

DYNAMICS OF THE U.S. MARINE TRANSPORTATION SYSTEM AND KEY ISSUES FACING THE U.S. PORT INDUSTRY

***A PRESENTATION TO:
AAPA TERMINAL MANAGEMENT PROGRAM***

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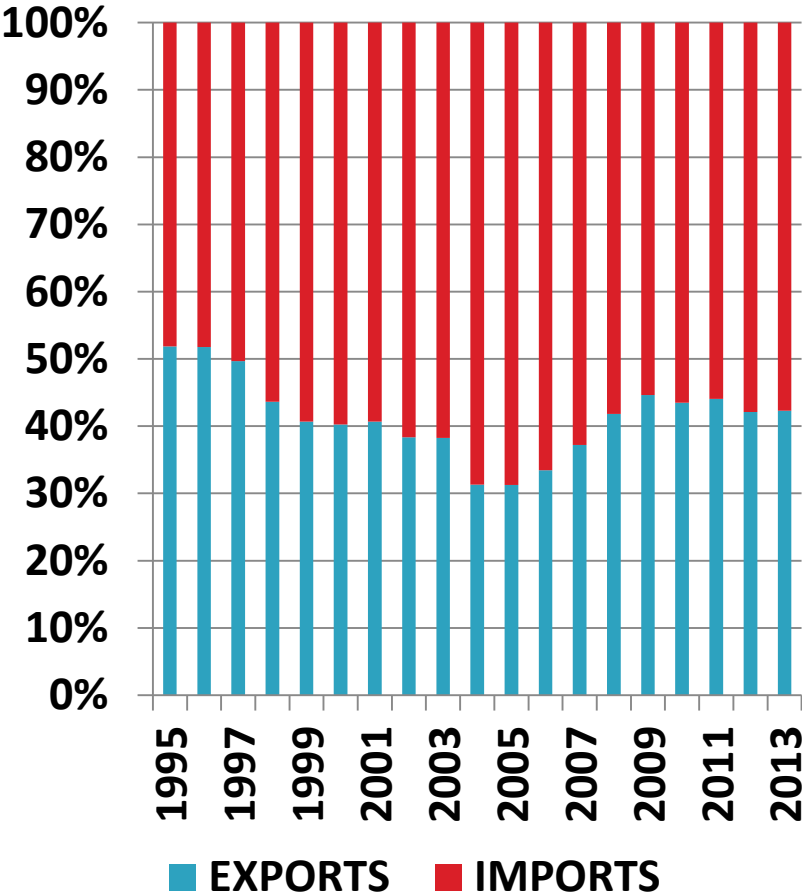
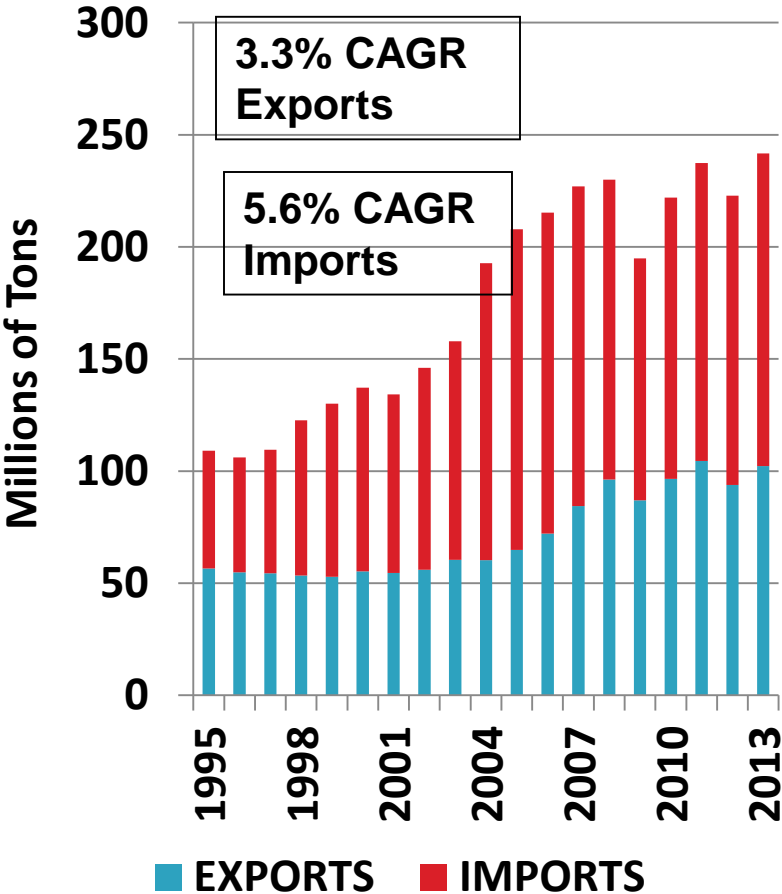
OCTOBER 6, 2014

