

South Carolina Transportation Cost Competitive Analysis

Presented to:



South Carolina

Public Railways

August 15, 2008
Columbia, SC

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Agenda for Workshop

- ▶ **Project Overview and State Introductions**
- ▶ **Study Results Overview**
 - **Key Findings, Good News**
 - **Issues**
 - **Data Collection Sources and Study Assumptions**
- ▶ **Shipper's Perspectives**
- ▶ **Global Economy and Cargo Forecasts**
- ▶ **Freight Competitiveness Comparison**
- ▶ **Conclusions, Recommendations and Next Steps**
- ▶ **Questions w/ Answers**

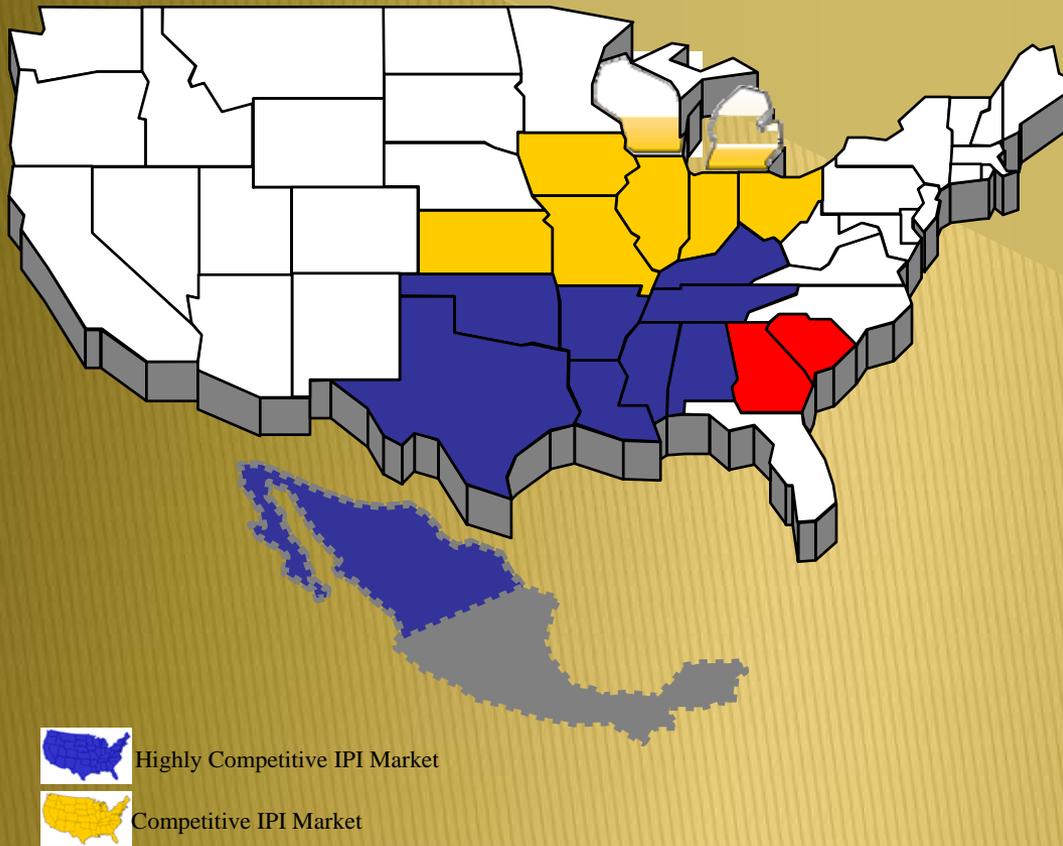
Key Findings – Good News

- ▶ **South Carolina is very competitive in:**
 - **International cargo (import and export) when compared with Georgia Ports, Jacksonville, Tampa and North Carolina Ports Authority**
 - **Domestic and international rail and intermodal cargo destined for IPI points (Midwest, Mississippi Valley, Texas and Mexico) when compared with Georgia, North Carolina and Florida**
 - **Trucking (TL and containerized) for IPI origins and/or destinations including Florida, North Carolina and Georgia**
 - **LTL and Parcel when compared against Florida, Virginia and North Carolina**
 - **Air cargo when compared with Georgia, North Carolina, Virginia and Florida**

Key Findings – Good News (Continued)

- ▶ **Shipper's perspectives**
 - **Competitive (cost, reliability, availability, security and velocity) if truck, port or parcel based**
 - **“Sweet spot” for international cargoes is the midwest, lower Mississippi Valley, Texas, the plains states and central Mexico**
- ▶ **Georgia (and the GPA) is most significant competitor**
- ▶ **Panama Canal expansion (2014) is a significant event *IF SCPA can develop capacity, including intermodal rail***

South Carolina IPI Markets



Impacts on Rail Intermodal:

- ▶ 37% of intermodal traffic today is destined east of Midwest rail gateways
- ▶ Rail pricing and service is stimulating conversion
- ▶ Faster all-water services are emerging
- ▶ Future Panama Canal (2014) economics will encourage all-water service with larger vessels
- ▶ Result: Continued diversion of intermodal MLB to all-water

Source: PIERS; Norbridge Analysis

Issues – Shipper’s Perspectives

Transportation Infrastructure and Mfg/Distribution Facility Ratings

- Shippers were asked to compare the infrastructure, manufacturing operations and distribution facility in South Carolina compared to the regional states of Florida, Georgia, North Carolina and Virginia for a number of criteria based on a 1 to 5 scale with 1 being poor, 3 being average and 5 being excellent. Green represents an above average rating from 3.33 and up, red is for poor ratings at 2.67 and below and yellow is for average ratings at 3.00:

Infrastructure	Availability	Capacity & Capability	Quality & Reliability	Service Level	Comments
Roadways	3.67	3.33	3.50	3.00	Good access
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Airports	3.33	3.33	3.00	3.00	Average
Ports Operations	4.67	4.00	4.33	4.00	Good for SC products, limited rail access
Inland Terminals	3.00	3.50	3.25	3.00	No specific comments
Mfg and Distribution	2.67	3.00	3.33	3.00	No specific comments

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Logistics and Manufacturing Service Providers Ratings

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Service Providers	Total Cost	Availability of Service	Quality & Reliability	Timeliness & Speed	Security
Truck	3.33	4.00	3.33	3.33	3.00
Rail	2.33	2.67	2.33	2.50	2.33
Air Freight	2.67	3.00	3.00	3.33	3.00
Package/Parcel	3.00	3.33	3.00	3.00	3.33
Ocean Freight	2.67	3.00	3.00	3.00	3.33
Ports/Terminal	3.00	3.33	3.67	3.33	3.67
Inland Terminals	3.00	3.33	3.33	3.33	2.33
3PL’s	2.67	2.67	3.00	3.00	2.67
Outsourced DC	2.33	2.50	2.33	2.50	2.33
Outsourced Mfg	2.00	2.00	2.20	2.25	2.00

Issues

- ▶ Rail is *not* competitive for short haul (all cargo goes via Atlanta regardless of origin in SC or GA)
- ▶ SCPA does *not* have a competitive advantage w/GPA for intermodal rail to IPI destinations
- ▶ *Intermodal Rail* is not (currently) the driving force behind rail capacity enhancements
- ▶ Virtually all shipper's and logistics provider's interviewed and surveyed felt Georgia had a perceived "significant competitive edge" over South Carolina
 - "Perception is 95% reality"
- ▶ Perception is based upon
 - Political emphasis of "pro-freight development and mobility"
 - All rail and intermodal cargo goes through Atlanta
 - Not having a complete and knowledgeable understanding of costs
 - Atlanta is a major air and parcel hub in the SE United States

Issues – The Georgia Issues

- ▶ **GPA is outspending SCPA by a significant amount (\$1.2 billion to \$600 million) to grow from 2 million TEU's to 6 million TEU's vs. 2 million TEU's to 3.5 million TEU's for SCPA**
- ▶ **Significant high level political emphasis on trade**
- ▶ **NIMBY effect (North Charleston vs. Garden City)**
- ▶ **State spending on transportation infrastructure, including on-dock or near-dock intermodal rail**
- ▶ **Ease and speed of permitting and environmental review**
- ▶ **CSX tried to develop 2 IY's in South Carolina but were rebuffed by local communities; openly welcomed in Georgia**
- ▶ **Both railroads, two major ocean carriers, a large 3PL and a large industrial property developer cited personal and frequent contacts with Governor, State legislators and a US Congressmen to encourage their moving to GPA**

Data Sources and Study Assumptions

Data Collection Sources

▶ Global Insight

- Transearch ®
- World Trade Service
- US Inland Trade Monitor
- US Census Foreign Trade Statistics

▶ South Carolina Ports Authority

- Norbridge base container forecast, 4th Qtr 2007

▶ Supply Chain Consortium database

▶ Shipper survey of SC competitiveness

▶ Interviews with ocean carriers, railroads, 3PL's, industrial developers and truckers

▶ Trade publications, reports and recent conferences

Key Assumptions/Points

- ▶ **Study focused on transportation related issues**
 - **Labor costs, facility costs or economic development incentive based components were not considered**
- ▶ **Study focused on South Carolina's strategic position within a shipper's supply chain**
 - **Manufacturing, distribution, value-added, transload (consolidation/deconsolidation) facilities considered to be nodes within the supply chain (including final point of product delivery)**
- ▶ **Costs are neither "landed" or "delivered" costs but are relative across the study**
- ▶ **Transportation spend (when compared to total revenue) averages 3.4% and ranges between 2% to 5.3%**
- ▶ **Transportation costs are "inelastic" up to \$125 per container for East Coast Ports; >\$125 will cause diversion**

Key Assumptions/Points

Assumptions

- ▶ **South Carolina has the population centers and is growing rapidly enough that transportation competitiveness is a major issue to address**
- ▶ **Industrial and consumer markets are favorable to economic growth**
- ▶ **Physical or financial transportation constraints are not so extensive that reasonable solutions are not possible**
- ▶ **Time frame is “event driven” out to year 2020 (Panama Canal 2014)**

Considerations

- ▶ **SCSPA ocean port capabilities for imports and exports compared to regional operations**
- ▶ **Inland terminal capabilities**
- ▶ **Carriers/Transportation Service Providers capabilities serving South Carolina (TL, LTL, Drayage, Ocean, Air cargo, Rail and Intermodal, Parcel and 3PL)**
- ▶ **Distribution center current and potential future availability**
- ▶ **Transportation and distribution infrastructure within SC and SE region**

Shipper's Perspectives

Shipper Data Sources

Supply Chain Consortium

- ▶ Tompkins has worked with the Consortium since 2004 to expand membership and the breadth of supply chain coverage.
- ▶ Tompkins provides considerable value to Consortium members through access to data, analysis capabilities, special surveys, reports, and the annual Leadership Forum.
- ▶ 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 over 225 Consortium member companies from retail, manufacturing and distribution/wholesale operations.

