** This fully serviced 150 acres land is available for industrial purposes. Environmental Impacts statements (EIS) and preliminary design have already been done and the Port Authority is seeking private sector involvement in its development. This should continue. The development will add 2,000 feet of berth, 300,000 square feet of warehouse space and 25 acres of outside storage space.⁴⁰ The development cost of this activity is estimated to be \$14 million.⁴¹

Wilmington Port

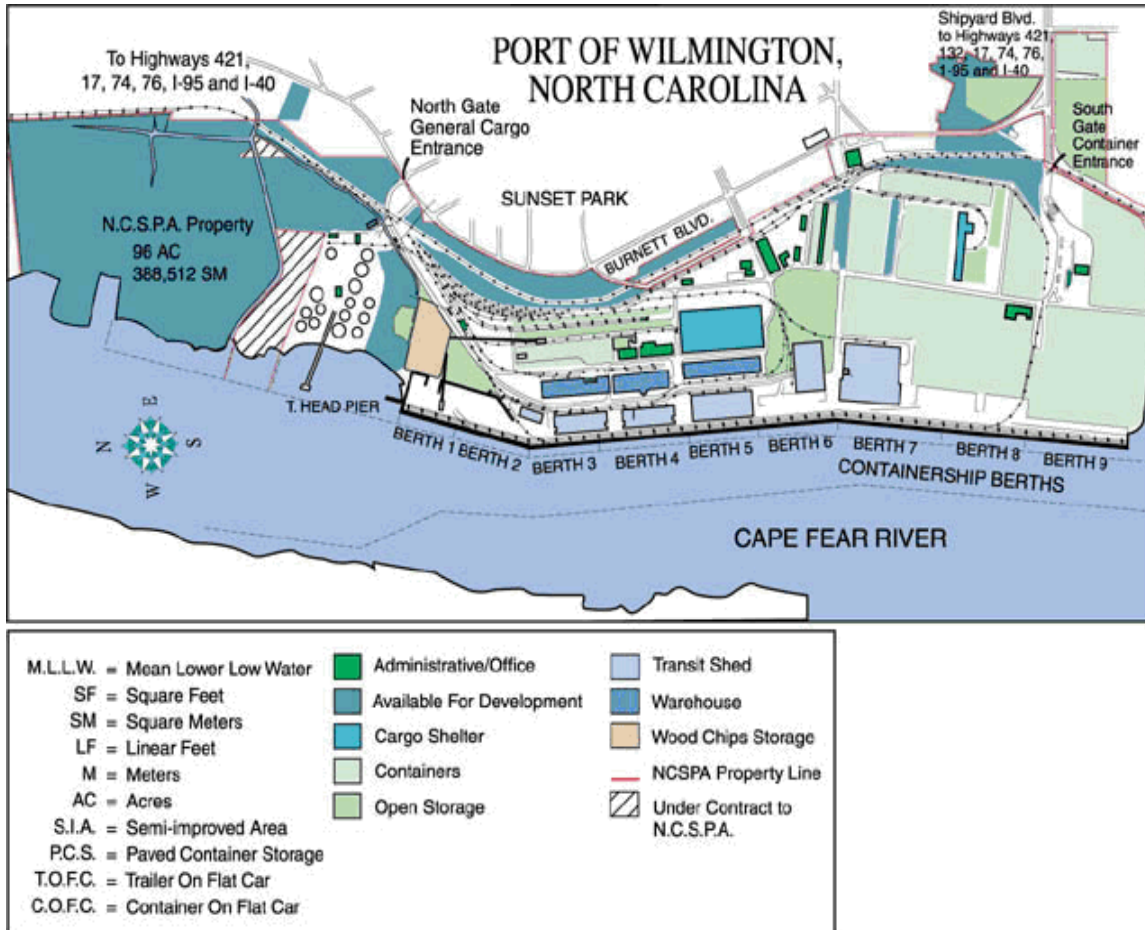
Characteristics: Figure 16 shows an aerial view of the port of Wilmington. The characteristics of this port are in Table 10 and Table 11. The port is 26 miles from the open sea; it has a wharf 6,768 feet long and an ocean bar with a channel that is 44 feet deep at mean low water level and 500 feet wide. Inside the harbor the channel is 42 feet deep at mean low water level and 500 feet wide, and there is a ship turning radius of 1,200 feet. The Port of Wilmington has nine berths with water depths of 42 feet. It handles dry-bulk and general merchandise in its Northgate area and container loads of shipments (in its Southgate area). The imports handled by this port mostly come from Colombia, Germany, China and Venezuela and the exports are mostly to Italy, China, Korea and the United Kingdom among others. (See the Appendix tables.)

The port has a storage facility with a capacity of 2.5 million cubic feet, and it has 100 acres of developable land for future expansion. It also has an open storage facility with a capacity of 70,000 tons, an out-load capacity of 800 tons per hour, and a free trade zone encompassing the entire urban area of Wilmington. Additionally, there is a specialized warehousing facility covering 500,000 square feet dedicated to timber and forest products, over one million square feet of covered storage with a sprinkler system, 100 acres of paved area for storage and 25 acres of semi-improved storage area. In the staging area is a one-million square feet storage facility with a sprinkler system and road and rail access to all buildings.

³⁹ A bascule bridge is used to span a short busy waterway width. It can be opened to let ships pass and closed after that.

⁴⁰Bennett B. (2007) *North Carolina State Ports Authority development Projects*. Presented to the Jacksonville Rotary Club, October 30, 2007, Jacksonville, N.C.

⁴¹ North Carolina State Ports Authority (2007) *Approved Capital Budget 2007-2008*. Wilmington, N.C.



<http://ncports.com/web/ncports.nsf/pages/Map%20of%20Port%20of%20Wilmington?OpenDocument> accessed March 3, 2008.

Figure 16 Port of Wilmington

Table 10 Characteristics of Port of Wilmington

Description	Feet	Availability	Capacity/Description
Wharf Length	6,768 feet		
Berths		9	
Drybulk			
a. Conveyor system		Yes	1,000 tons/hour
b. Storage capacity		Yes	2.5 million cubic feet
c. Developable area		Yes	100 acres
Open storage			
a. Outload			800 tons/hour
b. Storage capacity			70,000 tons
Deck height above mean water level	12 feet		
Harbor features			
Ocean bar			
a) Channel depth (ocean)	44 feet		
b) Channel width	500 feet		

Inside harbor channel

- a) Channel depth 42 feet
b) Channel width 500 feet
Other: Channel depth 42 feet at mean low water level

Anchorage/Turning

- a) Depth 42 feet
b) Turning 1200 feet diameter
c) Depths of 2 berths 42 feet

Foreign Trade Zone Entire Wilmington area

Source: <http://ncports.com/web/ncports.nsf/a5e75a4ee8d2dc808525666a005c2487/54a2dbc6ec30f45f85256ff300526b00?OpenDocument>
accessed 2/18/2008

Table 11 Characteristics of Port of Wilmington (Continued)

Description	Number	Availability	Capacity/Description
Equipment			
Container cranes	4	Yes	
a. Cranes	2	Yes	50 long tons: 120 feet outreach, 103 feet backreach
b. Cranes	1	Yes	
c. Cranes	1	Yes	40 long tons: 135 feet outreach, 55 feet backreach 40 long tons: 115 feet outreach, 63 feet backreach
Multipurpose bridge crane	1	Yes	For break-bulk, bulk, and container loads
Crane	1	Yes	40 long ton: 115 feet outreach, 63 feet backreach
Gantry Cranes	2	Yes	One 150 ton capacity One 100 ton capacity
Mobile cranes	2	Yes	30 tons each
Lift trucks	65	Yes	38,000 to 52,000 lbs. capacities and a variety of specialized attachments
Top-lift container handlers	9	Yes	
Yard hustler trucks	6	Yes	
Truck scales	3	Yes	Weighmaster on duty 24 hours
Staging Area			
a. Storage with sprinkler		Yes	Over 1 million square feet
b. Road/Rail access		Yes	To all buildings
Specialized Warehousing		Yes	500,000 square feet dedicated to forest products etc.
Rail/Highway Access			
a. CSX service	2/day	Yes	
b. Highway access		Yes	U.S. Hwys. 17, 74, 76, 421, I-95, I-40
c. Inland service		Yes	CSX intermodal and NSF
d. Terminal railroad		Yes	Wilmington terminal railroad
e. Others		Yes	Double stack trains, RORO operations ramps, transit sheds, depressed tracks

Source: <http://ncports.com/web/ncports.nsf/a5e75a4ee8d2dc808525666a005c2487/54a2dbc6ec30f45f85256ff300526b00?OpenDocument>
accessed 2/18/2008

In handling dry-bulk commodities the port uses a conveyor system with a capacity of 1,000 tons per hour for loading and unloading, four container cranes and two cranes each with a capacity of 50 long tons, 120 feet outreach and 103 feet backreach. It also uses one crane with a capacity of 40 long tons, 135 feet outreach and 55 feet backreach; another with a capacity of 40 long tons, 115 feet outreach and 63 feet backreach. These are in addition to one multipurpose bridge crane for break-bulk, bulk and container services, and one crane with a capacity of 40 long tons and having 115 feet outreach and 63 feet backreach. The port also has two gantry cranes, two mobile cranes each with a capacity of 30 long tons, 65 lift trucks with a variety of attachments to handle specialized traffic, nine top-lift container handlers, six yard hustler trucks, and three truck scales with a weigh-master on duty 24 hours.

The port of Wilmington is accessible by I-40 and I-95 (via 40), US Highways 17 and 74, State Highway 421 and Burnett Boulevard. The latter boulevard provides direct access to the port and intersects with several city streets. CSX and NS rail services are also available and the Wilmington Terminal Railroad provides switching services inside the port. Also, this port has depressed tracks, transit sheds and facilities to handle double stack rail services.

Overall the Port of Wilmington is well-equipped to handle different types of traffic. Recent investments include deepening the port to 42 feet, acquiring four new container cranes and yard handling equipment and rebuilding berths eight and nine. These improvements have increased the capacity of the port from 250,000 to 500,000 TEUs annually.

Traffic: Table 12, and Figure 17, Figure 18, and Figure 19 show trends in ship, barge and container traffic for the Port of Wilmington. Figure 17 shows that barge traffic fluctuated between 1997 and 2003 and that since 2003 there has been such a drastic decline in it so much that the port handled only nine barges in 2006. Even though the total number of ships calling at this port fell from 434 in 1997 to 411 in 1998 and increased to 445 in 1999, it declined continuously between 1999 and 2003. By 2003 the total number of ships calling at this port had declined by 35.63% from its high 1997 level of 434 to 320. Since 2003, both Table 12 and Figure 17 show that the number of ships calling at this port has increased steadily from 320 in 2003 to 429 in 2006 (i.e. 34.06%) to almost equal the number for 1997. From this table it is obvious that very few ships use this port. On a monthly basis the Port of Wilmington handles only about four ships. Given that there are nine berths for ships to dock the results of the analyses clearly show evidence of under-utilization of this port.

Table 12 Port of Wilmington - 10 Year Tonnage and Vessel Trends

Year	Tonnage				Number		
	Break bulk	Container	Bulk	Total	TEU's	Ships	Barges
1997	827,725	772,609	630,698	2,231,032	113,368	434	114
1998	675,283	691,479	790,771	2,157,533	105,997	411	111
1999	731,944	694,950	929,855	2,356,749	113,185	445	115
2000	798,139	633,651	794,918	2,226,708	100,546	393	63
2001	844,052	600,014	768,376	2,212,442	96,380	364	100
2002	1,001,728	628,800	490,929	2,121,457	91,784	341	100
2003	976,082	613,923	630,799	2,220,804	99,677	320	122
2004	1,054,214	624,170	648,381	2,326,765	96,077	328	48
2005	1,271,417	781,046	951,601	3,004,064	133,723	362	14
2006	1,235,331	955,370	1,270,589	3,461,290	166,625	429	9

Sources:<http://ncports.com/web/ncports.nsf/a5e75a4ee8d2de808525666a005c2487/9b1bfc6c6f6d579f85257050006da103?OpenDocument> accessed 2/18/2008.