Topics of the Day

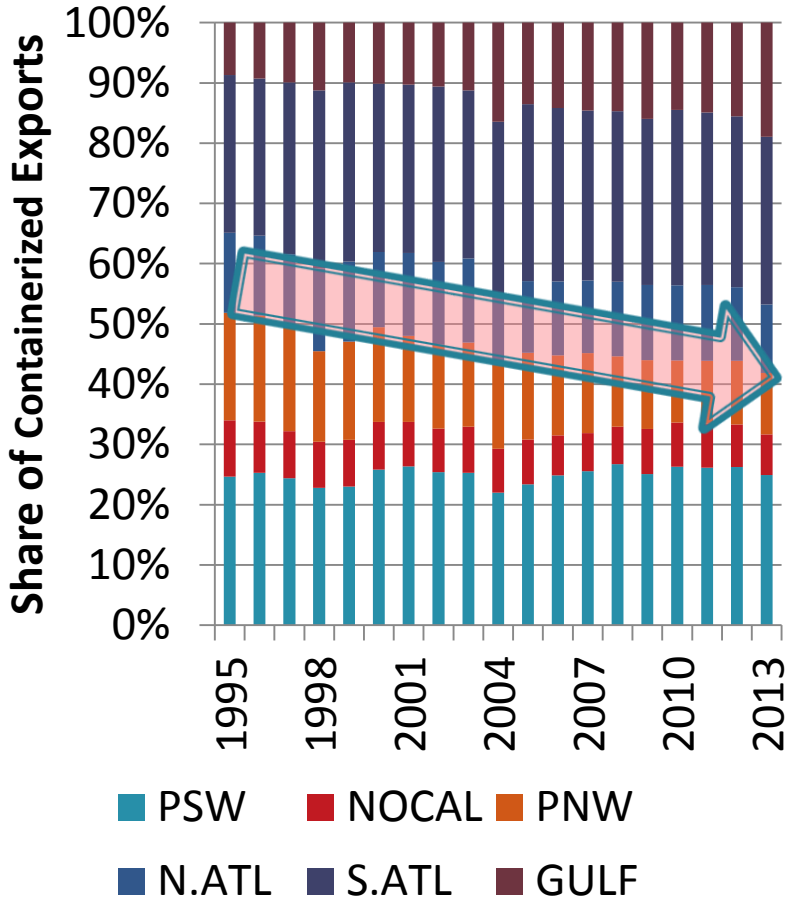
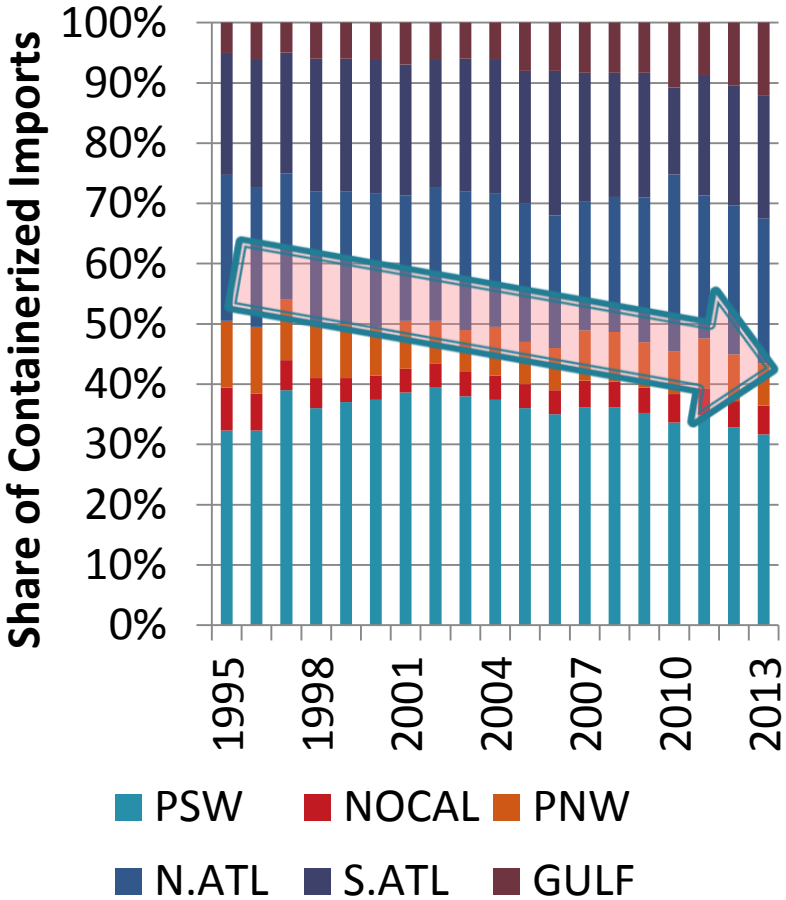
- **Panama Canal vs. Suez Canal**
- **Implications for port strategies**
- **Challenges of successful navigational projects –
Federal funding crisis**
- **The need for private sector investment**