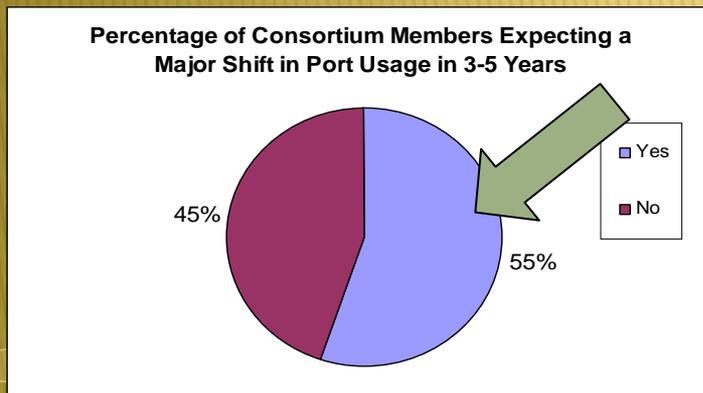
Retail, Consumer Products, Industrial Commercial Manufacturers, and Wholesale/Distributors						Supply Chain Service Providers	
Supply Chain Planning	Sourcing	Manufacturing	International Trans.	Domestic Trans.	Distribution Center Operations	Ports / Terminal Operations	Carriers and Logistics Service Providers
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, Response and Recovery	
Sales Forecasting	INCO Terms	Human Resources	Order Control	Fleet	Labor Management	Infrastructure	
Inventory Management		Information Tech	Third Party Services	Intermodal	Outsourced Distribution	Cost and Performance Metrics	
		Product Design	Customs Brokers		Outsourced Pool		
			Domestic Trade Management		Direct to Consumer		
Core Supply Chain Benchmarks							
Key Financial Benchmarks							
Technology							
Security							
Environmental / Sustainability							

Advisory Board Companies



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:
 - Port efficiency
 - Carrier effectiveness
 - Infrastructure improvements
 - Removal of capacity and congestion as constraints
 - Risk reduction for major disruptions in service and solid contingency planning
 - Access to markets
 - Connectivity to roads and rail service
 - Distribution center space availability



Port	3 to 5 Year Projected Volume Increase
Norfolk, VA	> 200%
Savannah, GA	> 130%
Charleston, SC	> 100%
Wilmington, NC	> 30%

Decision Points and Selection Criteria

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

South Carolina Company Strategies to Address North American Port Issues	Average Importance Rating
Moving imports from the Indian sub-continent and Southeast Asia to East Coast and Gulf ports through the Suez Canal	3.5
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.	3.2
Moving imports on trans-pacific lanes to East Coast and Gulf ports through the Panama Canal	3.1
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
Lobbying local, state and federal agencies for funding for port, rail and road infrastructure improvements	2.2
Moving product, raw material and component sources to Eastern Europe, Central America or other regions outside of Asia.	2.2
Moving product, raw material and component sources back to North America or re-evaluating plans to move current sources from North America to Asia.	2.1
Working with port authorities in an active role to implement more efficient operations	1.9

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

Decision Points and Selection Criteria

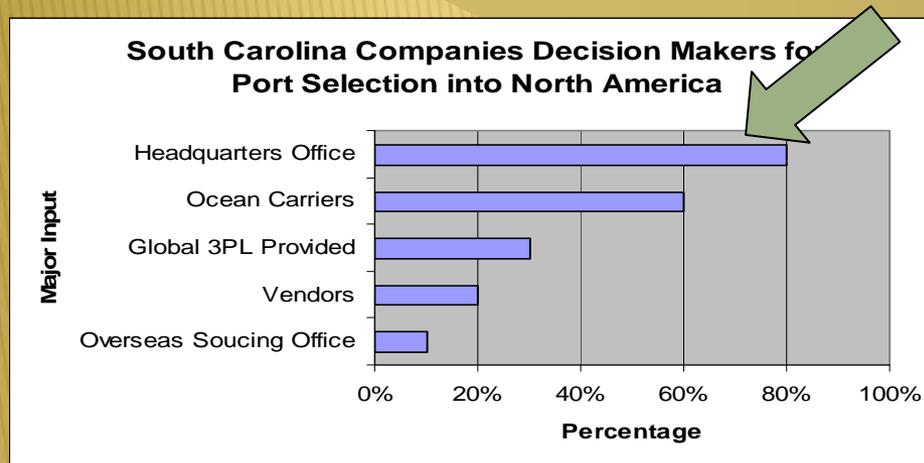
Port Selection – South Carolina Company Views on Port Congestion

South Carolina Company Views of the Primary Causes for North American Port Congestion	Average Importance Rating
Lack of rail equipment and capacity serving ports	4.1
Inefficient operating practices that limit trucking productivity and create driver shortages	4.0
Limited hours of operation for gates, terminals and local truck operations	3.5
Vessel arrivals concentrated on certain days of the week (e.g. Thursday, Friday and Saturdays)	3.3
Lack of adequate port operations metrics to pinpoint problems and identify where available capacity might exist.	3.2
Road congestion entering and leaving ports	3.1

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

Evaluation Conclusions From Consortium Data

- Shippers 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.

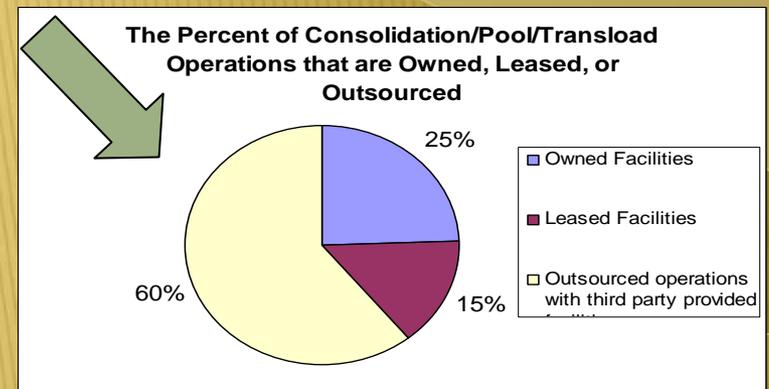
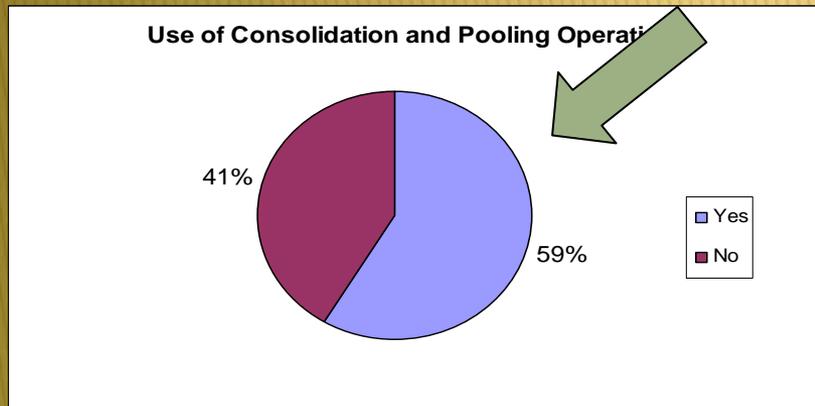


- Shippers do not always do as thorough a job with their port selection due diligence as we might believe. Active marketing is needed to sell them.

Techniques to Investigate North American Ports	Always	Usually	Occasionally	Rarely/Never
Visit the port and terminal when evaluating new ports	0%	33%	8%	58%
Visit the port and terminal at operations start up	0%	33%	8%	58%
Visit the port and terminal annually	0%	50%	8%	42%
Visit the port and terminal when there are issues	0%	58%	17%	25%
Talk with port authorities	8%	33%	33%	25%
Talk to local terminal operators	8%	17%	8%	67%
Talk to local cartage agents	8%	0%	8%	83%

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. The Current export boom is causing a capacity crunch for containers and extending lead times.
- ▶ There is an increasing trend toward pool deconsolidation centers as a major part of shippers supply chain strategies. This must be a part of the package.
- ▶ More shippers are relying on smaller, faster regional distribution centers which crossdock products instead of large master distribution centers which stock all products.

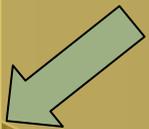


- ▶ The trend is for shippers to outsource distribution and/or lease facilities to improve flexibility and reduce their asset base. This trend is also a strategy employed to keep the overall supply chain network in balance with changing customer needs.

Evaluation Conclusions From Consortium Data

- ▶ Issues such as shipment security and theft loss are major factors in decisions to locate any kind of operation to low crime states.
- ▶ Most shippers do not feel that their logistics networks are optimized, which indicates major opportunities for improvement if a well thought out strategy is employed.

Percent of Respondents Network Optimization by Operation			
Operations	Network Optimized	Network Close to 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%



South Carolina Competitiveness Shipper Survey Results

Survey Foundation Information

- ▶ **Industries of South Carolina Operations responding to survey.**
 - Aerospace
 - Automotive
 - Consumer Products
 - Industrial Products
 - Pharmaceuticals/Biotech/Health Care
 - Plastics and Chemical
 - Recreation
- ▶ **South Carolina organization size – organizations ranged from those with less than 50 employees to those approaching 2000 employees.**
- ▶ **All companies who responded to the survey had either manufacturing and/or distribution operations in South Carolina and many had headquarters and sales offices in the state as well.**
- ▶ **The survey was sent to over 350 South Carolina manufacturing and distribution organizations from information provided by Rebecca.**

South Carolina Competitiveness Shipper Survey Results

Transportation Infrastructure and Mfg/Distribution Facility Ratings

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South Carolina Competitiveness Shipper Survey Results

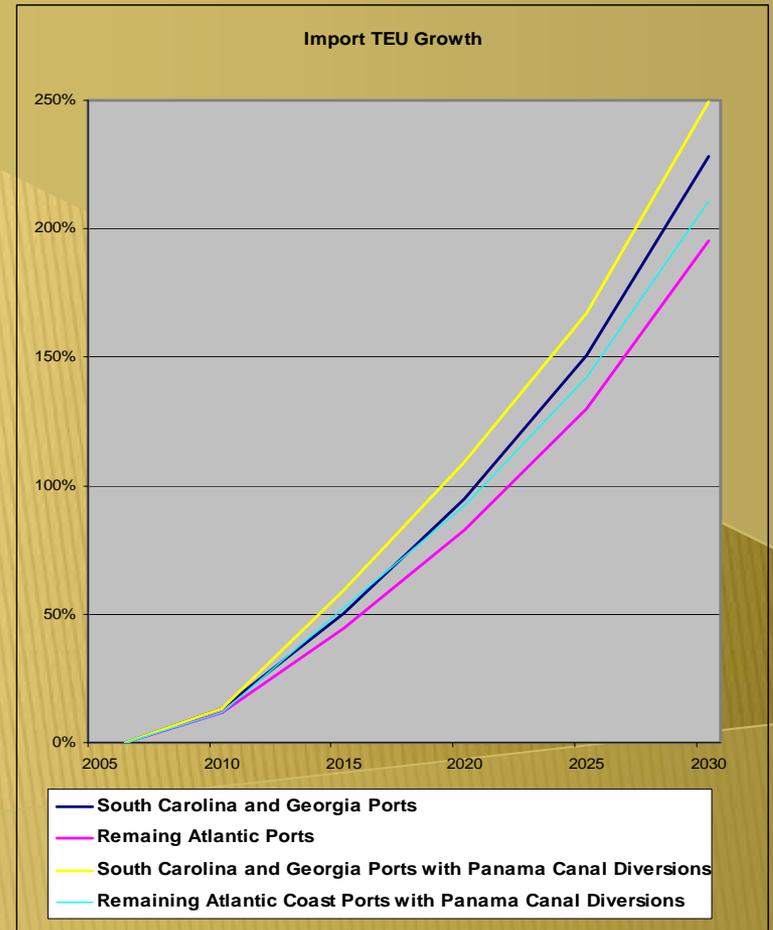
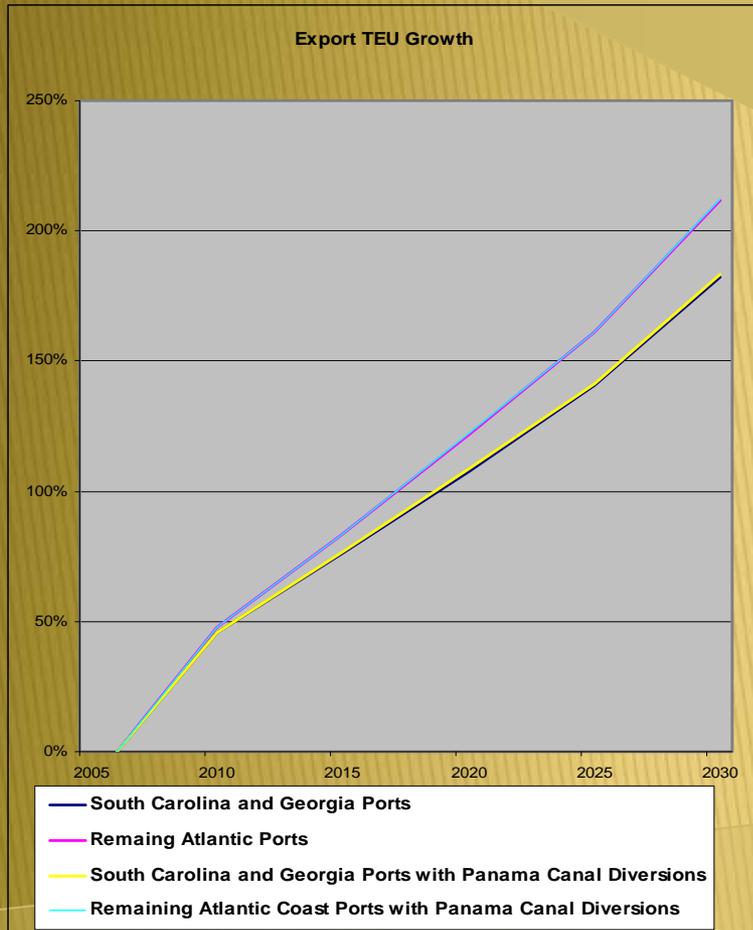
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Global Economy and Cargo Forecasts