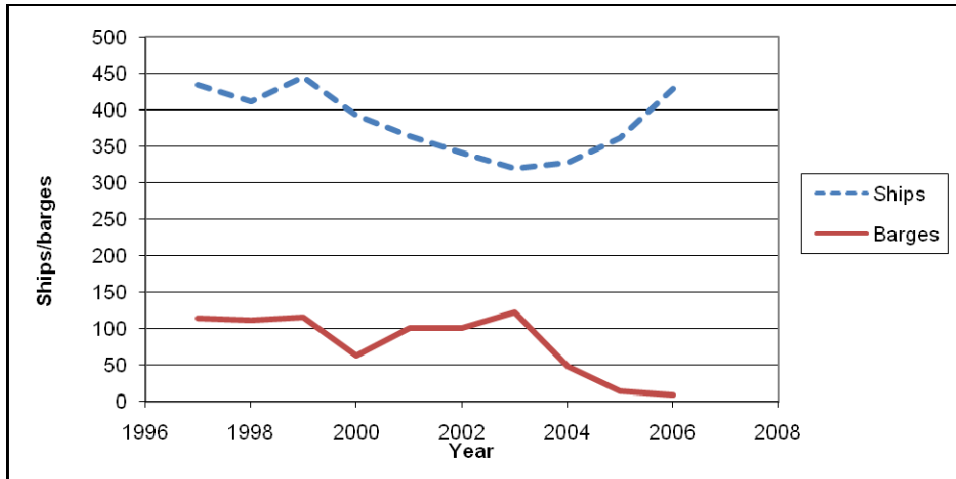


Figure 17: Ships and Barges – Wilmington

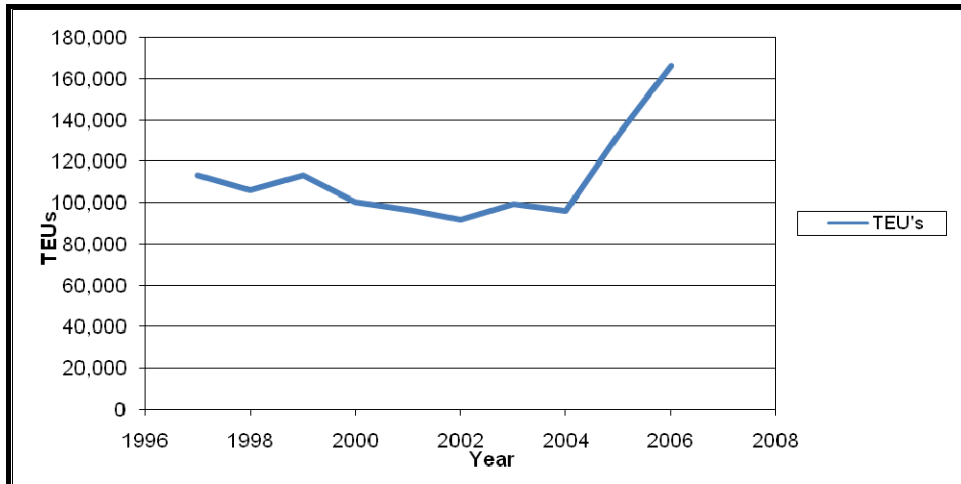


Figure 18: Port of Wilmington - T.E.U.

Figure 18 shows that the total number of containers (measured in twenty feet equivalent units or TEU) that moved through this port declined by 23.52% from 1997 to 2002. From 2002 to 2006 the number of containers handled increased by 81.54% or an average of 20.39% per year with the sharpest increase occurring after 2004. This pattern can be compared to the trend in tonnage shipped by containers in Table 12 and Figure 19. From Figure 19 in general the total tonnage shipped by containers decreased between 1997 and 2003 at a rate of 4.31% per year, and increased by 55.62% or at a rate of 18.54% per year between 2003 and 2006. A very similar trend is shown by the total tonnage and bulk cargo graphs. Here, after increasing by 47.34% between 1997 and 1999, the tonnage of bulk cargo fell by 43.41% to its lowest level of 490,929 in 2004, i.e., a rate of decline of 14.5% per year. Also except for a brief decline in 2003 break-bulk tonnage has increased by 82.94% or 10.37% per year since 1998.

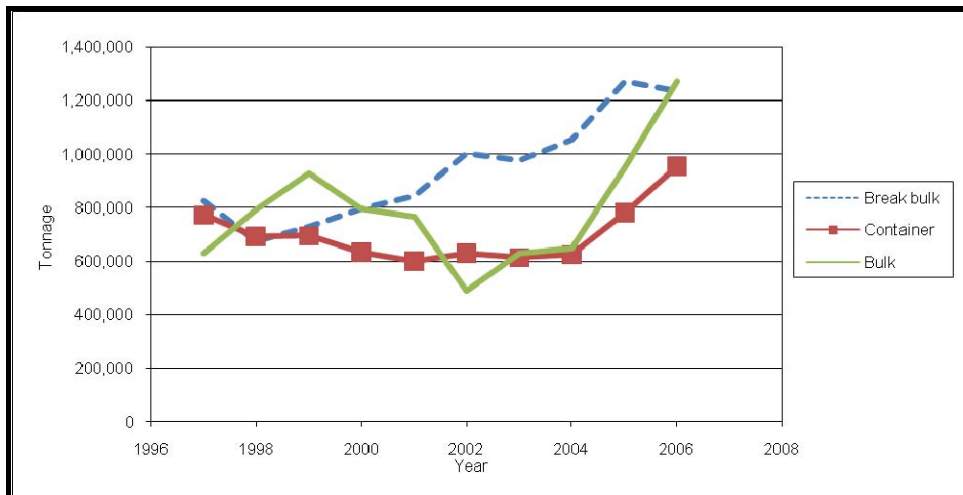


Figure 19: Port of Wilmington - Total Tonnage

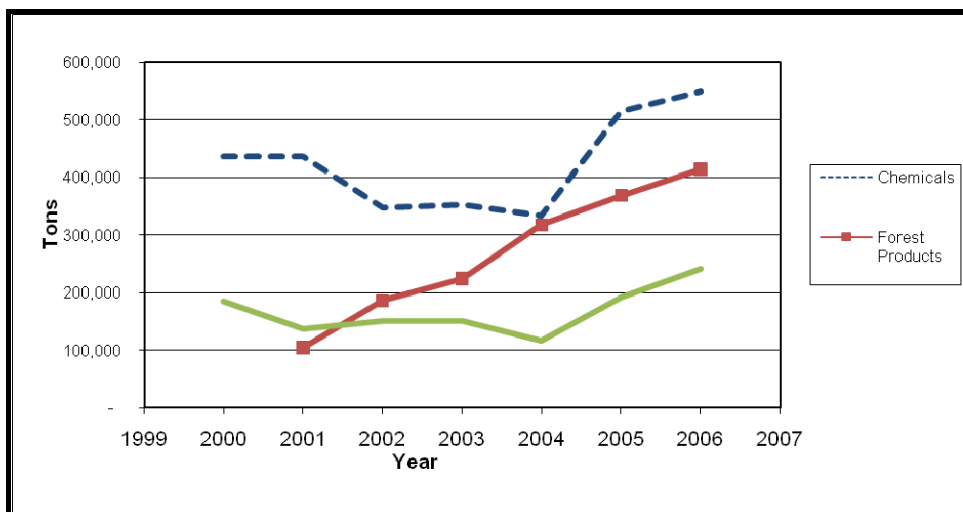


Figure 20: Port of Wilmington - Imports of Specific Products

Some specific cargos handled by this port are shown in Figure 20 and Figure 21. These figures deal with imports and exports respectively. In Figure 20 the indication is that the importation of forest products has been increasing steadily. From 2000 to 2006 total imports of forest products increased almost four fold from 104,719 tons to 414,880 tons. In comparison the imports of chemicals and general merchandise declined between 2000 and 2004, and increased by 64% and 108.2% respectively after that. When exports are considered food products and general merchandise, which are high-value shipments, have remained relatively stable over the period of analysis, while forest products have increased by 236.81%. The export of wood pulp, however, continues to fluctuate between 500,000 and 600,000 tons per year with one peak occurring in 2002 and another in 2005. In 2006, exports of wood pulp declined according to Figure 21.

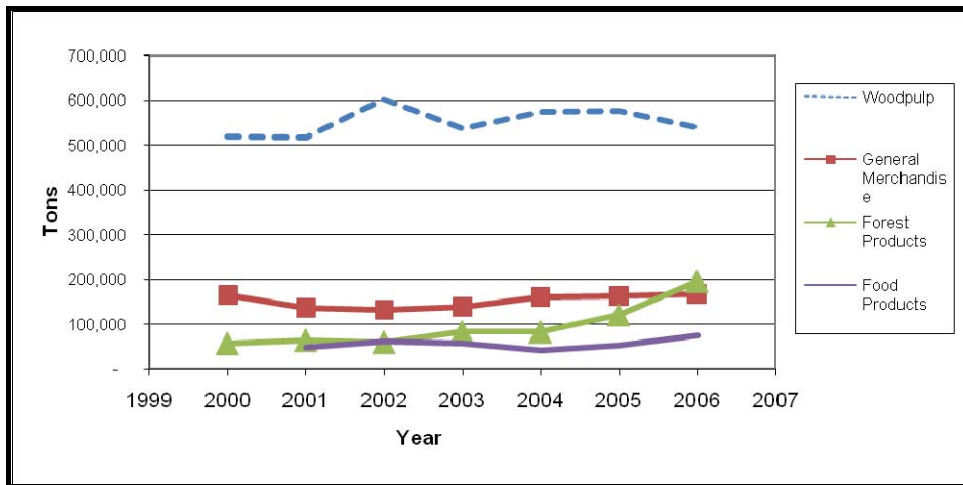


Figure 21: Main Exports through the Port of Wilmington

Port of Wilmington: Strengths, Weaknesses, Opportunities and Threats

From the discussion above a summary of the strengths, weaknesses, opportunities and threats of the Port of Wilmington as regards infrastructure is provided below.

Strengths

- Focus on bulk freight:** Two of the largest shipments handled by this port are bulk and break-bulk. However, trends to use containers to handle break-bulk shipments have squeezed out investments in break-bulk facilities in this and many other ports and do not suggest further investments in such facilities. In fact, these trends suggest converting break-bulk facilities to container facilities. With this in mind, and given that recent investments by the Port Authority to support container operations appear adequate, the strength of the port is its focus on bulk freight and its on-going development of the North terminal for bulk freight.
- Four post-Panamax cranes:** The Port Authority in the past made a strategic decision to focus some of its operations at this port on container freight. Consequently, in 2006 it port took delivery of four post-Panamax cranes from China. These cranes operate at three of the berths and are capable of loading 18 containers across a ship⁴² (144 ft wide ships) and serve alongside the existing cranes that can only handle 13 containers across a ship.
- Competitive Advantage:** Compared to its nearest competitor, the Morehead City Port, the Port of Wilmington dominates the European trade based upon the 2006 trade statistics for both ports with a share of 81.18% of that market.
- Quick turnaround by ships:** The low volume of ships relative to port capacity facilitates a quick turnaround for ships.

⁴² North Carolina Southeast Commission (2006-2007). North Carolina's Southeast Annual Report.

- **Absence of congestion:** The low volume of ships calling at this port minimizes congestion in the ocean channel leading to the port and inside the port.
- **Completion of eastern section of I-73:** The eastern section of I-73 is completed. This allows trucks to bypass the Raleigh-Durham area on their westbound or eastbound routes and consequently reduce trip time to and from the port.

Weaknesses

- **Inland location:** The Wilmington Port is located inland on Cape Fear River about 26 miles from the Atlantic location. This inland location increases access time and makes it less attractive to vessel operators.
- **Low historic utilization:** There is evidence of port underutilization from the analysis. Possibly this is due to past inadequacies in harbor channel depth and freight handling equipment. Recent investments in both areas will hopefully help the port attract additional business volumes.
- **Over investment:** The relatively low volume of ships relative to capacity increase the difficult of attracting new public capital or justify the need for an additional public expenditure.
- **Inadequate rail access:** Although CSX provides twice daily service to the port and interlined services with Norfolk Southern and CSX intermodal are also available, still some improvements to rail access are needed because of the sharp growth in container services since 2004 and the expected continuation of this growth in the future. Moreover the existing lines of the switching railroad are not grade-separated and cross main city streets therefore increasing delivery times and posing potential safety problems.
- **Limited road access to the port:** The only road providing direct access to this port is US Highway 17 which is a four lane divided surface road with limited grade separation in few places. This increases access time and reduces transportation quality of service.
- **Inadequate container storage space:** Storage space inside the port is quite limited. In the long term consideration should be given to the development of an inland intermodal terminal close to the Port of Wilmington to reduce possible port congestion that could occur from increased container operations.

Threats

- **Competition from other ports:** The number of containers handled has declined steadily and increased sharply only recently (2004 to 2006). This is seen as a sign of increased competition from nearby ports handling similar traffic, especially Norfolk VA, Charleston SC and Savanna GA. Efforts are needed to increase the number of container ships calling at this port.

Recommendations: Port of Wilmington

- **Conduct a feasibility study into developing a fourth berth to handle containers:** Presently, there are four container cranes and three of the nine berths are equipped to handle containers. The question is whether an additional berth can be developed for container shipment. Conversations with the Port Authority suggest that it may not be

feasible.⁴³ Given, the recent sharp growth in container traffic at this port and its forecasted continued growth in the future however, it seems reasonable for this port is to be positioned to compete with Norfolk, Charleston, S.C., and Savanna, GA. To do so engineering feasibility studies should be conducted to examine adding a fourth container berth since the port already has a crane to serve that berth.