PANAMA VS. THE SUEZ

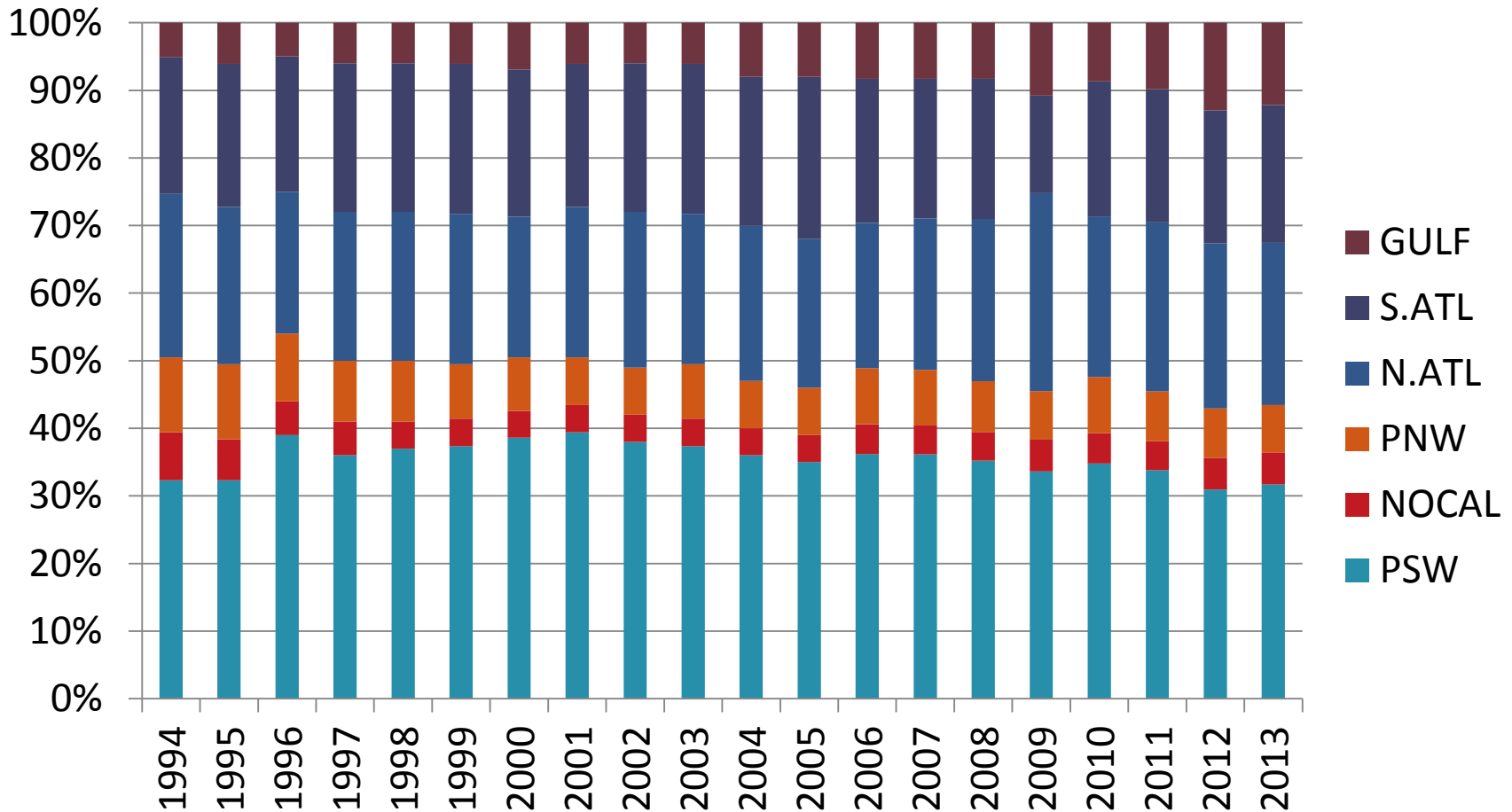
In Terms of Tonnage, Containerized Cargo Reached a Record Year in 2013 – Imported Containerized Cargo Dominates, but Exports Have Been Increasing Since 2005