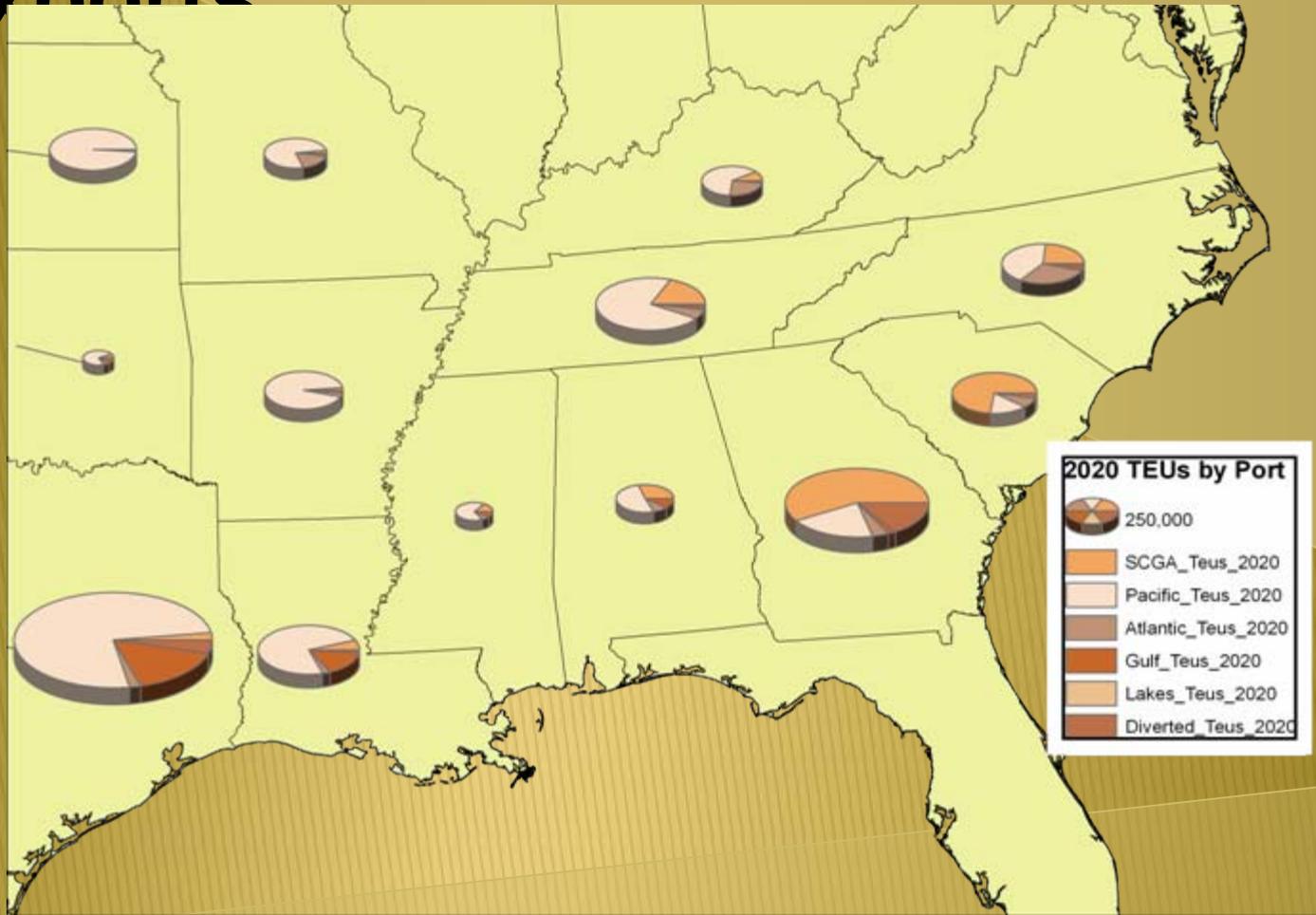
Market Growth and Impact of Panama Canal Expansion



Potential Markets – Total Imports and Exports



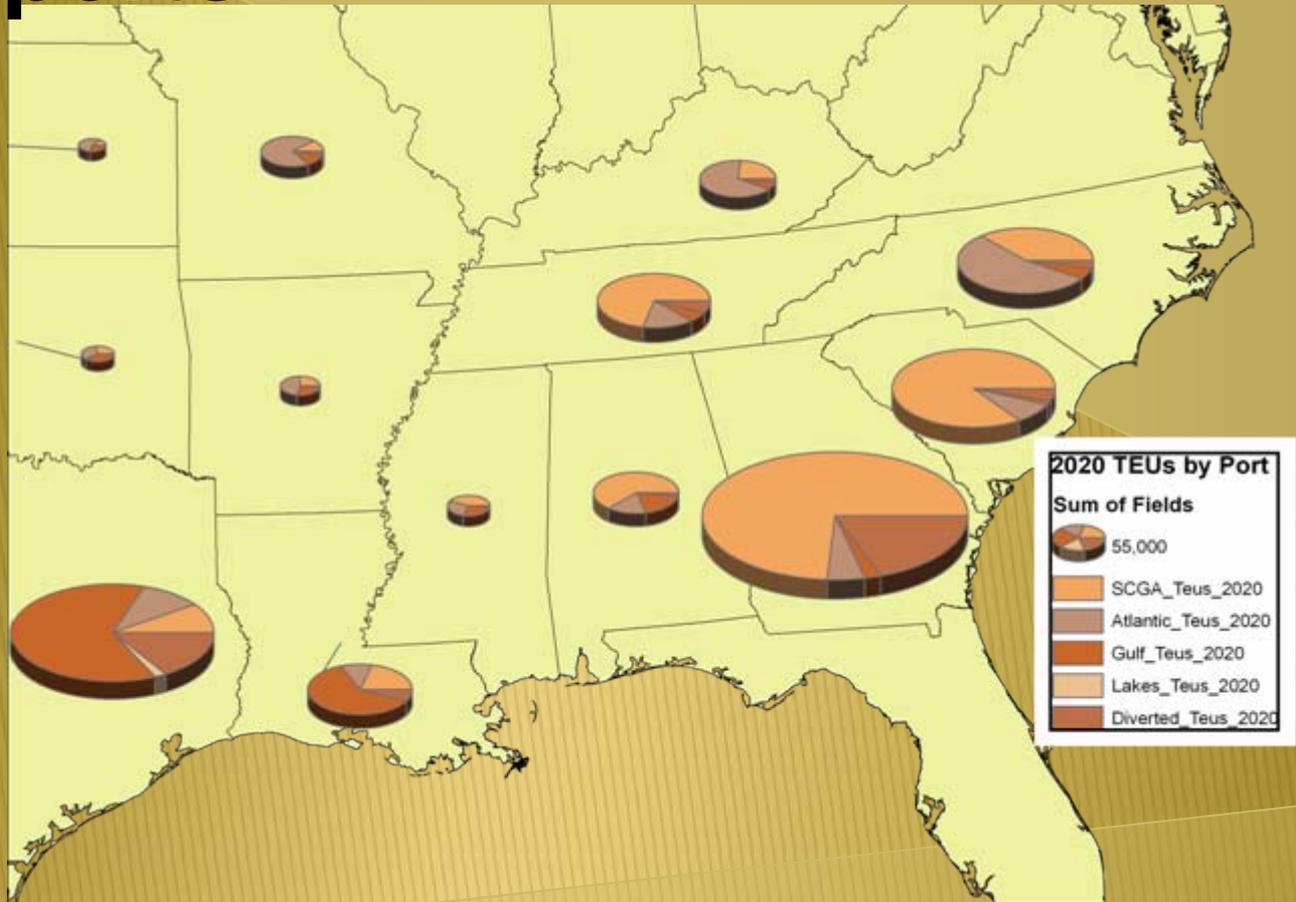
Potential Markets – Total Imports and Exports



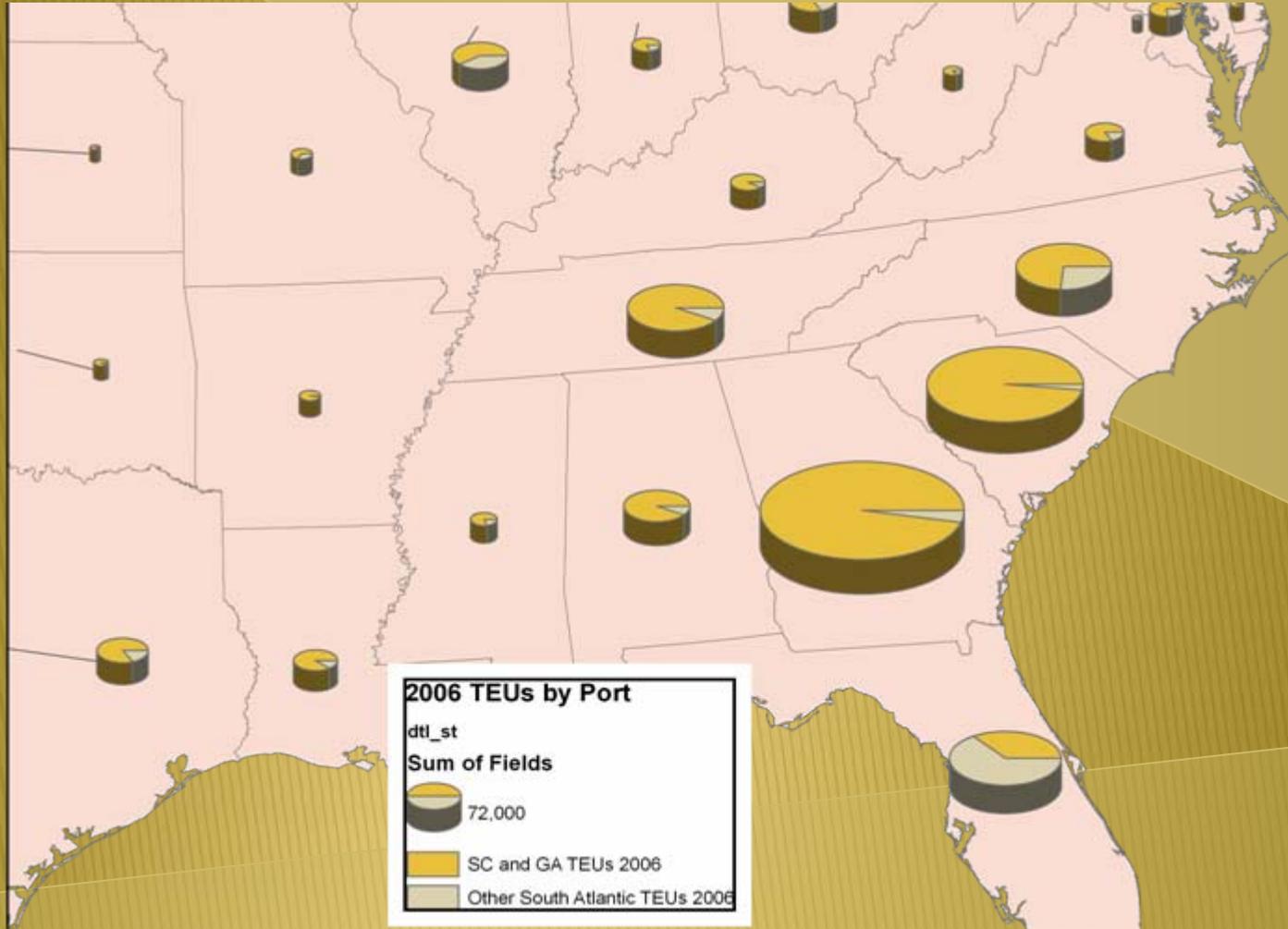
Potential Markets – Atlantic Imports & Exports