- **Invest in container handling software technology:** The growth in container traffic calls for tracking and tracing containers and their shipments. This will require investment in sophisticated management information systems to do so (e.g., computers and software).
- **Improve truck access:** An important aspect of port operation is truck access. This is especially critical in container shipments because many containers must be delivered or picked up by trucks, so the potential for truck congestion at the port exists and this could spill onto nearby local access roads. An overturned truck as happened recently, for example, could result in diverting traffic onto local roads near the port which in Wilmington means heavy truck traffic through the historic Sunset neighborhood. To avoid this congestion and its spillover effects requires right-of-way acquisition to enable redesigning US Highway 17 to interstate standards, and upgrading some of the port access roads also to near interstate standards with limited access. Already, the Wilmington MPO's transportation improvement program for 2015 includes U.S.-17 bypass south of NC 87 in Brunswick County to I-40 in New Haven County that will be a four lane divided freeway.⁴⁴
- **Build the Cape Fear Skyway:** Currently, there is a proposal by the North Carolina Turnpike Authority to build the Cape Fear Skyway linking the US 17 Western bypass to the port area.⁴⁵
- **I-40 extension to port area:** In the long run I-40 could be extended to the port area and U.S. Highway 74 can be improved to interstate standards from Gastonia to Wilmington. This will open up the port to shippers in Charlotte and its environs.
- **Improve rail intermodal service:** Improving port access is not limited to highways alone but also to railroads. Increased container traffic would certainly increase the length and number of scheduled trains. In Wilmington the switching railroad's network is U-shaped starting from the port area and traversing most of the town to the CSX terminal. This does not provide direct access by CSX to port intermodal yard. Dialogues between the State Ports Authority and CSX suggest that such a service is possible in future.⁴⁶ In addition the switching service is slow (because it crosses city streets) so it increases overall transportation and logistics cost. A solution to this problem is to build grade-separated rail access to the port for it to be competitive and to provide easy access to mainline railroads. This could involve public investments.

⁴³ From conversations with Gene Carlson and Jim Bennett on 3/7/2008 at the State Ports Authority Head Office in Wilmington, North Carolina.

⁴⁴ See http://www.wmpo.org/pdf/2007-2013_MTIP.pdf

⁴⁵ Carlson G. (2008) *The Future of North Carolina Sate Port Authority*. Presented to the North Carolina Futures Committee, Wilmington N.C., February 29, 2008.

⁴⁶ Conversation with Carlson G. on 3/7/2008 at the State Ports Authority Headquarters in Wilmington, N.C.

- **Build the Pembroke northern bypass rail connecting track:** This provides connection between the CSX north-south and east-west lines to permit a direct east to north rail route. Presently these lines are not linked. If constructed this connection will reduce travel time and improve traffic flow.
- **Ft. Bragg connector:** Rail links between Wilmington and Ft. Bragg must be improved. The improvements include turnouts, track work, grading and drainage, signals and bridge work and will enable the military to move cargo from inland installations to the state ports.
- **Castle Hayne to Wallace Restoration:** This requires replacing 27 miles of track and two bridge crossings. It will allow freight and passenger trains to travel directly from Goldsboro to Wilmington and provide a service currently lacking.
- **Rail Crossings North and South of Shed 4:** All traffic accessing the piers in this zone must pass over these rail crossings which are in need of rehabilitation.
- **Land acquisition for container storage:** The increases in container traffic will also involve acquiring large tracts of land and developing them for container storage. Already, there are 100 acres of developable land inside this port set aside for drybulk that can be used for this purpose. If used this land has the capacity to handle 77,175 TEUs per day stacked four high after using 30% of it for circulation.⁴⁷ Compared to other ports this capacity is inadequate. Therefore, in the long term, more land must be acquired outside the port area to support container operations. The State Ports Authority recognizes this need and plans to renovate the marine yard to increase the port's container capacity.
- **North Carolina International Terminal:** The North Carolina Ports Authority has initiated the process of creating a new container port on 600 acres of land in Brunswick County south of the existing port, i.e., the International Container Port. This is because the new port will be closer to the Atlantic Ocean (4 miles from the estuary of the Cape Fear River) and will have deep water depths to handle large container ships and compete with Norfolk, Charleston and Savanna. It also may prove more environmentally-friendly and economically-friendly than further dredging of the Cape Fear River and enlarging the Port of Wilmington footprint⁴⁸. The proposed port will be next to Sunny Point and could have military use though that is not the purpose of developing it. Once built it is proposed to use the existing port for general freight and to handle container traffic on overflow basis. Support efforts include providing rail linkage to the proposed and upgrading highway facilities. (This project is discussed in detail in Subsection 0)
- **North Carolina International Port rail corridor upgrades:** Presently, the new container port is undeveloped and not serviced by any railroad. For the port to be operational would require a new rail facility to support the volume of containers it would generate. The NCSA estimates that the construction of this line will involve approximately 30 miles of track.

⁴⁷ This is based on container size of 8' x 8' x 20'. Thus, with 100 acres we have $(100 * 0.7 * 210 * 210 / 160) = 77,175$.

⁴⁸ "2006 STP Mid-Cycle Update – Technical Report," North Carolina Department of Transportation, page 141.

Inland Terminal Operations

The North Carolina Ports Authority owns and operates inland terminals in two locations – Charlotte and Greensboro. These facilities were the first of their kind nationally and were intended to provide the following benefits:

- Reduce costs and provide improved ease and efficiency of picking up and delivering containers, and
- Provide customers opportunities to improve profitability, expand market area and improve competitiveness.

The Charlotte Inland Terminal (CIT) is located at 1301 Exchange Street in Charlotte and consists of 16 acres with stacking space for 391 containers with 292 parking spaces. The CIT provides professional, neutral container yard operations to container carriers, and serves as a staging area for empty and loaded containers. Sprint container service via truck is available between the Port of Wilmington, Charlotte and points west and north. This “matchback” service is available only to customers of steamship lines with regular advertised service at the Port of Wilmington.

The Greensboro Inland Terminal (GIT) is located at 505 Chimney Rock Road in Greensboro. Both facilities provide the following features⁴⁹:

- Staging for empty and loaded containers - bonded by U.S. Customs and Border Patrol;
- Maintenance and repair operations allowed on site; and
- Real-time data management through Port of Wilmington Terminal Operating System.

Neither the Charlotte nor Greensboro facility has onsite rail access.

North Carolina International Terminal

Given the scope and potential impact of the proposed North Carolina International Terminal, we include the following subsection to provide additional detail about this initiative. Specific questions to be explored include the following:

1. Does a new container terminal in North Carolina make economic sense from the perspectives of the various stakeholders?
2. What factors contribute to the need and success of a new container terminal?
3. What competitive advantages are offered by a new container terminal in North Carolina?
4. What organizational conditions are required to maximize benefits from the project?

To answer these questions, the Port and its consultant team developed a Pro Forma Business Plan, recognizing that “certain values or concepts are hypothetical or tentative.” In short, this report concludes that the project is critical to the state and to NC Ports and is justified by a market analysis. The following are some of the highlights/key excerpts from this document:

Economic Viability

Market growth and the limitation of container terminal capacity on the U.S. East Coast are projected to far exceed what existing ports will be able to accommodate. According to the NC

⁴⁹ “2006 STP Mid-Cycle Update – Technical Report,” North Carolina Department of Transportation, page 140.

Ports, market forecasts project “container traffic to exceed port capacity beginning between the years 2014 and 2019 –around the time when the International Terminal is projected to start operation – and the unmet demand is projected to be 40 million TEUs (Twenty-foot Equivalent Units, an international measure of container volume) by 2030.” The NCIT is forecast to capture nearly 1 million TEUs of business soon after opening and triple that volume by 2030. While trade volumes have flattened over the past two years and the calculations are subject to variability, longer term forecasts indicate continued growth in the five to seven percent range. Accordingly, the Port’s analysis states, “The forecasted capacity shortage provides an attractive market entry opportunity for the project. Revenue growth is predicted to be robust, and presents an estimated cash flow profile capable of returning value back to the operator, developer, and the Authority.” Importantly, when faced with the similar forecasts, the ports of Norfolk (including the private AP Moller terminal in Portsmouth,) Charleston, Savannah and Jacksonville have chosen to increase current capacity by nearly 13 million TEUs over this same planning horizon, a positive vote for the potential in east coast port growth.

Factors that Contribute to Success

Competitive Advantages

The Port lists the following as critical project components for project success:

1. Navigation channel depth in excess of 50 feet to attract large vessels and large cargo volumes;
2. Market focus in excess of 500 miles from the terminal with a goal of moving 50 percent of the containers off of the terminal by rail;
3. Efficient highway access to meet market and distribution center needs;
4. High productivity facilitated by the best available technology, processes and practices to minimize shippers’ costs;
5. Providing services at a total supply chain cost that is competitive with other ports and gateways, and
6. Meeting the needs of multiple stakeholders. In this sense, competitiveness is tied to environmental stewardship, state-of-the-art operational technology, terminal and supply chain security, and total cost of ownership.

Organizational Conditions

The Port Authority lists three development options: (1) development by the Ports Authority; (2) development by a private terminal operating company using a public private partnership; and, (3) development through a joint-venture approach. A public private partnership concession was identified as the best approach; it would be the most expedient (thus meeting the demand forecast timeline) and meets the most rigorous tests for providing a return on investment. It is felt by the Authority that without private investment the project will not succeed—there simply is not adequate public capital to make the investment.

Conceptual Design and Initial Capital Cost Estimate

A study was undertaken to develop conceptual plans solely for the purpose of approximating the size, configuration, and location of port facilities and infrastructure elements as a tool to

determine estimates of cost and schedule in order to support the Pro Forma Business Plan. The conceptual approximations of cost and schedule were used as inputs to the economic business evaluation. Conceptual designs for the International Terminal call for a high-density, automated container terminal capable of serving 12,000-TEU vessels. It would have a cargo throughput capacity of 3 million TEUs annually (approximately 1.8 million containers) at full build-out. It would be planned in phases that would allow operations to begin generating revenue at the earliest possible date. The Authority intends to provide a sustainable design and operation at the North Carolina International Terminal through a focus on the social, environmental, economic, and security elements of the development. The project will emphasize innovation and technology to promote worker health and safety as well as advancing stakeholder social interests, utilize an environmental management system to minimize the environmental footprint, create an efficient and effective business operation through automation and training, and provide security systems to secure the safety and well-being of both employees and neighbors. The terminal was analyzed under both a "Low-Peaking" scenario and a "High-Peaking" scenario. The Low-Peaking cost is used as the base capital cost throughout the Pro Forma Business Plan because the Low-Peaking scenario is more typical of the automated operations proposed for this facility. A summary of the capital costs, in 2007 dollars, resulting from the Low-Peaking scenario is contained in Table 13.

Table 13 Capital Cost Summary, Low-Peaking Scenario

Component	Approximate Cost
Responsibility of Authority	
Environmental and Permitting Cost	\$60,000,000
Terminal Development Cost (Subject of public-private partnership)	\$1,383,400,000
Non-Federal Share of Channel Deepening Cost - 50% (Usually N.C. Division of Water Resources)	\$265,800,000
Subtotal of Authority Costs	\$1,709,200,000
Responsibility of Other Parties	
Total Roadway Improvements Costs	\$181,500,000
Total Railroad Improvements Costs	\$127,400,000
Federal Share of Channel Deepening Cost (50%)	\$265,800,000
Subtotal of Other Party Costs	\$574,700,000
Total Project Development Cost	\$2,283,900,000
<ul style="list-style-type: none"> ▪ Funding will be provided from a combination of Federal, State, and private sources. ▪ The Federal government is a major source of funding for initial dredging and maintenance dredging. ▪ The local rail system and operation is controlled by the Army. The Authority is working with the Army on operating arrangements and improvements to rail infrastructure. ▪ Coordination of funding and improvement to State road systems is the responsibility of the N.C. Department of Transportation. The Authority is working with NCDOT to improve road infrastructure. 	

According to the NC Ports, the justification for the new terminal can be made on economic, financial, and national security grounds.

National Significance

- Improvements in the U.S. intermodal transportation system are critical to the nation's economic health and well-being.
- A need for a mid-Atlantic logistics infrastructure to meet trade capacity demands as the West Coast, using the existing land bridge to the eastern half of the nation, becomes unavailable to meet East Coast demand for goods.
- Strategic military synergies. A 2005 Congressional report on the performance of ports and the intermodal system warns that existing ports may not be able to support military deployments as they become more cargo congested.
- A new facility will provide state of the art port security against terrorist threats and can actually add an additional layer of security to an existing neighboring DoD facility (MOTSU).
- A new facility will use sustainable technologies (environmental stewardship).