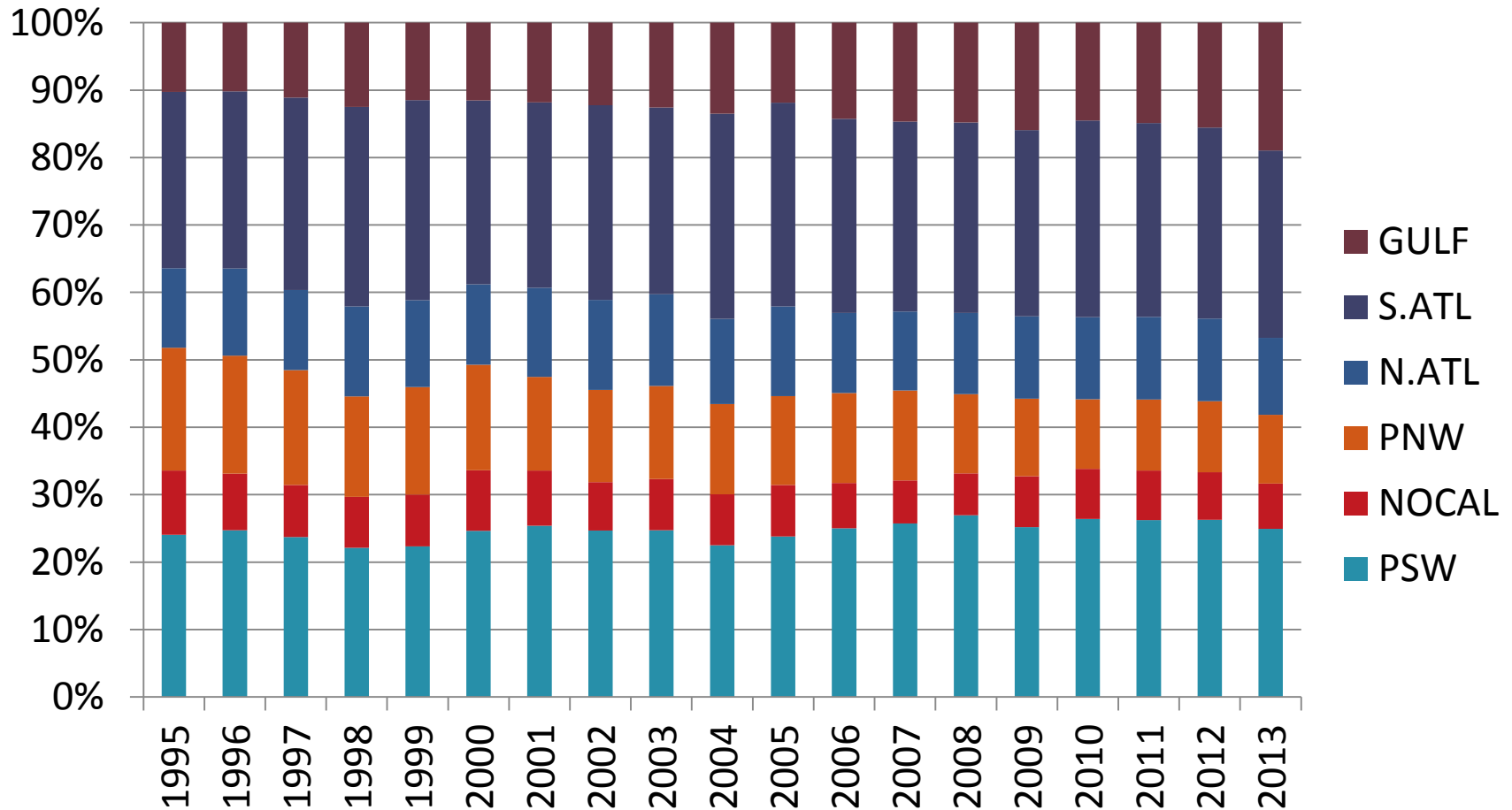
West Coast Ports Handle About 45% of Containerized Imports, However Share Has Been Declining Since 2001; Similarly, about 60% of Containerized Exports Move over East and Gulf Coast Ports, Primarily the South Atlantic