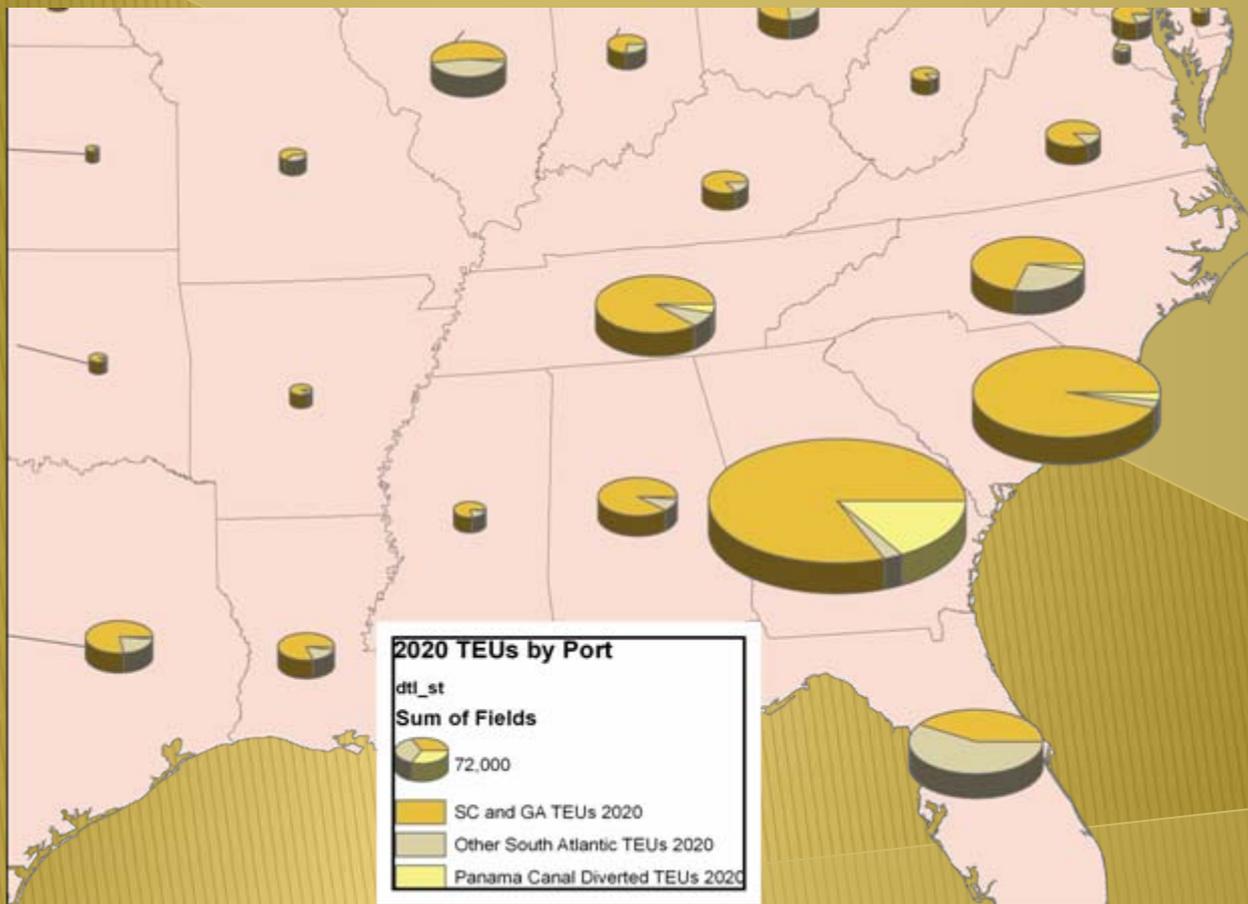
Potential Markets –Atlantic Imports & Exports



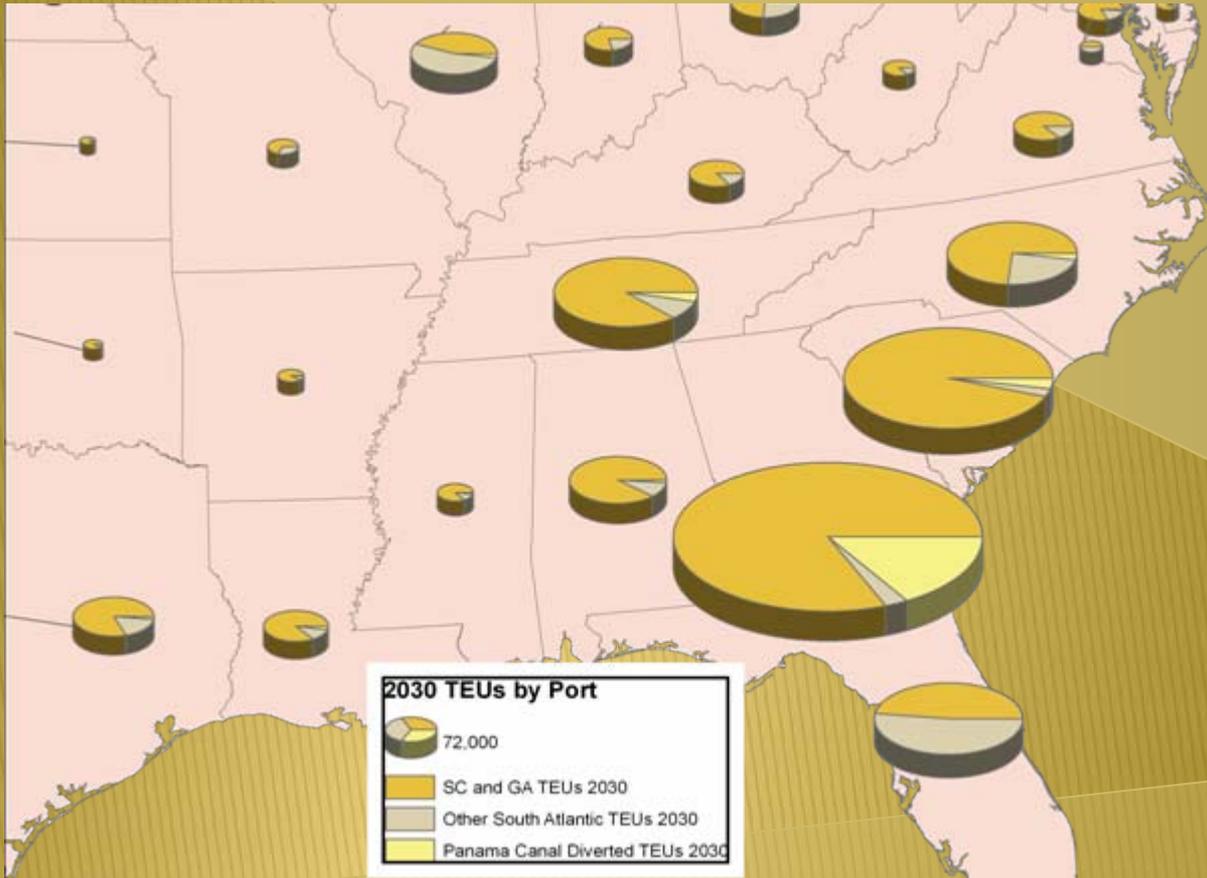
South Atlantic Ports Market



South Atlantic Ports Market

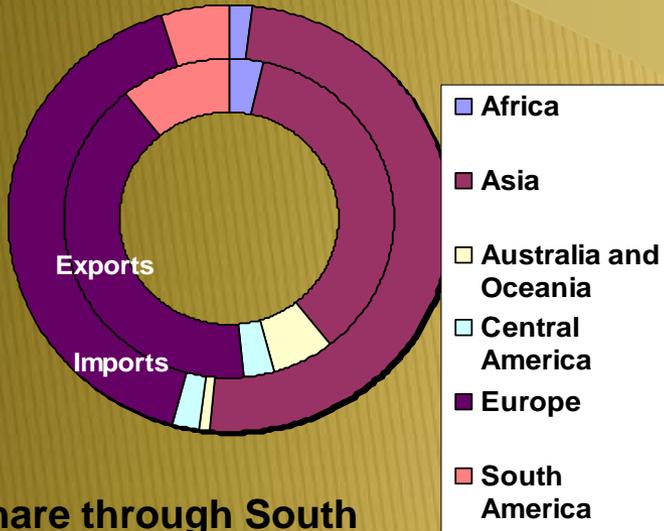


South Atlantic Ports Market

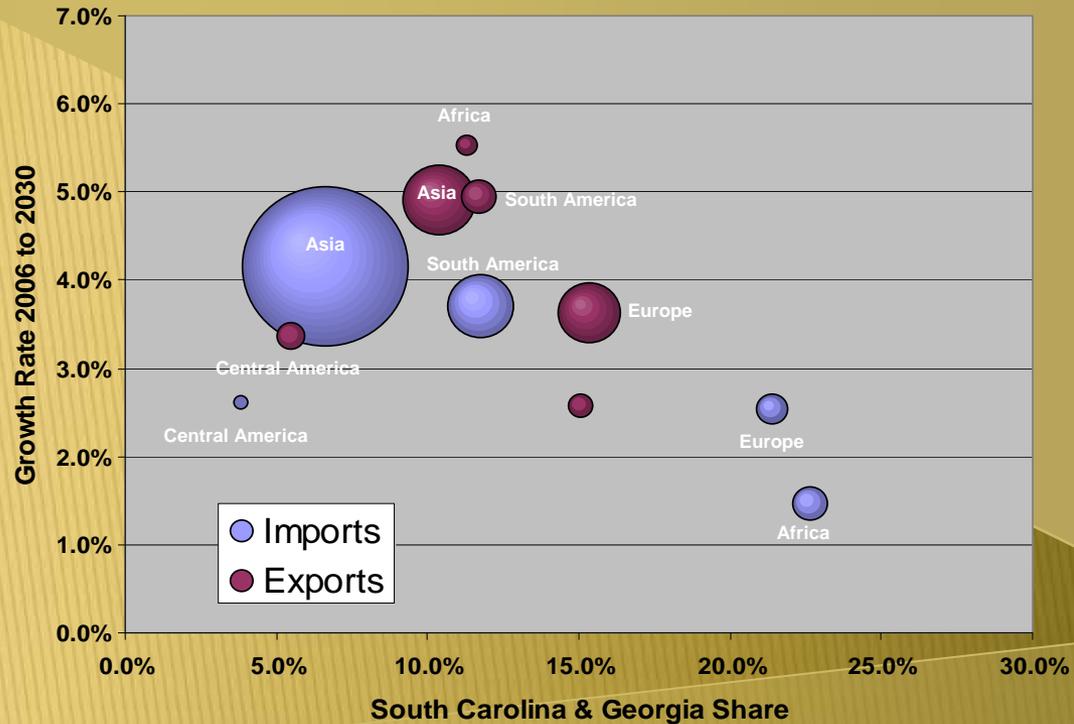
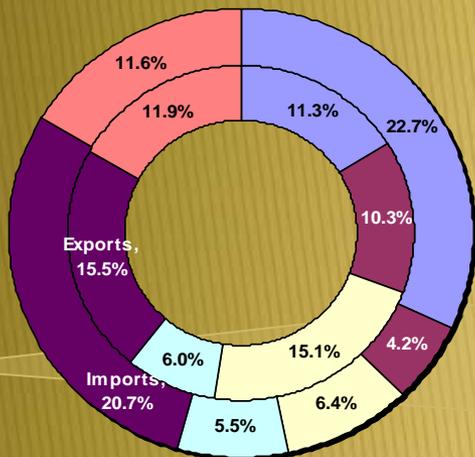