Regional Importance

- Few ports on the U.S. East Coast can offer the deep draft conditions and large container terminals that will be required in the future.
- Major manufacturing and assembly plant site-selection criteria require proximity to deepwater port facilities with global service coverage.
- Economic impact of taxes and jobs.

State and Local Benefits

- Provides North Carolina businesses a cost effective gateway to access global markets for sourcing of materials and export of products.
- Serves as a key to retaining military installations and meeting future military needs within North Carolina.
- Positions North Carolina to compete with neighboring South Atlantic states for economic development projects. Business and financial centers evolve with economic development.
- Functions as an avenue for needed road/rail improvements.

Strategic Seaports: North Carolina Ports as a Critical National Asset

The Department of Defense Report to Congress on Projected Requirements for Military Throughput at Strategic Seaports was compiled in April 2007 by the Under Secretary of Defense for Acquisition, Technology and Logistics as a tool to understand current and projected port infrastructure constraints at the Strategic Seaports, their commercial growth projections, and their planned infrastructure improvements and enhancements over the next five to ten years. North Carolina seaports -- the Port of Wilmington and the Port of Morehead City -- have been identified as two of the national's fifteen Strategic Seaports, capable of simultaneously handling commercial and military requirements. Each Strategic Seaport is unique in its capabilities and provides the Department of Defense with operational flexibility/redundancy and port facilities and services that are critical in meeting a wide range of national security missions and timelines. North Carolina is well postured to provide significant support to commercial cargo and military deployment requirements with its existing facilities.

North Carolina is uniquely positioned to help solve the challenge of readiness in an environment of significant projected commercial trade growth with the expansion of the Port of Wilmington's existing container terminal and the planned development of a new container terminal (NCIT) at the mouth of the Cape Fear River adjacent to Military Ocean Terminal Sunny Point (MOTSU). The North Carolina International Terminal in the Wilmington Harbor will provide a pivotal opportunity to meet national military requirements on a greenfield port site that will be developed in part to meet Department of Defense critical requirements.

The North Carolina International Terminal is an expansion of the container facilities at the Port of Wilmington in the Wilmington Harbor. It will be located on a 600-acre undeveloped industrial site in Brunswick County near Southport, North Carolina. This site is a short distance from the Atlantic Ocean and is one of very few locations along the East and Gulf Coasts suitable for development of a new deepwater terminal. Conceptual designs for the North Carolina International Terminal call for a high-density, automated container terminal capable of serving 12,000-TEU vessels. It would have a cargo throughput capacity of 3 million TEUs annually (approximately 1.8 million containers) at full build-out.

There are compelling national security synergies associated with the North Carolina International Terminal development. Improvements in the U.S. intermodal transportation system are critical to the nation's economic health and well-being and the North Carolina International Terminal will enhance the system. Port planners for the NC International Terminal intend to accommodate the Department of Defense (and particularly SDDC) with a 50 percent rail component, roll on-roll off (Ro-Ro) capabilities, and requirements for other specialized military deployments. The move of U.S. Army Forces Command (FORSCOM) and U.S. Army Reserve Command (USARC) to Fort Bragg will necessitate additional military preparedness logistical alternatives. Additionally, Grow the Force initiatives at USMC Camp LeJeune may require additional infrastructure to meet military requirements.

The North Carolina International Terminal will be able to provide a state of the art facility with enhanced port security to protect against terrorist threats. Port planners have already initiated an area-wide Vulnerability Assessment and Response Plan in conjunction with neighboring facilities including the US Coast Guard, Progress Energy's Brunswick Nuclear Plant, SDDC's Military Ocean Terminal at Sunny Point, Archer Daniels Midland (neighboring facility), the NC Ferry Division and Brunswick County Emergency Services. Such proactive security planning will add an additional layer of security to its neighbors, particularly the adjacent neighboring Department of Defense facility (MOTSU).

The North Carolina International Terminal is located strategically adjacent to the All American Defense Corridor. The corridor evolved from the Base Realignment and Closure (BRAC) Regional Task Force initiatives for the eleven counties surrounding Fort Bragg to transform the regional economy and workforce to meet the needs of emerging Defense and Homeland Security related requirements. The All American Defense Corridor will be a powerful tool for linking the strengths associated with military and Homeland Security programs. The status of active Strategic Seaports within the vicinity of the All American Defense Corridor integrates these initiatives.

Development of the North Carolina International Terminal will provide greater opportunities at the current Port of Wilmington. Adjacent to the existing port are available properties that could be developed now or in the future for military requirements; for example, 94 acres to the south of

the terminal would be an ideal site for a military maintenance depot to reduce logistics and deployment costs. As the North Carolina International Terminal attracts container cargo, more capacity will become available at the Port of Wilmington. The Port of Morehead City and Port of Wilmington are currently well positioned to handle additional military requirements. In addition to existing North Carolina assets, the North Carolina International Terminal will be able to meet national security missions and to provide operational flexibility by means of a robust infrastructure – by sea, road and rail. North Carolina continues the tradition of diligence and coordination to meet ever-changing and evolving Department of Defense requirements.

Conclusion: Competitive Context

The above analysis by the NC Ports, to varying degrees, implicitly incorporates the following three factors as key for the successful development of a new port in the competitive South Atlantic port region:

1. Developing and employing state-of-the-art operational technologies that would make the new port uniquely productive and change the economics of using South Atlantic ports;
2. Capacity and/or connecting transportation infrastructure constraints at competing South Atlantic ports that would limit their ability to handle the increasing freight flows;
3. Subsidies of such magnitude that it would affect the economics of using Wilmington versus other South Atlantic ports.

NC Ports' approach is to engage private equity participation in NCIT investment. Accordingly, the development of NCIT fundamentally depends on its acceptance as a viable investment by a credible financial investor. From the NC Ports perspective, this investor will also be (or have a partnership including) a major player in the arena of international waterborne commerce, either as a major shipper of goods or a major ocean carrier. Equally important, the new Wilmington container terminal would have to successfully compete for both North Carolina origin and destination cargoes, as well as doing well in more distant markets.

Until recently, North Carolina's approach to its ports has until relatively recently been ambivalent when compared to neighboring states. For example, the state of Virginia provided *twice as much funding per month* as North Carolina's ports had received over a *ten-year* period between the mid-eighties and mid-nineties. The shortfalls in overall State support for its ports resulted in intense rivalries between the two NC port local communities that either: (1) required a sub-allocation of funding to each port, thereby reducing the amount requested by management to meet critical market driven needs, or (2) led to inertia in the State Legislature, with the result of little or no state capital investment. Compounding these problems during this period, the State Ports failed to create adequate visibility or credibility with the state's business and shipping community to create greater emphasis on meeting its investment needs.

However, over the past decade our State's ports have increasingly become more visible and credible, not only within our state but throughout the international shipping community. With the market shift toward more east coast port container capacity demand, the Port at Wilmington has found itself much more in the spotlight. While our ports have for decades had a very small market share in the South Atlantic, two important trends have emerged: (1) the international cargo "pie" has grown larger, and (2) port and transportation infrastructure at competing ports is under pressure to expand to meet growing demand.

It is highly likely that Wilmington will ultimately need to expand its container cargo facilities to meet future demand. Accordingly, a new port facility represents a strategic investment opportunity that may ultimately determine the long-term ability of our state to move from a niche to a more mainstream destination for ocean shipping and capture more of the long-term economic benefits from such growth. At minimum, ensuring the long-term viability of this option through appropriate land-banking options seems to be in the strategic interests of the State.

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PORT APPENDICES

Table A.1: Port of Wilmington: Top 10 Trading Partners Fiscal 2006

Import		Export		Total Trade	
Country	Tons	Country	Tons	Country	Tons
Colombia	400,473	Italy	257,851	China	403,772
Germany	344,912	China	192,760	Colombia	400,473
China	211,012	Korea	136,817	Germany	353,114
Venezuela	189,175	United Kingdom	108,572	Italy	257,898
Sweden	127,627	Taiwan	85,022	Korea	256,130
Korea	119,313	Hong Kong	84,250	Venezuela	189,175
Taiwan	71,611	Netherlands	45,406	Taiwan	156,633
Russia	52,923	Belgium	26,947	Hong Kong	128,673
Brazil	48,304	Spain	26,034	Sweden	127,627
Hong Kong	44,423	Japan	16,927	United Kingdom	108,572

<http://ncports.com/web/ncports.nsf/a5e75a4ee8d2dc808525666a005c2487/628328cdfa9caaca85257050006f64d7?OpenDocument> accessed 2/23/2008.

Table A.2: Port of Morehead City Top 10 Trading Partners Fiscal 2006

Import		Export		Total Trade	
Country	Tons	Country	Tons	Country	Tons
Venezuela	413,148	India	363,037	Venezuela	427,338
Indonesia	219,338	China	346,178	India	363,037
Turkey	136,488	Brazil	131,039	China	355,998
Brazil	103,467	New Zealand	35,470	Brazil	234,506
Thailand	32,537	Spain	28,109	Indonesia	219,338
United Kingdom	31,729	Argentina	24,250	Turkey	136,604
Ukraine	23,624	Venezuela	14,190	New Zealand	35,470
Poland	10,295	Colombia	8,597	Thailand	32,537
China	9,820	Jamaica	7,221	United Kingdom	31,729
Iceland	7,209	Egypt	2,712	Spain	28,109

<http://ncports.com/web/ncports.nsf/a5e75a4ee8d2dc808525666a005c2487/628328cdfa9caaca85257050006f64d7?OpenDocument> Accessed 2/23/2008.

Table A.3: Port of Morehead City Top 5 Commodities Trend

IMPORTS	IMPORTS	EXPORTS	EXPORTS
2006	2001	2006	2000
Scrap metal - 363,125	Sulfur products - 306,748	Phosphate - 1,041,117	Phosphate - 1,404,455
Sulfur products - 295,439	Ore, Mica, Schist - 159,415	Military - 6,199	Wood chips - 672,091
Rubber - 251,874	Rubber - 154,237	Gen. Merch./Misc. - 1,271	Food products - 9,675
Ore, Mica, Schist - 136,489	Asphalt - 126,044	2005	Military - 8,559
Forest products - 78,810	Scrap metal - 60,563	Phosphate - 1,121,970	Other - 7,514
2005	Potash - 29,973	Aggregate - 8,641	1999
Sulfur products - 457,539	Cotton baled - 10,543	Metal Products - 8,337	Phosphate - 1,276,837
Scrap metal - 285,550	2000	Military - 8,125	Wood chips - 733,947
Rubber - 206,614	Ore, Mica, Schist - 187,954	Gen. Merch./Misc. - 2,995	Gen. Merch./Misc. - 11,210
Asphalt - 115,537	Asphalt - 151,404	2004	Food products - 8,688
Ore, Mica, Schist - 110,051	Rubber - 119,020	Phosphate - 1,040,207	Military - 7,252
2004	Metal products - 23,439	Military - 14,590	1998
Sulfur products - 404,079	Potash - 10,402	Metal products - 4,750	Phosphate - 1,352,125
Scrap metal - 303,540	1999	Gen. Merch./Misc. - 2,006	Wood chips - 719,997
Rubber - 175,765	Ore, Mica, Schist - 199,281	2003	Food products - 90,216
Asphalt - 152,756	Asphalt - 122,607	Phosphate - 666,640	Other - 21,705
Ore, Mica, Schist - 90,545	Rubber - 112,424	Metal products - 27,095	Woodpulp - 6,256
2003		Military - 14,590	1997
Sulfur products - 299,780	1998	Gen. Merch./Misc. - 4,263	Phosphate - 1,462,947
Rubber - 180,201	Ore, Mica, Schist - 164,722	Food products - 2,198	Wood chips - 833,897
Ore, Mica, Schist - 114,960	Asphalt - 121,744	2002	Food products - 121,702
Asphalt - 93,506	Rubber - 105,606	Phosphate - 444,660	Other - 32,608
Scrap metal - 85,154	Potash - 31,016	Wood chips - 163,815	Woodpulp - 6,312
2002	Forest products - 19,293	Military - 13,659	
Sulfur products - 212,004	1997	Gen. Merch./Misc. - 2,656	
Scrap metal - 179,307	Asphalt - 152,995	Woodpulp - 1,631	
Rubber - 149,024	Ore, Mica, Schist - 150,238	2001	
Ore, Mica, Schist - 133,277	Rubber - 80,963	Phosphate - 1,172,990	
Asphalt - 113,280	Potash - 30,753	Wood chips - 660,342	
	Forest products - 23,160	Military - 9,329	
		Gen. Merch./Misc. - 7,566	
		Rubber - 1,400	