The "Sweet Spot", by Continent

Value by Continent

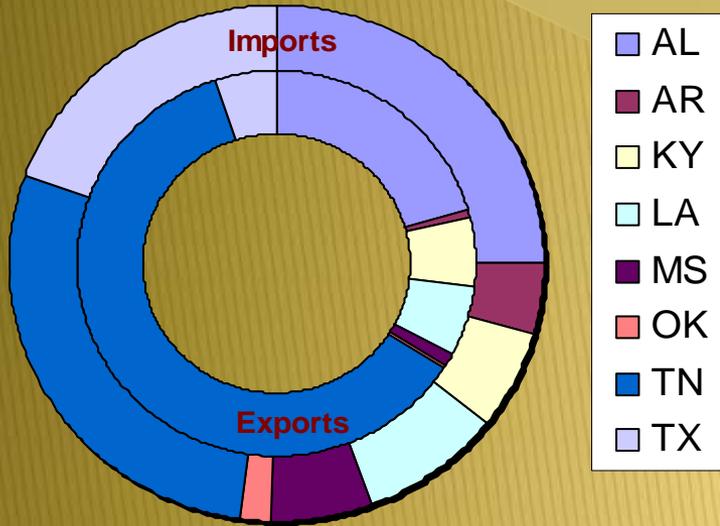


Share through South Carolina & Georgia Ports



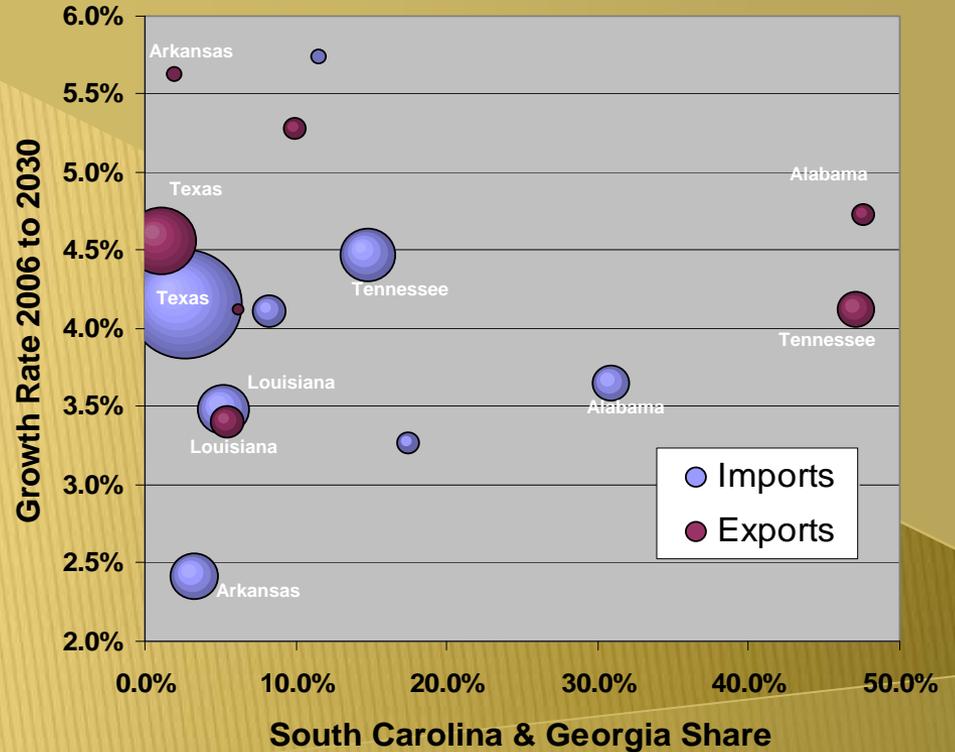
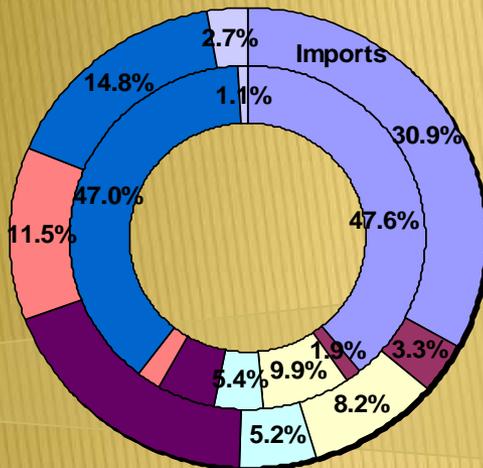
The "Sweet Spot", by State

Value by State



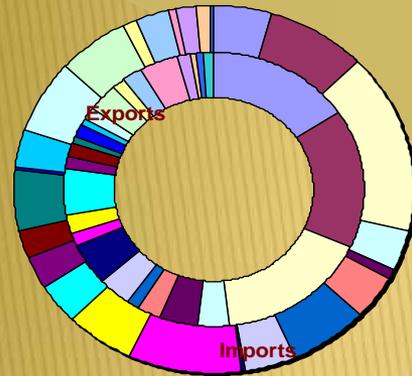
Share through South Carolina Ports

South Carolina & Georgia Share

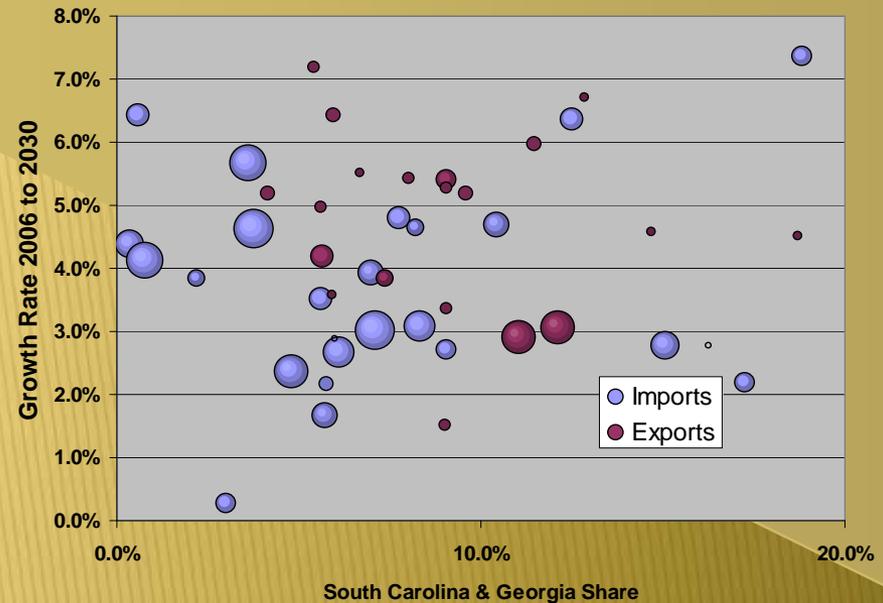


The "Sweet Spot", by Commodity

Value by Commodity



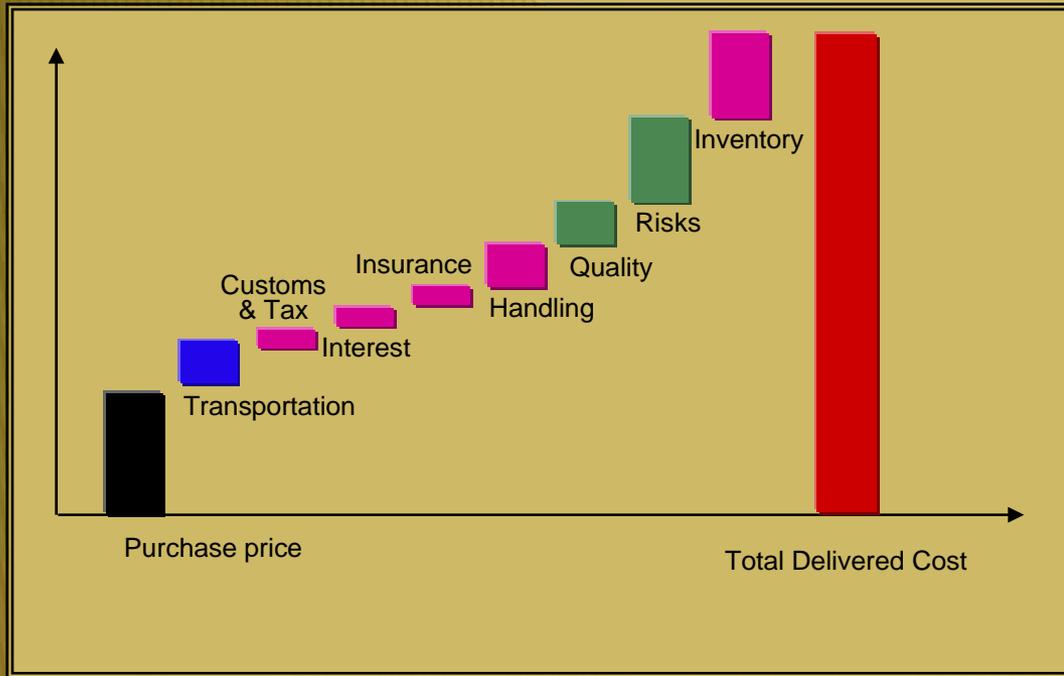
Share through South Carolina and Georgia Ports



- Plastic Matter Or Synth Fibres
- Industrial Chemicals
- Motor Vehic Or Equipment
- Other
- Farm Products
- Misc Chemical Products
- Constr Machinery Or Equipt
- Other Machinery
- Other Food Or Kindred Products
- Other Electrical Equipment
- Fabricated Metal Products
- Pulp, Paper Or Allied Products
- General Industrial Machinery
- Other Chemicals Or Allied Products
- Soap Or Other Detergents
- Clay, Concrete, Glass Or Stone
- Instrum, Photo Equip, Optical Eq
- Meat Or Poultry, Fresh Or Chill
- Rubber Or Misc Plastics
- Other Transportation Equipment
- Nonferrous Metal Basic Shapes
- Engines Or Turbines
- Other Primary Metal Products
- Grain Mill Products
- Industrial Electrical Equipt
- Textile Mill Products

Freight Competitiveness Comparison

Total Delivered Costs



TOTAL Delivered COST

- ▶ Estimates the real cost impact of purchasing decisions.

NETWORK & INVENTORY

- ▶ How much, and where, should additional inventory buffers and value-added-services be located so as to maintain service levels?