Table A.4: Port of Wilmington Top 5 Commodities Trend

IMPORTS		EXPORTS	
2006		2006	
Forest Products - 548,858		Woodpulp - 539,484	
Chemicals - 414,880		Forest Products - 195,719	
Cement - 359,363		Gen. Merchandise - 167,280	
Gen. Merchandise - 241,065		Food - 74,719	
Coal - 235,849		Chemicals - 27,816	
2005		2005	
Forest Products - 514,244		Woodpulp - 576,684	
Chemicals - 368,768		Gen. Merch./Misc - 162,100	
Cement. - 215,714		Forest Products - 121,675	
Gen. Merch./Misc - 190,494		Food Products - 52,896	
Metal Products - 177,011		Chemicals - 29,910	
2004		2004	
Forest Products - 334,533		Woodpulp - 574,852	
Chemicals - 318,070		Gen. Merch. / Misc - 160,585	
Grains. - 122,848		Forest Products - 83,736	
Cement - 117,297		Food Products - 41,909	
Gen. Merch./Misc - 115,796		Military - 32,500	
2003		2003	
Chemicals - 353,055		Woodpulp - 538,067	
Forest Products - 224,695		Gen. Merch. / Misc - 139,843	
Grains. - 195,953		Forest Products - 83,962	
Gen. Merch./Misc - 150,142		Military - 68,661	
Metal Products - 124,896		Food Products - 56,278	
2002		2002	
Chemicals - 347,521		Woodpulp - 604,080	
Metal Products - 198,297		Gen. Merch. / Misc - 132,288	
Forest Prod. - 186,480		Forest Products - 98,848	
Gen. Merch. / Misc - 149,870		Wood Chips - 71,249	
Furniture - 60,448		Food Products - 60,954	
2001		2001	
Chemicals - 437,510		Woodpulp - 516,963	
Metal products - 222,787		Wood Chips - 181,632	
Gen. Merch. / Misc. - 136,907		Gen. Merch. / Misc. - 136,238	
Forest Products - 104,719		Forest Products - 65,240	
Salt - 95,507		Food - 48,933	
2000		2000	
Chemicals - 437,122		Woodpulp - 519,011	
Metal Products - 208,966		Gen. Merch. / Misc - 164,434	
Gen. Merch. / Misc - 183,821		Wood Chips - 139,969	
Soy - 59,612		Forest Products - 58,109	
Salt - 58,198			

Rail Infrastructure

Introduction

Historically, Class I railroads have self-funded infrastructure improvements through long-term borrowing with repayment from operating revenues. The Staggers Rail Act of 1980, signed into law by President Jimmy Carter, regulated the railroad industry to a significant extent, replacing the regulatory structure that existed since the 1887 Interstate Commerce Act. The Staggers Act “followed the Railroad Revitalization and Regulatory Reform Act of 1976, which established the basic outlines of regulatory reform in the railroad industry -- greater range for railroad pricing without close regulatory restraint, greater independence from collective rate making procedures in rail pricing and service offers, contract rates, and, to a lesser extent, greater freedom for entry into and exit from rail markets.” (Ref. U. S. Congress, Public Law 96-448).

For the almost three decades since the Stagger’s Act became law, railroads have struggled to earn adequate return (profits) to pay for investments, particularly upgrading their infrastructure. This dramatic drain on profitable operations has improved in recent years as Class I railroad have enjoyed improved profitability, primarily as a result of two developments: (1) improved revenues, primarily through growth in intermodal shipping (which tends to be more profitable than bulk commodity movements), and (2) abandonment of unprofitable lines (made possible through deregulation.) The latter development has created a rebirth/expansion of short-line railroads that serve specialized and/or regional freight markets while providing connectivity to the Class I lines. These short-line railroads often play a critical role in local markets but often struggle to pay for infrastructure enhancements. Because states (including North Carolina) perceive a critical economic need to maintain/expand rail access in certain geographical areas, public investment in such infrastructure improvements has become increasingly accepted. Therefore, public and/or public/private investments in rail infrastructure clearly must be considered within the realm of the State’s transportation infrastructure.

Table 0-14 indicates that over the decade of 1993 through 2002, the railroads’ growth in freight value, tons carried, and ton-miles was somewhat less than the growth in truck freight. Anecdotal information for the half decade succeeding 2002 indicates that this trend has probably continued. Nevertheless, rail freight continues to be a very important component of the State and Nations freight delivery system.

Table 0-14 Modal Shifts in Value, Tonnage, and Ton-Miles: 1993 and 2002

<i>Mode of Transportation</i>	<i>Percent change between 1993 and 2002</i>		
	<i>Value</i>	<i>Tons moved</i>	<i>Ton-miles</i>
Overall total (CFS plus out-of-scope estimates)	45.3	18.4	23.8
Truck	42.2	26.4	55.5
Rail	39.2	19.9	29.9
Water	39.9	10.2	-16.9
Air (includes truck delivery to cargo terminal plus air)	96.7	45.9	63.2

<i>Mode of Transportation</i>	<i>Percent change between 1993 and 2002</i>		
	<i>Value</i>	<i>Tons moved</i>	<i>Ton-miles</i>
Pipeline	-8.7	3.8	27.0
Multimodal combinations⁵⁰	67.0	-7.5	36.7
Other modes	53.4	-7.6	-17.3

SOURCE: U.S. Department of Transportation, Bureau of Transportation Statistics, primarily based on 1993, 1997, and 2002 Commodity Flow Survey data.

Rail Freight Infrastructure

North Carolina is served by two Class I railroads and 21 short-line railroads. The two Class I railroads, Norfolk Southern and CSX Transportation, maintain 2,597 miles of track in North Carolina and the short-lines operate on 782 miles (see Figure 0-22).

Norfolk Southern, through its Norfolk Southern Railway Company subsidiary, operates approximately 21,300 route miles in 22 states, the District of Columbia and Ontario, Canada, serving every major container port in the eastern United States and providing connections to western rail carriers. Norfolk Southern operates an extensive intermodal network and is the nation’s largest rail carrier of automotive parts and finished vehicles.



Figure 0-22 North Carolina Railroad System⁵¹

A major part of the tracks on which Norfolk Southern operates is owned by the North Carolina Railroad (NCR). NCR owns 314 miles of tracks stretching from Charlotte through the Piedmont Crescent to Morehead City. The NCR is a Real Estate Investment Trust whose

⁵⁰ Multimodal includes the traditional intermodal combination of truck and rail plus truck and water; rail and water; parcel, postal, and courier service; and other multiple modes for the same shipment.

⁵¹ Source: Rail Division, NCDOT

voting stock is controlled by the State of North Carolina. NCCR owns and manages the rail line and properties adjacent to the line. Not only do freight trains operated by Norfolk Southern carry products on the NCCR, but Amtrak runs two passenger trains, the Piedmont and the Carolinian, along its corridor. Plans for regional mass transit operations along NCCR's rails are also possible in the future.

Formed in 1980, CSX Transportation operates the largest rail network in the eastern United States. CSX Intermodal provides transportation services across the United States and into key markets in Canada and Mexico. CSX freight transportation options range from unit trains of coal to trailer-on-flatcar operations, and provides coast- to-coast service. CSX Transportation owns and operates a 23,000-mile rail network in the eastern United States, connecting with every Class I freight railroad and several short-line partners in North America, Canada and Mexico.

An important part of rail freight business in the State is a vibrant short-line rail system. Table 0-15 lists the short-line services in the State. Assistance to these short-lines is a major program of the Rail Division of the NCDOT. Data on the State's 21 short-line railroads for 2006 includes trackage, 2006 carloads carried, and location/terminal points by county.

Table 0-15 North Carolina Short-line Railroads⁵²

Railroad Name	Length of Track (miles)	2006 Carloads	Terminals (by county)
Aberdeen and Rockfish Railroad	47	2,650	Moore to Cumberland
Aberdeen, Carolina & Western Railroad	140	14,637	Mecklenburg to Chatham
Alexander Railroad Company	18	3,574	Iredell to Alexander
Atlantic & Western Railway	11	5,102	Lee County
Caldwell County RR Co.	17	N.A.	Catawba to Caldwell
Cape Fear Railway	16	N.A.	Cumberland Co.
Carolina Coastal Railway, Inc.	159	1,215	Washington to Wake
Carolina Southern RR Co.	31	8,683	Columbus Co.
Chesapeake & Albemarle RR	68	8,414	Pasquotank to Chowan
Clinton Terminal RR	4	N.A.	Sampson Co.
Great Smokey Mountain RR	54	400	Jackson to Cherokee
High Point, Thomasville & Denton RR	34	N.A.	Guilford to Davidson
Laurinburg & Southern RR	28	4,400	Scotland Co.
Morehead & South Fork RR	10	N.A.	Carteret Co.
Nash County RR	15	3,500	Nash Co.
North Carolina & Virginia RR	52	22,399	Hertford to Northampton
Thermal Belt Railway	9	147	Rutherford Co.
Virginia Southern	20	None	Granville Co.
Wilmington Terminal RR	18	9,100	New Hanover Co.
Winston-Salem Southbound RR	87	16,600	Forsyth to Anson

⁵² Source: Railway Association of North Carolina, www.ncrailways.net

Railroad Name	Length of Track (miles)	2006 Carloads	Terminals (by county)
Yadkin Valley RR	93	12,479	Forsyth to Wilkes

Figure 0-23 illustrates the total rail freight flows into and out of North Carolina. The highest volume of freight traffic is on the CSX line connecting Charlotte to the Port at Wilmington, the Norfolk Southern/NCRR line from Charlotte through Greensboro to Raleigh, and the CSX line that runs north-south roughly parallel to Interstate Highway 95. Those three corridors handle approximately 20 million tons of freight annually. Table 0-16 shows the total volume of rail shipments statewide in 2002, compared with other states on the Atlantic coast. The primary rail commodity shipped in the Southeast is obviously coal and the 119 million tons originated in West Virginia is almost as much weight as the other four states combined. Chemicals, while not an extremely large commodity originating in North Carolina, is the primary commodity in overall originating rail shipments out of the state.

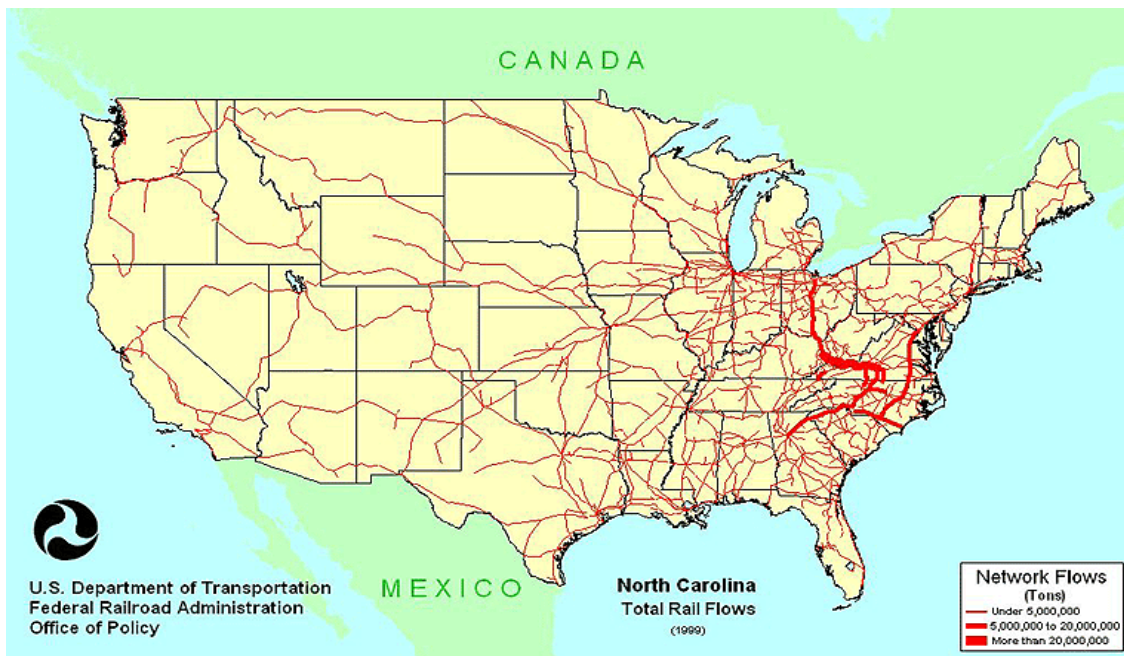


Figure 0-23 North Carolina Total Rail Freight Flows, 2002⁵³

Table 0-16 Rail Shipments for 2002, NC compared with other Atlantic States

State	Rail Shipments Terminating in the State (Tons)	Top Commodity by Weight	Rail Shipments Originating in the State (Tons)	Top Commodity by Weight
Maryland	24,651,988	Coal	7,740,703	Primary Metals
Virginia	60,490,603	Coal	48,136,599	Coal
North Carolina	58,348,318	Coal	13,398,568	Chemicals

⁵³ Source: USDOT, Bureau of Transportation Statistics; 5/13/05
http://www.bts.gov/publications/state_transportation_profiles/state_transportation_statistics?2004/html

South Carolina	34,316,258	Coal	15,162,271	Lumber & Wood
Georgia	80,214,148	Coal	36,258,990	Glass and Stone
West Virginia	37,221,424	Coal	119,227,237	Coal

In spite of a relatively robust condition of the overall rail freight system in the state, there continues to be a pattern of rail access loss to individual businesses. Over the past three decades, over 700 miles of track have been abandoned in North Carolina. Some of these miles have been adapted to “Rails to Trails” use, but some have created shifts in freight mode and forced industry to ship products by truck where lines were abandoned.