RISKS/ QUALITY

- ▶ Supply chain and quality risks are non-financial measures in the decision process.

PURCHASE PRICE

- ▶ Traditionally, Purchasing has been focused on minimizing prices.

TRANSPORTATION COSTS

- ▶ Transportation costs are dynamic and determined by the market, origin, destination, mode, fluctuating fuel prices.

Total Delivered Cost is impacted by inbound supply chain design, inventory, transportation and quantified effect of risk and quality

Crude Oil Price Implications on Transportation Rates in North America

- ▶ **Close observation of crude oil and diesel fuel prices over the past 48 months find that a \$10/barrel increase in the price of crude oil causes a \$0.24/gallon increase in the pump price of diesel fuel**
- ▶ **Historical fuel surcharge methodology increases fuel surcharge \$0.01/mile for every \$0.06 increase in the price of diesel fuel**

And the Consequence is:

- ▶ For every \$10 increase in the price per barrel of crude oil, there will be an additional \$0.04/mile increase in transportation costs.
- ▶ Further analysis is being undertaken to determine the point (s) at which higher fuel-induced transportation costs of truck will prompt alternative mode selections.

Transport Alternatives in Order of Simplicity:

- ▶ Shift from OTR truck to Intermodal/TOFC
- ▶ Transfer to rail car
- ▶ Short-term diversion to outside DC for shorter regional distribution
- ▶ Network realignment to increase number of DC
 - Intermodal service distance
 - Shorter Port to DC distance via Truck-Direct Intermodal to Stores, mini-DCs

Trade Disruption Caused by Oil Price Increases

- ▶ Last three decades of trade liberalization being offset by increased fuel costs.
- ▶ Containership operations vulnerable to fuel price increases.
- ▶ Containership speed factor gain now being weighed against fuel costs.
- ▶ Increase in speed over past 15 years has caused fuel consumption per unit of freight to *double!*
- ▶ In past 3 years, each \$ 1 US rise in world oil prices has fed directly to a 1% rise in transport costs.
- ▶ Soaring transport costs, NOT tariff barriers, are greatest challenge to world trade.
- ▶ Crude oil at \$200 per barrel place us at tariff rates not seen since prior to the Kennedy Round GATT negotiations in the mid-1960s!
- ▶ Labor differentials for example, between Chinese and North American labor costs, are now shrinking under pressure from increased fuel prices. Chinese produced products may now be coming home, or perhaps “closer to home... in Mexico”.
- ▶ At \$200 per barrel crude prices, Mexico’s closeness to the North American consuming population presents a huge fuel-saving advantage.

The Questions Are....

- ▶ **Just how quickly will these changes be put into place?**
- ▶ **Are there factors that can forestall major changes?**
- ▶ **What are US Ports to think/do?**
- ▶ **Who gains? Who loses?**

The Transportation Sourcing Marketplace

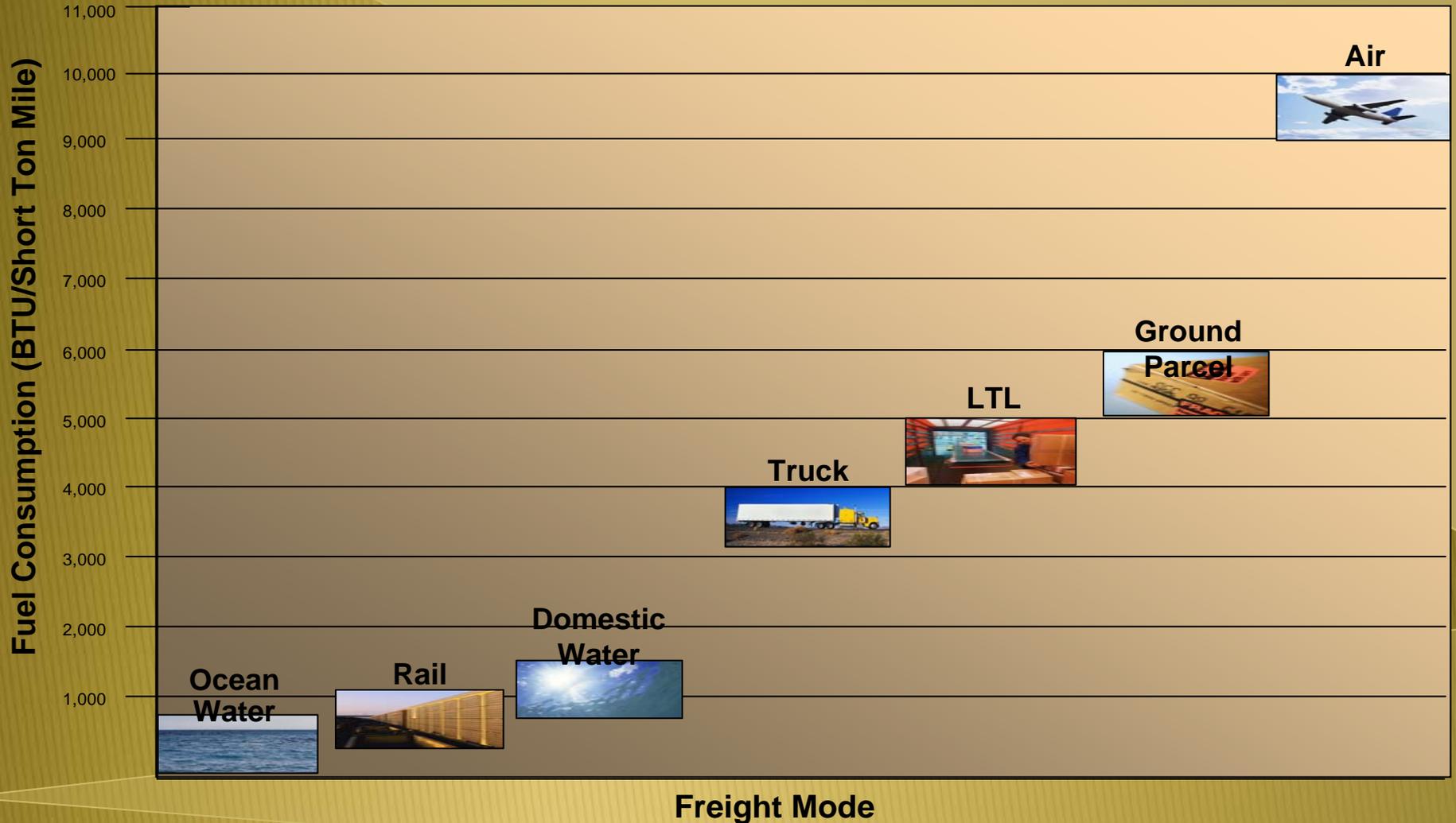
The current transportation headlines from the industry press....

- While the long-term outlook still calls for tight capacity, carriers have been more willing to negotiate rates recently due to softening volumes.
- TL carriers are consolidating and broadening their range of services.
- Increasing demand for rail carload and inter-modal will exert pressure for rate increases.
- Though domestic express parcel demand is flattening, major carriers are expected to increase rates and accessorial charges to cope with growth in global markets, trade, environment and security requirements.
- Ocean carriers have had limited success imposing rate increases in the Asia-US trade route despite healthy utilization rates, while Asia-North Europe rate increases will be more successful.

The Transportation Sourcing Marketplace

- ▶ **Some shippers are implementing dedicated and/or private fleets to lock in capacity and improve control.**
- ▶ **TMS technology continues to add functionality and provide more flexible solutions such as software as a service.**
- ▶ **There are increasing demands on carriers by customers and customer's customers to provide on-line visibility to product tracking.**
- ▶ **Consistent increase in fuel price with no downward trend outlook has forced shippers to re-evaluate freight modes and transportation operational efficiency.**
- ▶ **3rd party transportation service providers are aggressively pursuing business and expanding the breadth and depth of services provided.**

Fuel Consumption By Freight Mode



Container Shipping Rates Reflect Demand, Supply and Operating Cost

Demand factors

- ▶ Demand is driven by imports tied to consumer spending
- ▶ Demand on the reverse (backhaul) directions is typically far lower, causing an imbalance

Supply factors

- ▶ Construction of new vessel capacity largely drives supply
- ▶ How the lines decide to deploy their tonnage impacts supply on each lane

Demand/supply balance

- ▶ Vessel capacity utilization is a good measure of demand/supply balance on a lane
- ▶ Intermodal rail requires balanced flows
- ▶ Export surge is currently causing a shortage of containers

Cost factors

- ▶ Vessel construction, fuel, manning and inland transport are major cost drivers
- ▶ Fuel, in particular, is an important factor and will be even more so in the future

Outlook for Ocean Freight Rates Varies by Lane for 2008/09

Base contract rates

- ▶ Increase of 21% 2008 vs. 2007 levels (including ocean, inland and fuel)
- ▶ East Coast (all-water) rates will increase more than West Coast rates, due to concerns over expiring West Coast dockworker contract and fuel charges
- ▶ Weak US import demand will be offset by carriers shifting vessels to other lanes

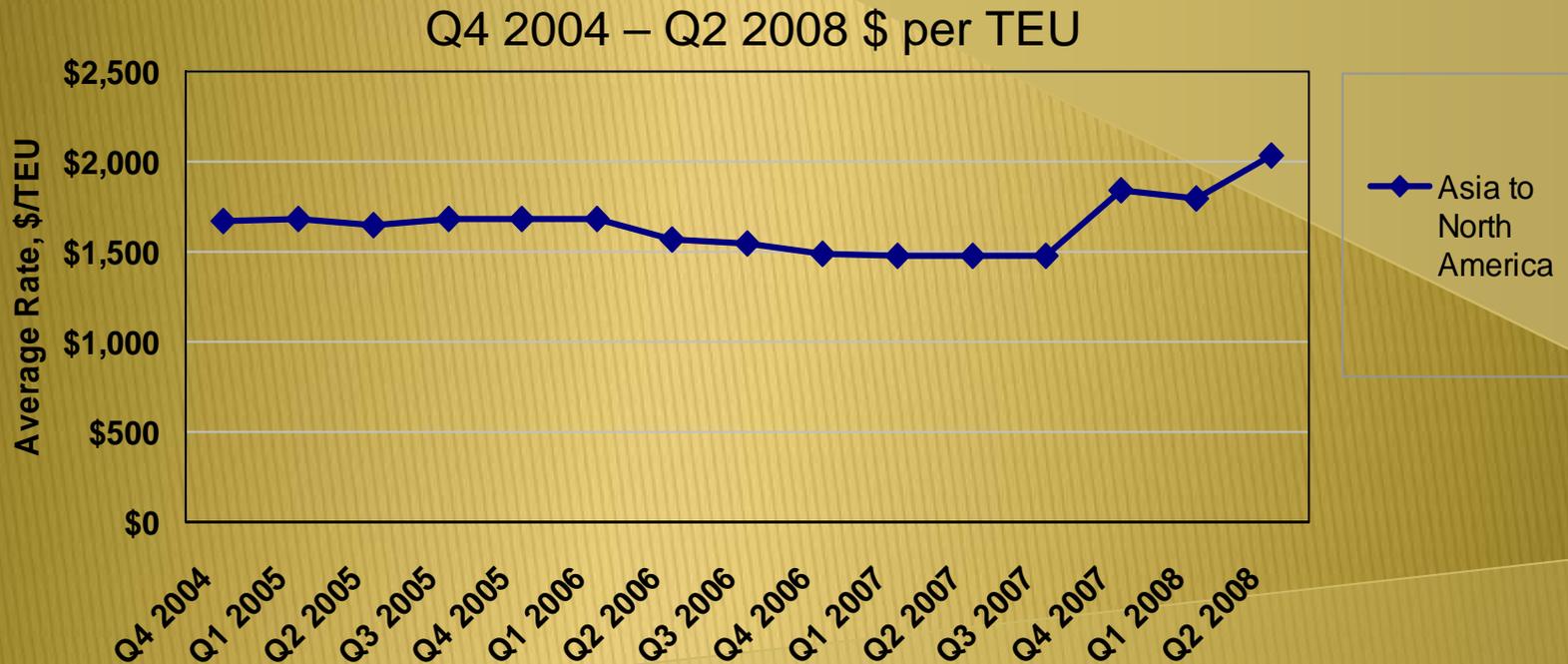
Fuel surcharge (included in above percentages)

- ▶ Carriers require, even for large shippers, an adjustable fuel surcharge (negotiable)
- ▶ Surcharge typically based on a published fuel price index and vessel size, transit time, and capacity utilization – though approach may vary between lines

Note: Published freight rate forecasts for 2008 vary considerably. Our view is considered likely but entails a wide margin of error.

Average Container Rates by Lane

Asia to North America published rates significantly increased as of



Source: *Containerisation International*, December issues for 2005, 2006 and 2007. *Journal of Commerce* Jan 1, April 24 and May 19 2008 issues. Weighted average rates. Rates include CAFs, BAFs, THCs, etc. Carriers that submit the data include port-to-port and intermodal through rates. The Asia/NA trade is a mix of West Coast and all-water East Coast, intermodal rates, etc.

Ocean Freight Routing Cost Comparison

► Costs comparison between Charleston, LA, Norfolk and Savannah to major markets from China:

Origin	Destination	Estimated Truck / IMDL Cost (w/fuel)	Estimated Ocean Cost (w/fuel)	Total Transport Cost
Charleston, SC	Atlanta	\$ 873	\$ 4,950	\$ 5,823
Charleston, SC	Dallas	\$ 2,171	\$ 4,950	\$ 7,121
Charleston, SC	Chicago	\$ 1,563	\$ 4,950	\$ 6,513
Charleston, SC	Memphis	\$ 1,310	\$ 4,950	\$ 6,260
Charleston, SC	NY	\$ 2,383	\$ 4,950	\$ 7,333
Charleston, SC	Orlando	\$ 1,067	\$ 4,950	\$ 6,017
Savannah, GA	Atlanta	\$ 774	\$ 4,950	\$ 5,724
Savannah, GA	Dallas	\$ 2,046	\$ 4,950	\$ 6,996
Savannah, GA	Chicago	\$ 1,652	\$ 4,950	\$ 6,602
Savannah, GA	Memphis	\$ 1,195	\$ 4,950	\$ 6,145
Savannah, GA	NY	\$ 2,588	\$ 4,950	\$ 7,538
Savannah, GA	Orlando	\$ 947	\$ 4,950	\$ 5,897
Norfolk, VA	Atlanta	\$ 1,196	\$ 4,950	\$ 6,146
Norfolk, VA	Dallas	\$ 2,243	\$ 4,950	\$ 7,193
Norfolk, VA	Chicago	\$ 1,521	\$ 4,950	\$ 6,471
Norfolk, VA	Memphis	\$ 1,741	\$ 4,950	\$ 6,691
Norfolk, VA	NY	\$ 1,451	\$ 4,950	\$ 6,401
Norfolk, VA	Orlando	\$ 1,704	\$ 4,950	\$ 6,654
Los Angeles, CA	Atlanta	\$ 2,585	\$ 3,600	\$ 6,185
Los Angeles, CA	Dallas	\$ 1,908	\$ 3,600	\$ 5,508
Los Angeles, CA	Chicago	\$ 2,556	\$ 3,600	\$ 6,156
Los Angeles, CA	Memphis	\$ 2,592	\$ 3,600	\$ 6,192
Los Angeles, CA	NY	\$ 3,319	\$ 3,600	\$ 6,919
Los Angeles, CA	Orlando	\$ 2,628	\$ 3,600	\$ 6,228

- *In general, costs via Charleston are competitive with those via LA to Atlanta, Memphis and Orlando.*
- *Low cost routing via the ports shown to each of the six markets noted:*
 - *Via Savannah to Atlanta, Memphis and Orlando*
 - *Via Norfolk to NY*
 - *Via LA to Dallas and Chicago*

Red highlights indicate where rates from Charleston, Savannah or Norfolk are at least 5% higher than from LA; Yellow indicates rates that are within 5% of LA rates; Green indicates where rates from Charleston, Savannah or Norfolk is at least 5% lower than via LA.

Rail

Intermodal Service

- ▶ Typically intermodal IPI line haul costs/charges are buried in door-to-door ocean transport rates.
- ▶ West coast intermodal mentality cannot be transferred to the east coast (i.e., no unit trains from terminals or even port complexes requires everything to go through Atlanta).
 - Requires density, balanced flows and consistency.
- ▶ Fuel costs, economic slowdown and shipper routing decisions are causing a shift in intermodal container traffic.
 - Domestic container volumes continue to grow due to increases in transloading and shift to rail versus highway transport
 - Eastbound (west coast originating) ocean container traffic down significantly
 - Westbound (east coast originating) container traffic up reflecting shippers more frequently choosing all water routes
- ▶ Short haul intermodal, becomes more attractive as trucking costs rise
 - Perceived minimum rail miles of 700-800 to make intermodal work now open to consideration in lanes as short as 300-400 miles
- ▶ Currently, because of access to IY's, both railroads do double the IPI business out of Savannah over Charleston
 - NS will go from 90K lifts to 178K lifts in Savannah compared to a static 88K in Charleston

Rail (Continued)

▶ Facilities and Capacities

- CSX has upgraded capacity and intermodal capability between Charleston and Columbia; NS already has upgraded the capacity and capability
- Charleston has poor on-dock or near dock intermodal connections/facilities. No rail service at all at Wando. Columbus Street cannot take unit trains
- Both CSX and NS serve near dock IY's in Savannah
- Both railroads are requesting on-dock or near-dock facilities at new SCPA NBCT with northern access
- CSX has improved the "National Gateway" between Wilmington to Baltimore to handle increased double stack trains
- CSX has significantly increased capacity on the Atlanta to Indiana/Ohio/Chicago lane for double stack and greater volumes
- NS has put a lot of \$\$ into the Heartland Corridor (Norfolk to Columbus, OH)

▶ Non-containerized Cargoes are still very profitable services for both NS and CSX

- Autos
- Transload from boxcar to/from containers
- Bulk (dry and liquid), project and breakbulk cargoes
- Overweight

Inland Ports and Distribution Centers

- ▶ **Intermodal terminals, inland ports and distribution/transloading centers must be located in the right locations to be sustainable:**
 - Must be on existing transportation infrastructure
 - Must be located to serve large markets
- ▶ **Considerations relative to inland ports**
 - Origin and ultimate destination of freight
 - Cost of alternatives (freight, labor, facilities, re-handling, etc.)
 - Capacity/service (port, ocean carriers, rail, truck, etc.)
 - Customer demographics / market proximity
 - Speed to market and supply chain variability tolerance
- ▶ **Charleston's relatively shorthaul truck lanes to Atlanta and Charlotte negate any potential benefit of a rail "shuttle" scenario to service those markets**
- ▶ **CSX is developing their Winterhaven, FL complex similar to BNSF's Logistics Park in Joliet, IL for SE United States hub**

Truckload

Cost:

- ▶ From a rate perspective, truckload costs from Charleston to the southeast and southwest compare favorably to Norfolk originating freight.
- ▶ Charleston's truckload rates also compare favorably to the northeast versus Savannah

Service and capacity:

- ▶ SC is well positioned in eastern corridor
 - Florence is mid-way between NY and FL
- ▶ Typically these areas have more than adequate capacity availability:
 - Rock Hill
 - Florence
 - Columbia

Seasonality/pricing variability:

- ▶ Produce season impacts area with price/capacity challenges especially in:
 - Charleston
 - Aiken (S. Georgia produce)
 - Produce season prices spike up to 30% (4/15-6/15)
- ▶ Retail season does not impact the SE as much as west coast and northeast

Relative to service and capacity SC's neighboring states have similar characteristics

Truckload Cost Comparison

- ▶ TL costs comparisons between Charleston, Norfolk and Savannah to major markets:

Origin	Destination	Miles	Estimated Rate
Charleston, SC	Atlanta	319	\$ 650
Charleston, SC	Dallas	1,101	\$ 1,400
Charleston, SC	Chicago	911	\$ 925
Charleston, SC	Memphis	693	\$ 832
Charleston, SC	NY	762	\$ 1,850
Charleston, SC	Orlando	381	\$ 800
Savannah, GA	Atlanta	248	\$ 600
Savannah, GA	Dallas	1,030	\$ 1,325
Savannah, GA	Chicago	1,003	\$ 950
Savannah, GA	Memphis	636	\$ 763
Savannah, GA	NY	804	\$ 2,025
Savannah, GA	Orlando	281	\$ 750
Norfolk, VA	Atlanta	566	\$ 800
Norfolk, VA	Dallas	1,347	\$ 1,300
Norfolk, VA	Chicago	887	\$ 900
Norfolk, VA	Memphis	915	\$ 1,098
Norfolk, VA	NY	359	\$ 1,200
Norfolk, VA	Orlando	755	\$ 1,175

- ▶ *In general, SC's TL costs compared to those of Savannah are favorable to: New York*
- ▶ *SC's TL costs compared to those of Norfolk are favorable to: Atlanta, Memphis and Orlando*

Red highlights indicate where rates from SC are at least 5% higher; Yellow indicates rates that are within 5% of SC rates; Green indicates rates where SC is at least 5% lower

LTL, Parcel and Airfreight

- ▶ **South Carolina's LTL, Parcel and Airfreight service providers are consistent with those of neighboring states**
- ▶ **South Carolina is positioned well with access to I-95 (N-S) and I-20 (E-W)**
- ▶ **Cost:**
 - **LTL in general, to major US markets (NY, Chicago, LA, Dallas, Florida and Atlanta) SC's LTL costs compare favorably to those of FL and VA. SC compares less favorably to GA, AL, and TN to major US markets. Rates are competitive with those of KY and NC.**
 - **Parcel: In general, to major US markets, SC's parcel costs are competitive with KY, FL and VA, however, they compare less favorably to those of GA, AL and TN**
 - **Airfreight: No significant differences in cost structure noted between SC and neighboring states**
- ▶ **Service:**
 - **The parcel freight service maps illustrates transit times (for ground parcel service from SC and GA)**
 - **SC's advantages include: 1 day service to SC, NC and S. VA; 2 day service to upstate NY and CT**
 - **GA's advantages include: 1 day service to GA, AL and TN; 2 day service to Dallas and KC; 4 day service to SF**
 - **Louisville and Memphis have an airfreight edge due to UPS and FedEx hub location**

Less than Truckload Cost Comparison

- ▶ LTL costs comparisons between SC and neighboring states to major markets

Origin	Destination	1,000 Lbs Shipment Freight Cost	5,000 Lbs Shipment Freight Cost	10,000 Lbs Shipment Freight Cost
Columbia, SC	Atlanta	\$ 146	\$ 439	\$ 634
Columbia, SC	Dallas	\$ 310	\$ 1,013	\$ 1,398
Columbia, SC	Chicago	\$ 308	\$ 923	\$ 1,135
Columbia, SC	LA	\$ 427	\$ 1,559	\$ 2,558
Columbia, SC	NY	\$ 326	\$ 972	\$ 1,398
Atlanta, GA	Atlanta	\$ 91	\$ 274	\$ 396
Atlanta, GA	Dallas	\$ 284	\$ 926	\$ 1,296
Atlanta, GA	Chicago	\$ 269	\$ 759	\$ 957
Atlanta, GA	LA	\$ 407	\$ 1,488	\$ 2,440
Atlanta, GA	NY	\$ 355	\$ 1,105	\$ 1,575
Birmingham, AL	Atlanta	\$ 128	\$ 384	\$ 554
Birmingham, AL	Dallas	\$ 250	\$ 787	\$ 1,103
Birmingham, AL	Chicago	\$ 257	\$ 724	\$ 911
Birmingham, AL	LA	\$ 397	\$ 1,451	\$ 2,379
Birmingham, AL	NY	\$ 366	\$ 1,138	\$ 1,616
Greensboro, NC	Atlanta	\$ 175	\$ 524	\$ 766
Greensboro, NC	Dallas	\$ 321	\$ 1,048	\$ 1,438
Greensboro, NC	Chicago	\$ 308	\$ 923	\$ 1,135
Greensboro, NC	LA	\$ 439	\$ 1,606	\$ 2,634
Greensboro, NC	NY	\$ 274	\$ 819	\$ 1,158