The dominant rail freight corridor is between the major urban areas of North Carolina with the coal fields of West Virginia and western Virginia. A second corridor parallels Interstate 95 from the South Carolina border north to Virginia; next is the corridor running from west to east from Charlotte to the Port of Wilmington, which is primarily representative of container movements through the port. More recent trends in the latter freight movement, however, have shown that container traffic from Charlotte to the Port of Charleston, SC, has grown over the past decade. According to projections made by Global Insight, Inc., for container growth from 2004 until 2020, the average increase among the 10 largest container ports is approximately 280 percent, up to an average of about 11 billion Twenty-foot Equivalent Units (TEUs) in 2020. The NC Port Authority projects its future growth at the Wilmington port to increase from a current 300 TEUs annually to about 500 TEUs. While some Trailer on FlatCar (TOFC) and Container on Flat Car (COFC) traffic come to Wilmington, most containers are delivered via truck.

Figure 0-24 and Figure 0-25, while illustrating the projected growth in truck freight between the present (represented by the most recent data year, 2002) until 2035, are highly likely to reflect the relative demand for overall heavy freight movements between North and South Carolina origins and destinations that will be unprecedented in the history of the two states. Congested highways in both states, primarily Interstate routes, will likely put more pressure on the railroads to increase their capacity for handling some of this projected growth.

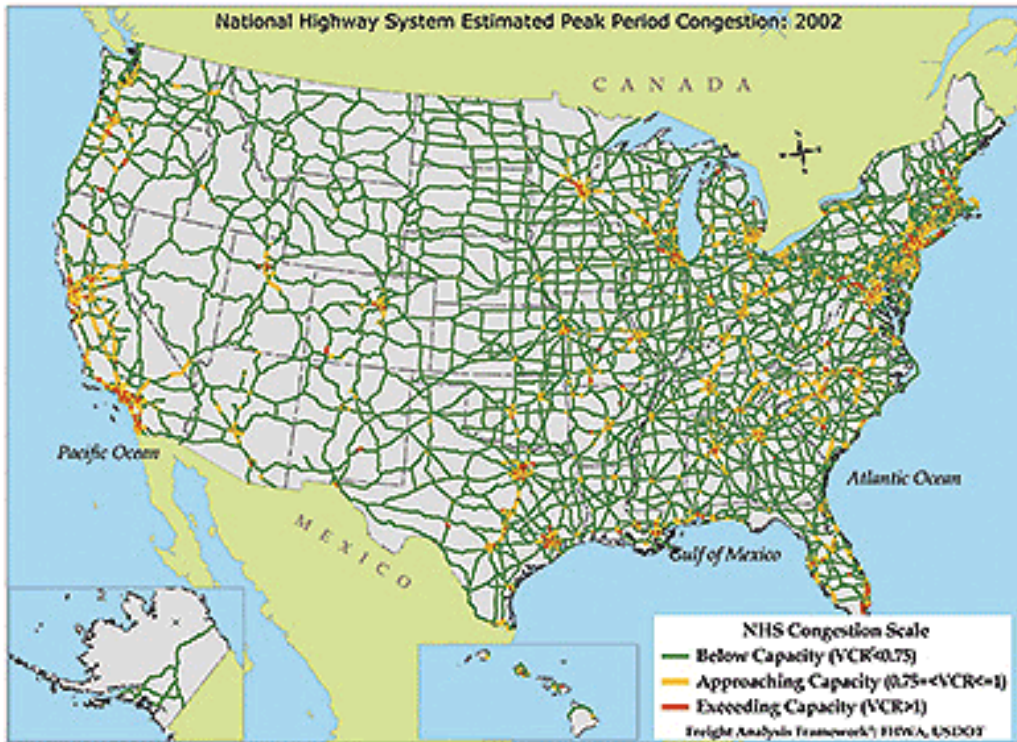


Figure 0-24 Peak Period Congestion on National Highway System, 2002

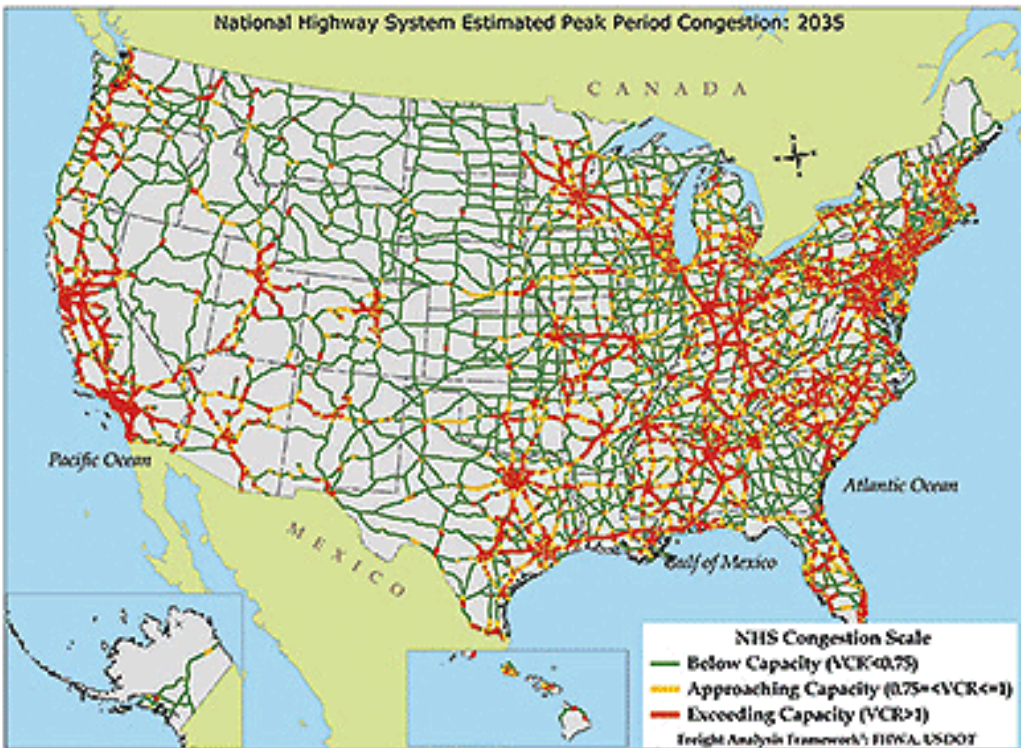


Figure 0-25 Projected Peak Period Congestion on National Highway System, 2035

Rail Traffic Flows in NC, 1999-2003 (in million tons)

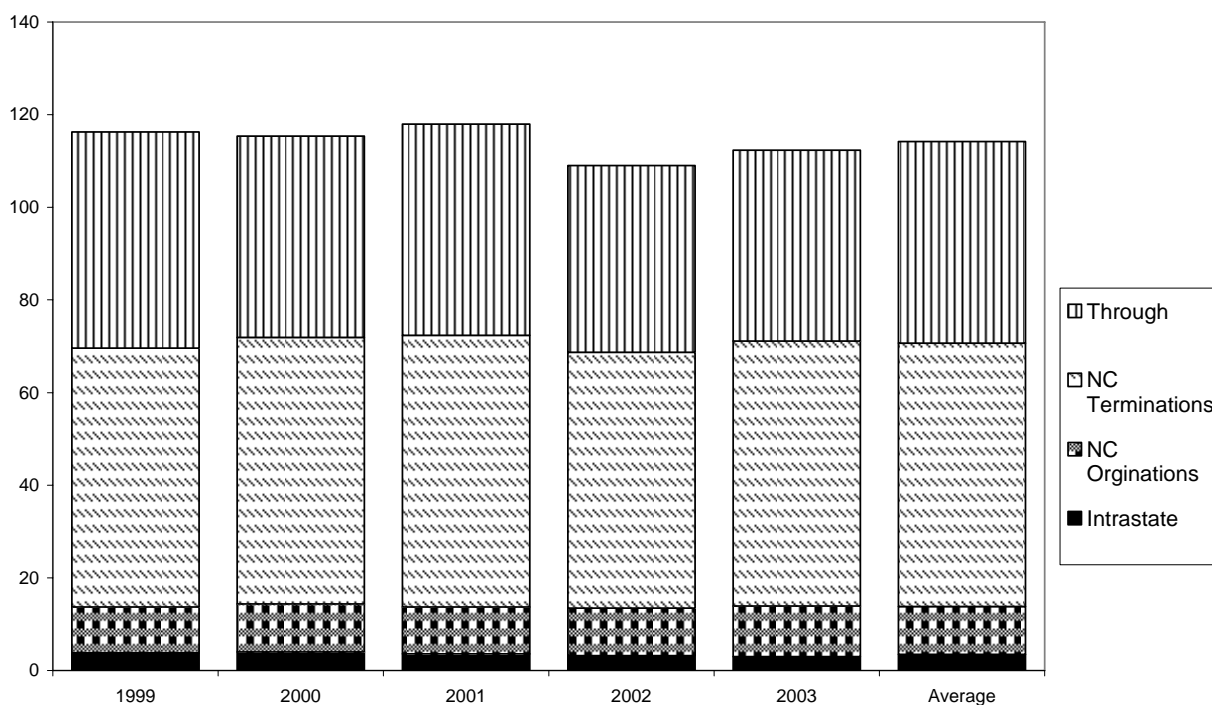


Figure 0-26 Rail Traffic Flows in NC, 1999 – 2003⁵⁴

Figure 0-26 shows the relatively flat pattern of rail traffic flows originating and terminating in the State from 1999 through 2003 at about 70 million tons. Adding in through-movement of freight and a small amount of intrastate freight shipped by rail, and the total tonnage moved over these five years was approaching 120 million tons annually. Table 0-17 identifies those sections of the North Carolina Class I rail system that are most likely to have a high level of through-put (and consequently, congestion) in 2020 and 2030.

The two Class I railroads that operate in the State have relatively aggressive plans for future expansion but they have indicated that the success of any major expansion must result from a public private partnership, with state and local support. CSX, for example, has proposed a concept called the “National Gateway,” a network of capacity rail enhancements stretching from New England to Florida, and from Louisiana to Northwest Ohio and Chicago. This intermodal project is proposed to require additional highway truck lanes to connect to their intermodal terminals. The expansion of the Charlotte terminal will open up north-south service to Florida and the Northeast, and east-west service from Wilmington through Charlotte to the Midwest. For the past decade, Norfolk Southern has promoted its “I-81 Crescent Corridor” initiative that would provide additional intermodal service from northern New Jersey through Virginia’s Interstate 81 corridor, through Greensboro and Charlotte through points south and west.

⁵⁴ Source: Surface Transportation Board Carload Waybill Sample for each year

A number of improvements are currently being planned for the State's rail system that are primarily aimed at improving passenger rail service. However, freight service would also be a beneficiary of those improvements. The North Carolina Railroad currently is investing over \$27 million for bridge improvements and over \$32 million for track improvements, a total of eight projects. NCDOT is supporting the effort with a \$15 million investment in one of these projects, the expansion to double track from High Point to Greensboro. NCRR is also currently conducting a study to determine track expansion feasibility, costs, and standards for improving operations on the NCRR corridor. In spite of these investments, other rail corridors with single tracks either need to be restored to double track or developed to accommodate proposed improvements in passenger rail service.

Table 0-17 Average Annual RR Car-Miles and Thru-Traffic in Ton-Miles, 1999-2003⁵⁵

Class I Rail Corridors	Railroad	Section Length (Miles)	Range of Avg. Annual Car-Loads per Mile	Through Traffic Level
1. Charlotte to Morehead City	NS	314		
Charlotte to Greensboro	NS	94	1,200-1,890	High (H)
Greensboro to Raleigh	NS	78	130-160	L
Raleigh to Morehead City	NS	142	190-240	L
2. Charlotte to Wilmington	CSX	188		
Charlotte to Monroe	CSX	78	740-1,210	M
Monroe to Pembroke	CSX	33	50-100	H
Pembroke to Wilmington	CSX	77	840-940	L
3. Hamlet to Norlina	CSX	151	130-170**	L
4. Asheville to Salisbury	NS	139	160-410	M
5. Raleigh to Lee Creek	NS	138		
Raleigh to Greenville	NS	87	30-60	L
Greenville to Lee Creek	NS	51	390-470	L
6. Winston-Salem to NC-VA State Line	NS	45	1,500-1,800	L
7. Greensboro to NC-VA State Line	NS	41	20-25	H
8. NC-VA State Line to NC-SC State Line	CSX	180	60-190	H
9. Charlotte to NC-TN State Line	CSX	173	65-110	M/H
Bostic to NC-SC State Line	CSX	13	870-1,330	H
10. Contentnea to Wallace	CSX	71	380-470	L
11. North and South Asheville	NS	87	90-140	M North/ L South
12. Charlotte to Winston-Salem	NS	82	85-110	L
13. Winston-Salem to Greensboro	NS	27	95-140	L
14. Greensboro to Gulf	NS	51	20-210	L
15. Raleigh to Fayetteville	NS	63	45-60	L

Notes on table:

1. Range for 5-year study period for traffic originating or terminating on Corridor, based on carloads originating or terminating at stations on Corridor
2. Traffic Level:
 - a. Low – 0 to 10 M gross ton- Miles/mile
 - b. Medium – 10 to 40 M gross ton-Miles/mile
 - c. High - 40 M or greater gross ton-Mile/mile
3. XXXX – highlighted segments show highest potential for congested rail corridors in the future
4. ** - Congestion on this corridor (parallel to I-95) is due to scheduling conflicts with AMTRAC..