- ▶ **Red highlights indicate where rates from SC are at least 5% higher**
- ▶ **Yellow indicates rates that are within 5% of SC rates**
- ▶ **Green indicates rates where SC is at least 5% lower**

Less than Truckload Cost Comparison (continued)

- ▶ LTL costs comparisons between SC and neighboring states to major markets

Origin	Destination	1,000 Lbs Shipment Freight Cost	5,000 Lbs Shipment Freight Cost	10,000 Lbs Shipment Freight Cost
Louisville, KY	Atlanta	\$ 198	\$ 624	\$ 874
Louisville, KY	Dallas	\$ 319	\$ 1,036	\$ 1,723
Louisville, KY	Chicago	\$ 187	\$ 547	\$ 946
Louisville, KY	LA	\$ 397	\$ 1,451	\$ 2,379
Louisville, KY	NY	\$ 262	\$ 923	\$ 1,655
Nashville, TN	Atlanta	\$ 159	\$ 476	\$ 686
Nashville, TN	Dallas	\$ 255	\$ 804	\$ 1,126
Nashville, TN	Chicago	\$ 220	\$ 619	\$ 775
Nashville, TN	LA	\$ 397	\$ 1,451	\$ 2,379
Nashville, TN	NY	\$ 366	\$ 1,138	\$ 1,616
Orlando, FL	Atlanta	\$ 203	\$ 640	\$ 897
Orlando, FL	Dallas	\$ 316	\$ 1,030	\$ 1,418
Orlando, FL	Chicago	\$ 335	\$ 1,005	\$ 1,213
Orlando, FL	LA	\$ 459	\$ 1,679	\$ 2,754
Orlando, FL	NY	\$ 382	\$ 1,189	\$ 1,678
Richmond, VA	Atlanta	\$ 219	\$ 689	\$ 966
Richmond, VA	Dallas	\$ 335	\$ 1,179	\$ 2,112
Richmond, VA	Chicago	\$ 259	\$ 912	\$ 1,635
Richmond, VA	LA	\$ 459	\$ 1,679	\$ 2,754
Richmond, VA	NY	\$ 240	\$ 845	\$ 1,437

- ▶ *In general, SC's LTL costs compare favorably to those of FL and VA.*
- ▶ *SC's LTL costs are competitive with NC and KY*
- ▶ *SC compares less favorably to GA, AL, and TN.*

Parcel (Ground) Cost Comparison

▶ Parcel costs comparisons between SC and neighboring states to major markets

Origin	Destination	O. ZIP	D. Zip	Zone	10 Lbs Package Freight Cost	50 Lbs Package Freight Cost	100 Lbs Package Freight Cost
Columbia, SC	Atlanta	29201	30301	4	\$ 4.83	\$ 12.56	\$ 29.80
Columbia, SC	Dallas	29201	75201	5	\$ 5.22	\$ 15.32	\$ 32.07
Columbia, SC	Chicago	29201	60601	5	\$ 5.22	\$ 15.32	\$ 32.07
Columbia, SC	LA	29201	90001	8	\$ 7.21	\$ 27.30	\$ 42.63
Columbia, SC	NY	29201	10001	4	\$ 4.83	\$ 12.56	\$ 29.80
Atlanta, GA	Atlanta	30301	30301	2	\$ 4.19	\$ 8.75	\$ 27.41
Atlanta, GA	Dallas	30301	75201	5	\$ 5.22	\$ 15.32	\$ 32.07
Atlanta, GA	Chicago	30301	60601	4	\$ 4.83	\$ 12.56	\$ 29.80
Atlanta, GA	LA	30301	90001	8	\$ 7.21	\$ 27.30	\$ 42.63
Atlanta, GA	NY	30301	10001	5	\$ 5.22	\$ 15.32	\$ 32.07
Birmingham, AL	Atlanta	35201	30301	2	\$ 4.19	\$ 8.75	\$ 27.41
Birmingham, AL	Dallas	35201	75201	4	\$ 4.83	\$ 12.56	\$ 29.80
Birmingham, AL	Chicago	35201	60601	4	\$ 4.83	\$ 12.56	\$ 29.80
Birmingham, AL	LA	35201	90001	8	\$ 7.21	\$ 27.30	\$ 42.63
Birmingham, AL	NY	35201	10001	5	\$ 5.22	\$ 15.32	\$ 32.07
Greensboro, NC	Atlanta	27401	30301	3	\$ 4.28	\$ 10.99	\$ 28.13
Greensboro, NC	Dallas	27401	75201	5	\$ 5.22	\$ 15.32	\$ 32.07
Greensboro, NC	Chicago	27401	60601	4	\$ 4.83	\$ 12.56	\$ 29.80
Greensboro, NC	LA	27401	90001	8	\$ 7.21	\$ 27.30	\$ 42.63
Greensboro, NC	NY	27401	10001	4	\$ 4.83	\$ 12.56	\$ 29.80

- **Red highlights indicate where rates from SC are at least 5% higher**
- **Yellow indicates rates that are within 5% of SC rates**
- **Green indicates rates where SC is at least 5% lower**

Parcel (Ground) Cost Comparison

(continued)

► Parcel costs comparisons between SC and neighboring states to major markets

Origin	Destination	O. ZIP	D. Zip	Zone	10 Lbs Package Freight Cost	50 Lbs Package Freight Cost	100 Lbs Package Freight Cost
Louisville, KY	Atlanta	40201	30301	4	\$ 4.83	\$ 12.56	\$ 29.80
Louisville, KY	Dallas	40201	75201	5	\$ 5.22	\$ 15.32	\$ 32.07
Louisville, KY	Chicago	40201	60601	3	\$ 4.28	\$ 10.99	\$ 28.13
Louisville, KY	LA	40201	90001	8	\$ 7.21	\$ 27.30	\$ 42.63
Louisville, KY	NY	40201	10001	5	\$ 5.22	\$ 15.32	\$ 32.07
Nashville, TN	Atlanta	37201	30301	3	\$ 4.28	\$ 10.99	\$ 28.13
Nashville, TN	Dallas	37201	75201	4	\$ 4.83	\$ 12.56	\$ 29.80
Nashville, TN	Chicago	37201	60601	4	\$ 4.83	\$ 12.56	\$ 29.80
Nashville, TN	LA	37201	90001	7	\$ 6.38	\$ 23.63	\$ 39.71
Nashville, TN	NY	37201	10001	5	\$ 5.22	\$ 15.32	\$ 32.07
Orlando, FL	Atlanta	32801	30301	4	\$ 4.83	\$ 12.56	\$ 29.80
Orlando, FL	Dallas	32801	75201	5	\$ 5.22	\$ 15.32	\$ 32.07
Orlando, FL	Chicago	32801	60601	5	\$ 5.22	\$ 15.32	\$ 32.07
Orlando, FL	LA	32801	90001	8	\$ 7.21	\$ 27.30	\$ 42.63
Orlando, FL	NY	32801	10001	5	\$ 5.22	\$ 15.32	\$ 32.07
Richmond, VA	Atlanta	23220	30301	4	\$ 4.83	\$ 12.56	\$ 29.80
Richmond, VA	Dallas	23220	75201	6	\$ 5.67	\$ 19.27	\$ 35.22
Richmond, VA	Chicago	23220	60601	5	\$ 5.22	\$ 15.32	\$ 32.07
Richmond, VA	LA	23220	90001	8	\$ 7.21	\$ 27.30	\$ 42.63
Richmond, VA	NY	23220	10001	3	\$ 4.28	\$ 10.99	\$ 28.13

- *In general, SC's Parcel costs compare are competitive with KY, FL and VA*
- *SC's parcel costs compare less favorably to those of GA, AL and TN*

Conclusions, Recommendations & Next Steps

Conclusions- SCSPA is Expanding Capacity

- ▶ Port has approved and authorized new terminal and infrastructure development
- ▶ Port has highest productivity in the U.S. (additional 900,000 teu throughput capability)
- ▶ Port is an “operating port”= direct control of labor, facilities and market



Port Orientation:

- 5 total terminals in Charleston
- 3 container terminals
- 2 Break-bulk/RoRo
- 47 feet of water in the entrance channel at mean low water
- 45 feet of water in the interior channel at mean low water
- Close to the open sea. All terminals are within 2 hours
- Close to Interstate highways with direct access to 5 Interstates in S.C.
- New container terminal currently underway

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New Charleston Terminal



	PH 1	Full Project
Acres	171	280
Berth	2,400 ft.	3,510 ft.

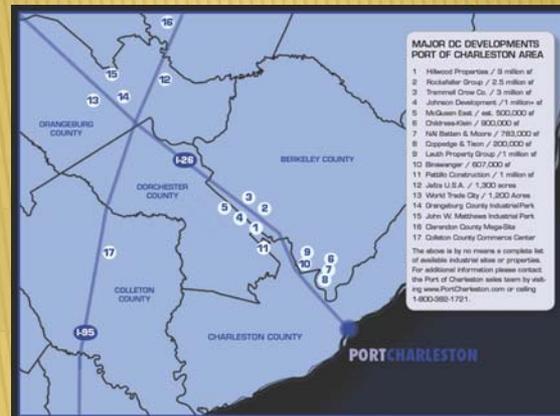
Conclusions – SCSPA Inland Markets

- Existing road and rail infrastructure working well.
- Dispersal of terminals is minimizing choke points and minimizing truck impact. 72 Interchange lanes.
- Rail has “low hanging fruit” to provide improvements:
 - Direct Charleston/Atlanta routing via CSX
 - Improved Charleston/Charlotte routing via CSX
 - Already enhanced NS service Charleston/Charlotte is available
 - NS has invested heavily in improved track sidings for coal business which has benefited intermodal business as well

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Conclusions – Port has “Surge” Capability

- ▶ Prepared for a short-term surge and continual improvement of operations in advance of cargo forecasts.
- ▶ Developers are adding 20+ million sf of class A industrial DCs within 30 miles of the Port of Charleston.
- ▶ These are spec buildings. Some are available now. Several very large ones are to hit the market in the coming year.



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Recommendations

- ▶ Build upon the “sweet spot” IPI markets
- ▶ Encourage the enhancement of infrastructure capacity (road and rail) improvements for:
 - Charleston
 - Columbia
 - Greenville/Spartanburg
- ▶ Encourage major industrial developments, logistics & distribution centers and Mfg complexes to locate near existing major transportation corridors

Recommendations (Continued)

- ▶ Engage the “political machine” fully
 - Marketing the potential client
 - Federal and private financing
 - Environmental mitigation
 - Streamline and expedite permitting requirements and procedures
- ▶ Support SCSPA in their efforts to expand capacity and grow the business
 - Road and rail access to container terminals
 - Coordinated environmental review and permitting

Next Steps

- ▶ **Transfer data and information to State Rail Plan Study team(s)**
- ▶ **Legislature needs to understand and appreciate Port's growth, expansion planning and capacity constraints**