⁵⁵ Source: North Carolina Waybill Analysis, prepared by PBS&J and Wilbur Smith Associates for the Rail Division, NCDOT, November 2006

SWOT Analysis for Rail (Strengths, Weaknesses, Opportunities, Threats)

This analysis is conducted primarily as an assessment of rail freight, but the inter-connectivity of trucks to both air and rail terminals, as well as marine ports, leads us to incorporate related issues affecting rail, air, as well as highway freight transport systems.

Strengths

- Growth of the State's population accompanied by new and expanding "high tech" businesses, plus the continuation of the State's role as a manufacturing center, indicates a continuing growth market for all types of freight. (See also "Threats," and the comment on North Carolina's and America's place in the Global Economy.)
- In comparing the operational efficiency of rail versus trucks, the following statistics apply:
 - "Large, heavy, and long-distance rail freight hauls can be up to 20% more cost effective than truck-based moving services due to lower cost.
 - Railroad fuel efficiency has increased by 72 percent since 1980. Then, a gallon of diesel fuel moved one ton of freight an average of 235 miles. In 2001, the same amount of fuel moved one ton of freight an average of 406 miles.
 - Railroads and rail suppliers have reduced the weight and increased the capacity of rail cars to improve fuel efficiency and reduce emissions. The average freight car capacity is now nearly 93 tons, up 17 percent in the past 20 years.
 - The EPA estimates that for every ton-mile, a typical truck emits roughly three times more nitrogen oxides and particulates than a locomotive.
 - According to the American Society of Mechanical Engineers, if ten percent of intercity freight now moving by highway were shifted to rail, 2.5 million fewer tons of carbon dioxide would be emitted into the air annually." (Ref. *Environmental Management, Rail vs. Road*, Union Pacific Railroad; http://www.uprr.com/she/emg/rail_v_road.shtml)
- A major intermodal facility on airport property at Charlotte Douglas International Airport (CLT) will provide an additional inland port for air/truck/rail interface. This facility will be completed by early 2010 at a cost estimate of \$320 million (2007 dollars).
- Interest exists at other places for developing inland ports, particularly in Western North Carolina (Asheville area), the Global TransPark development (Craven County airport), and possibly in the Northeastern part of the State.

Weaknesses

- Overall economic conditions worldwide affect commerce and trade in many ways. There exists only a relatively modest potential for growth of intermodal freight movement, especially in other parts of the State outside the Piedmont Crescent.
- From an economic perspective, the apparent lack of significant demand for new inland ports beyond the two that are already in place will likely dampen the interest of investments in such new facilities. The Greensboro Intermodal Terminal is operating at

less than capacity, and a better approach would be to market the area around the Piedmont Triad International Airport as an intermodal “hub.” This approach makes sense with the economic stimulus that the FedEx facility brings to the area.

- On the demand side of the equation, current trends are that shippers are growing (1) from national markets to global markets; (2) from a primarily manufacturing economy to a service economy; and (3) developing evolutionary logistics systems “quick time” and “just-in-time.”
- On the other hand, the supply side, carriers and overall transportation systems are moving (1) from modal fragmentation to cross-modal coordination; and (2) from system construction to system optimization. North Carolina State government is not organized to address these intermodal/ cross-modal coordination issues with the power and credibility needed to bring about helpful and needed changes in recruiting industry and assisting the private sector in a rapidly growing economy.
- Although specific data on projected traffic on North Carolina’s railroads compared to truck traffic are not available, the recently-released “Atlanta Regional Freight Mobility Plan” revealed that rail traffic is projected to be a much lower proportion of overall rail/highway traffic in the future. The same may be true for North Carolina. By observation and traffic counts, truck traffic is increasing dramatically on major NC highways.
- These trends reflect the fact that freight transportation modes must be responsive to the growing amount of far-flung intermodal supply chains, and the demand for increased freight traffic and resulting congestion along trade corridors and at ports, airports, and border crossings. Infrastructure needs to be planned and programmed to reflect these market realities.
- In North Carolina, planning between modes and across agency representation (e.g., Commerce and Transportation) appears to the public, and probably to responsible officials, to be non-existent.
- Capacity deficiencies and lack of designating and/or enforcing non-truck lanes has a significant impact on congested corridors in extended morning and evening peak hours.
- The concept of “sustainability” in funding for future multimodal corridors and facilities is not currently thoroughly understood nor taught in logistics curriculums.
- Life-cycle costing and budgeting of infrastructure projects, including multimodal facilities, is also in need of better understanding and education/research initiatives.

Opportunities

- North Carolina, in spite of national and state trends, continues to be a major manufacturing state, and a distribution center for the East Coast. It is geographically positioned to link the Nation’s northeast and southeast. Its population growth is robust, one of the fastest growing states, and it is at the center of one of the major growth and economic development regions in the country. Latin American trade, the growing Latino population, and the routing of Asian trade are all factors to consider in planning for freight movements. North Carolina’s relatively robust intermodal freight system may be stressed by global security challenges and aggressive DOD deployment requirements.

- The development of the proposed NC International Port at Southport is deserving of state aid and support both in financing and in acquiring Federal grants for the facility's development. In order for it to succeed, the State in a partnership with private industry, including the shipping industry and railroads serving southeastern NC, needs to commit and carry through with necessary highway and rail access to the proposed port. Obviously, federal grants would be an additional funding source but most of the investment should come from the State and private sources.
- The existence of an inland port with highway/rail/air connections at Charlotte (with the new intermodal terminal being completed by 2010) and the Fed Ex facility at Greensboro greatly expanding the cargo handled at GSO, additional demand will likely be generated for freight flowing through these facilities.
- As a recent member of a multi-state effort called the I-95 Corridor Coalition created by AASHTO and supported by the FHWA, the States along the east coast, and major metro regions, the opportunity exists to expand participation by the NCDOT in this Coalition to include air, rail, truck, and seaport intermodal issues.
- As the next TIP is developed by the NCDOT, and in the short-range plan being addressed by the "North Carolina's 21st Century Transportation Commission," the opportunity exists to address funding needs in critical multimodal corridors, and increase both rail and highway capacity where there are critical needs, particularly on the I-85 corridor in the Piedmont Crescent, I-95 from South Carolina to the Virginia border, and urban high volume segments such as I-40 in the Research Triangle and I-77 from Charlotte to Statesville.
- Based on the initiative of UNC System President Erskine Bowles over the past year, a team of researchers and community leaders from across the state have produced a plan for improving the quality of life for North Carolinians in many different areas. One of the major findings of the study is that the University System "should more actively engage in enhancing the economic transformation and community development of North Carolina's regions and the State as a whole." (Ref. *Final Report, University of North Carolina Tomorrow Commission, December 2007*).
- The UNC System, as well as private universities in the state, should create new programs linking together the disciplines of transportation logistics, finance, economics, and public policy. Connected with this, the opportunity exists to develop public/private professional development exchange programs.
- The North Carolina Tomorrow initiative, going forward, should also focus on educating the public on the relationships of freight mobility and economic well-being. Other opportunities include the following:
- A first step in securing support from the public and lawmakers in moving forward with improved freight planning is to benchmark intermodal freight performance data, beginning next Fiscal Year. Define projects of strategic and regional interest to work for measurable network improvements. Near-term projects to achieve early wins in several parts of the state would include the development of additional double track on high volume sections of the State's rail network and on those sections that are presently handling, or are projected to handle, passenger rail service.

- Create new freight/logistics planning regions for both the Departments of Commerce and the Department of Transportation to represent the same geographic areas and work together in the 14 field divisions of the NCDOT to hire staff with capabilities in regional multimodal freight planning, and incorporate those resources in MPO and RPO planning activities.
- Specific policy recommendations that are current, near term opportunities, include:
 - Developing a Governor’s Commission on Freight Transportation and Commerce - a continuing, statewide freight advisory function, with clearly established lines of responsibility, authority, accountability, and an open membership framework, with strong participation at the Secretary level from the Department of Commerce as well as the Department of Transportation.
 - Develop a North Carolina freight transportation infrastructure development/business plan.
 - Establish a single point of contact in the Governor’s Office for freight issues.
 - Develop high level freight efficiency and security metrics, combining public databases and private information systems in order to benchmark performance.
 - Examine building and zoning codes at the local level and identify those that inhibit freight mobility, with the objective of recommending changes where needed.
 - Develop urban freight mobility strategies to bridge freight efficiency and community livability issues.
 - Coordinate investment strategies with neighboring states; both Tennessee and Virginia have recently developed Statewide Freight Development plans.

Threats

- The GLOBAL ECONOMY will continue to bring pressure over the next 25 years to the extent that American jobs will continue to be transferred off-shore, and the competition of growing economies like China and India, plus others in the Pacific Rim, will likely slow the growth of the U.S. as a whole, including the State. This will further heighten the competition among states for new jobs, investments in new companies, start-ups, funding of infrastructure, and consequently the overall economy of states and communities.
- THE OIL CRISIS. It is here now! The cost of crude oil and the volatility that it brings to all types of petroleum and gasoline, diesel fuel, jet fuel, kerosene, lubricants, etc., will cut into the profit margin for railroads, airlines, and trucking firms. This also is a global problem, nationwide problem, and state problem at the highest levels of government that continues to delay the inevitable tough decisions and actions to seriously develop the alternative energy business.
- THE ENVIRONMENTAL CRISIS. It also is here now. Diesel powered rail freight locomotives generate less greenhouse gases than an equivalent capacity of diesel trucks, and electric passenger trains generate less greenhouse gases than an equivalent amount of POVs and commercial vehicles.

- The truck-hauling demand and capacity in this country is continuing to grow while the rolling stock of the railroads stays relatively stable.
- One very specific observation in the “threat” category: the overall tightening and competing budgetary demands for State General Funds will lessen the ability of the Rail Division to provide as much high level service to the State’s short line railroads as it has in the past.
- Improvements to the NCRRC corridor from Raleigh to Charlotte have been taking place due in part to the commitment of the State Rail Division to such actions as installing more active barriers at truck/roadway crossings. However, across the State there continues to be safety concerns especially by the traveling public that uses local roads on a regular basis.
- Container shipments by rail and truck are currently projected to increase almost 300 percent at the nation’s 10 major seaports over the next twelve years (Ref. Global Insight, Inc.). Rail has an advantage here in that they have lower line haul costs and greater utilization. Cargo service expansion at Wilmington and at the proposed NC International Port at Southport could be the recipient of dramatic increases in container traffic due to increased demand and short supply of available land for development at the Virginia and South Carolina ports. A major expansion of container facilities is currently under development north of Savannah as a partnership between the States of Georgia and South Carolina to help them meet some of this increased demand.
- Perhaps the greatest threat about going forward after developing the various analyses regarding our freight infrastructure is that nothing will change in the way the State approaches strategic freight planning. The real potential of this freight study would be to recommend in Virginia-like fashion that decisions and actions take place in certain strategic corridors to shift truck freight to rail. The State should invest in reducing truck traffic wherever possible basically due to the fact that our highways have a \$65 BILLION shortfall to spend on highways over the next 20 years. Trucks on highways create dramatically increasing maintenance costs.

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Appendix H: Funding

Funding

Funding is a critical issue in logistics planning to realize gains from potential projects. The current system of transportation funding is not sufficient to meet expected demand particularly the rapidly increasing needs of logistics infrastructure. There are two approaches that can be applied individually or concurrently: establishing new funding options or re-prioritizing existing funding.

New Funding Options

Establishing new funding options can help bridge the gap between revenue shortfalls and infrastructure needs. North Carolina currently employs several of the candidate revenue sources that are detailed in the National Cooperative Highway Research Program's (NCHRP) *Future Financing Options to Meet Highway and Transit Needs*⁵⁶. Information in the following paragraphs was collected from the NCHRP report, unless otherwise noted. Table 0.1 Potential Revenue Sources from the NCHRP report shows potential revenue sources that could be implemented or expanded in North Carolina and each tool's potential revenue yield and locations of implementation.

Table 0.1 Potential Revenue Sources

Specific Revenue Tool	Potential Yield ^a	Locations Used
Fuel Taxes		
Sales tax on motor fuel ^d	H	CA, GA, HI, IL, IN, MI, NY
Petroleum franchise or business taxes	H	NY, PA
Vehicle Registration and Related Fees		
Vehicle personal property taxes	M	CA, KS, VA
Tolling, Pricing, and Other User Fees		
Tolling new roads and bridges	M	About half of states (e.g., TX, FL, VA)
Tolling existing roads	L	VA proposed, others considering
HOT lanes, express toll lanes, truck toll lanes	M	CA, CO, GA, MN, TX
VMT fees	H	OR testing; recommended by 15 state-pooled fund study
Container fees, customs duties, etc.	M	CA
Beneficiary Charges and Local Option		
Dedicated property taxes	H	Many local governments
Beneficiary charges/value capture (impact fees, tax increment financing, mortgage recording fees, lease fees, etc.)	L	Many states and localities (e.g., CA, FL, OR, NY)
Permitting local option taxes for highway improvements		
• Local option vehicle or registration fees	M	AK, CA, CT ^b , CO, HI, ID, IN, MS ^b , MO, NE, NV, NH, NY, OH, SC, SD, TN ^b , TX, VA ^b , WA, WI

⁵⁶ http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_w102.pdf

• Local option sales taxes	H	AL, AZ, AR, CA, CO, FL, GA, IA, KS, LA, MN, MO, NE, NV, NM, NY ^b , OH, OK, SC, TN, UT, WY
• Local option motor fuel taxes	M	AL, AK ^b , FL, HI, IL, MS, NV, OR, VA, WA
Other Dedicated Taxes		
Dedicate portion of state sales tax	H	AZ, CA, IN, KS, MA, MS, NY, PA, UT, VA
Miscellaneous transit taxes (lottery, cigarette, room tax, rental car fees, etc.)	L	Various states and localities
General Revenue Sources		
General Revenue ^c	H	Most states and localities

^a Potential Yield; H= High, M= Medium, L= Low.

^b Revenues go into General Fund but can be earmarked or used for transportation.

^c For purposes of this report, the leveraging of tax subsidies through tax credit bonds and investment tax credits is treated effectively as producing revenue from general fund sources for transportation.

^d In some states, revenues from sales taxes on motor fuel are not dedicated or only partially dedicated to fund transportation needs.

Fuel Taxes and Vehicle Registration and Related Fees

In North Carolina, the motor fuel excise tax is indexed to the wholesale price, which incorporates inflationary aspects into the fuel tax revenue. Every state uses vehicle registration and license fees to generate transportation revenue. The NCHRP report found that 14 states generate 90% of their highway funding from fuel taxes and vehicle user fees and most of the states receive more than half their funding from these two sources. NC, along with 12 other states, also applies an excise tax on vehicle sales for transportation needs.

Other potential revenue could be generated from a sales tax on fuel or franchise or business taxes on the petroleum industry. Georgia, along with six other states, collects a sales tax on motor fuels to supplement the excise tax. The rates vary from 4% to 6.25%, but some of the states do not dedicate all of the revenue to transportation. New York levies a petroleum business tax on petroleum businesses and Pennsylvania collects an oil company franchise tax.

Several states have implemented a personal property tax on vehicles. This tax has advantages to both the state and the citizens. The revenue increases with inflation as vehicle values increase, unlike the stagnant vehicle registration fee. For citizens, the tax is deductible for their federal income which can minimize the impact of the tax.

Tolling, Pricing, and Other User Fees

Although North Carolina does not currently operate any toll facilities, the North Carolina Turnpike Authority was created for the design, construction, and operation of up to nine projects⁵⁷. The NCHRP report found that Florida generates around 10% of its annual highway

⁵⁷ <http://www.ncturnpike.org/>

revenue from tolling. The tolling of existing roads is much more problematic because of prohibition by legislation for the Interstate System. However, provisions were made in the past to test tolling for reconstruction funding. High-Occupancy Toll (HOT) lanes provide a free incentive for carpooling while generating revenue from single-occupancy vehicles. HOT lanes have been constructed in Minnesota on I-394 and in Colorado on I-25. Truck-Only Toll (TOT) lanes are for the exclusive use of trucks. TOT lanes could help relieve congestion and have been studied for their potential in the Los Angeles area and Atlanta.

In anticipation of severe shortcomings of the fuel tax, a vehicle miles traveled (VMT) fee is being studied in various states. Oregon has implemented a thorough study of VMT fees using study participants and multiple experimental pricing schemes. North Carolina will be part of an upcoming field testing by the Public Policy Center at the University of Iowa that is evaluating a mileage-based user charge⁵⁸.

A fee on containers at ports could help fund transportation needs, particularly infrastructure that will directly benefit the port area and key routes. The Alameda corridor freight rail project for the Los Angeles and Long Beach ports charges up to \$30 for each container that utilizes or could have utilized the corridor.

Specialized Taxes

Specialized taxes can be implemented to fund transportation projects. The most common specialized taxes are state and local sales taxes, but can also include other tax revenues approved by local citizens. Impact fees, property taxes, vehicle registration fees, and motor fuel taxes are some examples of specialty taxes that have been implemented in various localities across the United States to raise revenue for transportation funding.

State and Local Cooperation

State and local government cooperation is essential to maximize the effectiveness and efficiency of transportation funding. Each has unique advantages that can complement the other to result in a successful project. The Funding Strategy Toolbox for Large Highway Projects lists the potential strengths for state and local government, which are applicable to projects involving any modes of transportation⁵⁹:

Potential State Strengths:

Access to capital markets
Strong credit
Stable broad-based revenues and funds
Project oversight delivery capabilities

Potential Local Strengths:

Willingness to dedicate local revenues to project
Debt capacity
Proximity to project for oversight purposes
Public/political interest in project completion

⁵⁸ <http://ppc.uiowa.edu/dnn4/Default.aspx?tabid=65>

⁵⁹ TransTech Management Inc., Funding Strategy Toolbox for Large Highway Projects, December 2002

Financing and Management Tools

Establishing new financing and management options can also benefit transportation project funding in North Carolina. Information in the following paragraphs was collected from NCHRP's *Future Financing Options to Meet Highway and Transit Needs*⁶⁰, unless otherwise noted. Table 7.2 from the NCHRP report shows potential financing and management tools that could be implemented or expanded in North Carolina.

Table 0.2 Potential Financing and Management Tools

Finance or Management Tool	Locations Used
1. Leverage Existing Resources^a	
Federal Grant Management Tools	Many states
GARVEE Bonds, RVEes and Transit GANs	AK, AR, AZ, CA, CO, GA, ID, KY, MA, ME, MI, MS, MT, NJ, NM, ND, OH, OK, PR, RI, VA,VI
State Infrastructure Banks	33 States (< \$10 Million in NC)
Section 129 Loans	TX
Pass-Through Financing/Availability Payments	CO, TX; Proposed in FL
Long-Term Asset Leases	IL, IN, VA
2. Create Revenue-Generating Assets	
Access Tax-Exempt Market through a Public or Nonprofit Issuer ^b	CA, CO, FL, NV, NY, SC, TX, VA, WA
Access Tax-Exempt Market through a Private Activity Bonds ^c	Proposed in TX, but none to date (\$15 billion national cap.)
Access Taxable Debt and Equity Markets	AL, CA, TX, UT, VA
TIFIA/RRIF Assistance	CA, NV, TX, NY, SC, FL, PR, DE, DC, MD, VA, LA, RI, IA, ME, MN, TN, AK, MO
Use PPPs to Enhance Project Design-Build Contracting (mechanisms can be used with both #1 and #2 above)	
Design-Build Contracting	As of April 2006, 37 states had some authorization to employ design-build.
Performance-Based Maintenance	FL, TX, VA, DC, TN, OK, AK
Design-Build-Finance-Operate (DBFO)	CA, TX, VA

^a The financing tools are used primarily for new capital projects, but major rehabilitation and reconstruction needs also may be appropriate to finance over the long term.

^b Includes major (greater than \$25 million) user fee-backed project financings completed after 1991; does not include system expansions or other project financings undertaken by public authorities prior to 1991.

^c Qualified Highway or Surface Freight Transfer Facilities under the SAFETEA-LU private activity bond provision (§11143) include any surface transportation project that receives Federal assistance under title 23 and any facility for the transfer of freight from truck to rail or rail to truck that receives Federal assistance under either title 23 or title 49. While highway and intermodal projects clearly are the focus of this provision, the eligibility link to title 23 programs potentially creates the opportunity to assist other types of surface transportation projects funded under Title 23 as well.

⁶⁰ http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_w102.pdf

Leverage Existing Resources

North Carolina has the opportunity to leverage existing resources using several techniques. Federal grant management tools can provide flexibility that can be used to decrease the time until a project is operation and reallocate funding to other needs. North Carolina has been authorized to issue GARVEE bonds as a means to borrow against future Federal aids distributions. North Carolina has utilized an infrastructure bank to realize the opportunity of lending the funds instead of granting them. Section 129 loans allow states to recycle Federal-aid money by funding projects then repaying the money with revenue and relending the revenue to other projects. Pass-through financing by the state can enable local communities or private companies to engage in transportation projects through future reimbursement agreements based largely on traffic volumes. Long term leases of existing assets such as toll roads and right-of-way along roadways have proven to be a viable finance tool. North Carolina has numerous financial options that can be explored to leverage existing resources.

Create Revenue-Generating Assets

North Carolina has accessed the tax-exempt market with Turnpike Authority as a way to encourage private investment from those seeking exposure to the municipal bond market. Another similar, but less popular option is to access the taxable debt market through teamwork with private companies. The Transportation Infrastructure Finance and Innovation Act Program and the Railroad Rehabilitation and Improvement Financing Program can be implemented for financial benefits.

Public-Private Partnerships

Public-private partnerships (PPPs) can be utilized to improve project delivery and the management of the facility. North Carolina has passed enabling legislation to make public-private partnerships available for some upcoming toll projects⁶¹. North Carolina has completed eleven design-build projects through NCDOT's Alternative Delivery Unit⁶². Design-build projects combine the design and construction phases into one contract. Performance-based maintenance contracts are a method to incorporate private sector involvement in the maintenance of transportation facilities. Design-build-finance-operate contracts combine more aspects of the entire project into a single contract with a private associate. Virginia is one of the states engaging in this strategy, where a private entity will design, construct, finance, and operate a facility.

As detailed by the NC Turnpike Authority,⁶³ PPPs offer potential advantages for transportation projects over traditional delivery methods, including:

- *They save time and can accelerate the delivery of new transportation projects;*
- *They shift greater risk to the private sector;*

⁶¹ http://www.fhwa.dot.gov/PPP/legis_carolinanorth.htm

⁶² http://www.ncdot.org/doh/preconstruct/altern/design_build/Completed.html

⁶³ <http://www.ncturnpike.org/about/faq/>

- *They increase cost certainty to the public sector;*
- *They allow the public sector to obtain private investment in needed public infrastructure without raising taxes;*
- *They facilitate the realization of projects that would otherwise be unattainable because of funding limitations; and*
- *They allow the public sector to benefit from private-sector innovation.*

Re-Prioritization of Existing Funding

Each mode of transportation in the state of North Carolina has its own governing body that establishes priorities, project selection, funding mechanisms, and other aspects. For instance, the ports have established the North Carolina International Terminal⁶⁴ as a priority, the Strategic Highway Corridors⁶⁵ are seen as a priority for the highway system, the Airport Development Program⁶⁶ details the aviation goals, and the Future Service⁶⁷ of the rail division outlines the proposed projects. A group to oversee and coordinate between the strategic goals of these modes would lead to an overall transportation system that is greater than the sum of its individual parts. A project that involved improvements in each of the modes would have a greater impact on the entire state than individual projects.

As part of the prioritization process, impacts to freight movement should be considered along with passenger travel impacts. The movement of goods and services is seen as a critical component of the economy and therefore should be considered during transportation planning processes. For example, one of Florida's Strategic Intermodal System⁶⁸ (SIS) goals is to emphasize "improvements in the mobility of passenger and freight trips on Florida's transportation system from beginning to end." Passenger and freight travel each desire efficient, reliable service from the transportation system. However, each type can also have specific needs that need to be considered as part of a transportation project which can lead to overall system improvements.

⁶⁴ http://www.ncports.com/_NC_International_terminal.htm

⁶⁵ <http://www.ncdot.org/doh/PRECONSTRUCT/tpb/shc/>

⁶⁶ <http://www.ncdot.org/transit/aviation/about/devProgram.html>

⁶⁷ <http://www.bytrain.org/future/default.html>

⁶⁸ <http://www.dot.state.fl.us/planning/sis/implementationguide/default.htm>