Southern California Ports (PSW) Handle About 30% of All Import Tonnage, but Other Port Ranges are Growing

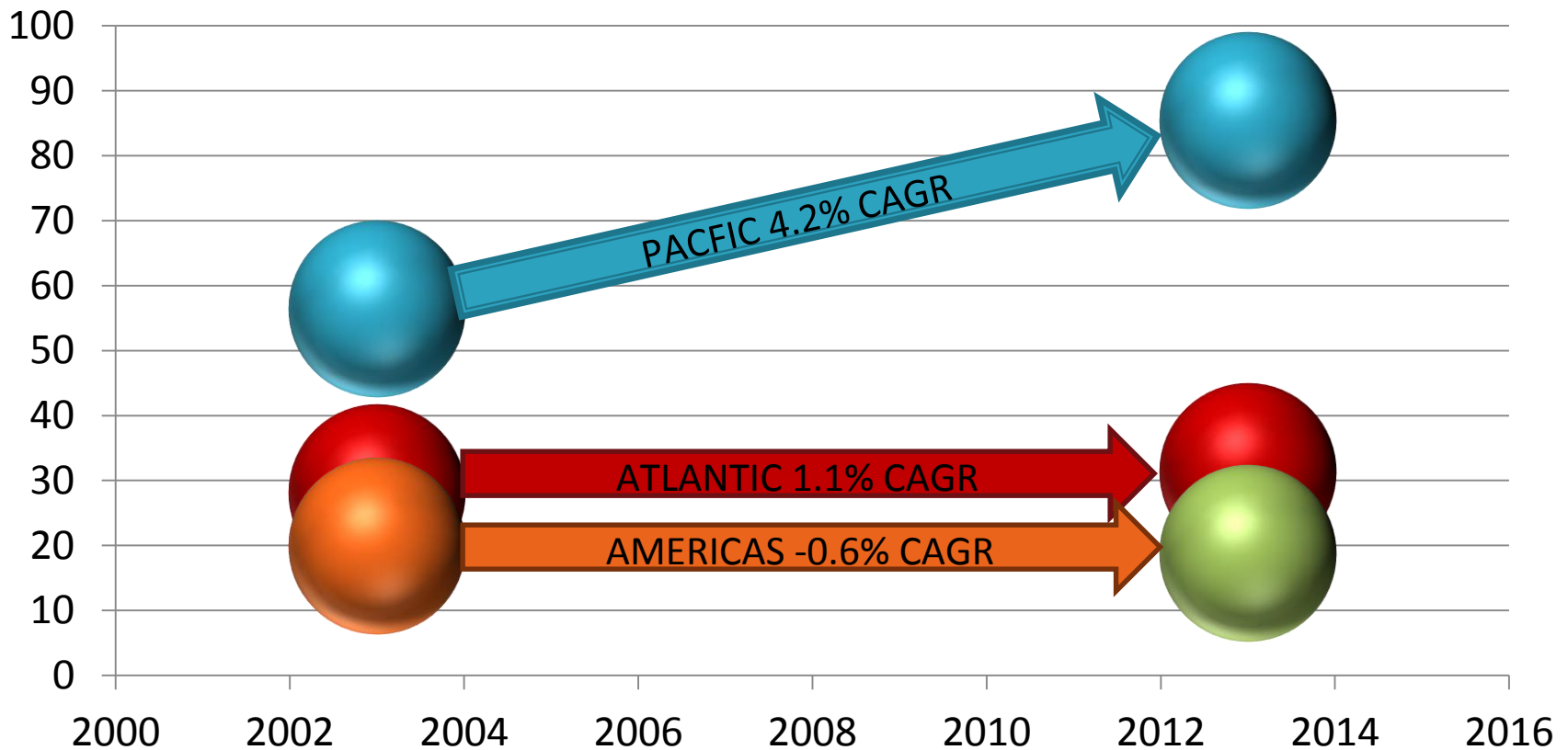


South Atlantic and Gulf Coasts Are Increasing Share of Container Exports



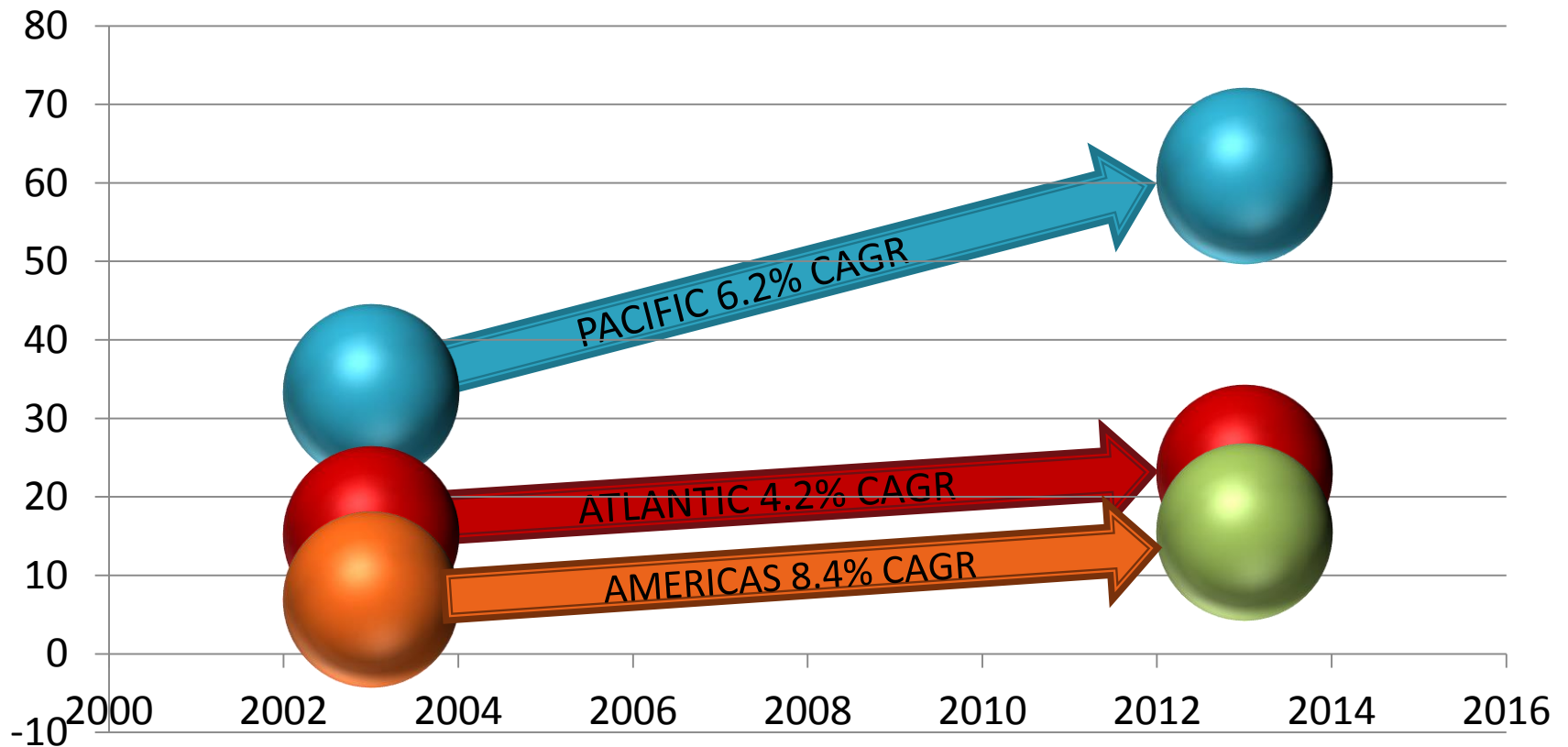
3.6% CAGR in Imports Between 2003-2013

MILLIONS OF CONTAINERIZED TONS



5.4% CAGR in Exports Between 2003-2013

MILLIONS OF CONTAINERIZED TONS



Shocks have Occurred in the Existing Logistics Patterns of Importers/BCOs and These Changes Primarily Occurred Between 2002 and 2007

- **Consolidation of imports via San Pedro Bay (Los Angeles and Long Beach) Ports - mid 1990's:**
 - Distribution Center (DC) growth
 - Cross-dock operations
 - Rail investments in LA/LB to Midwest routings
- **But then...**
 - 9/11
 - West Coast Shutdown (2002)
 - Capacity issues – land and labor shortages
 - Rail and truck shortages
 - High intermodal rates
 - Search for alternatives
- **And more recently...**
 - Shifting production centers
 - Economic crisis
- ***Leads to growth in all-water services...***

All-Water Services are Growing...

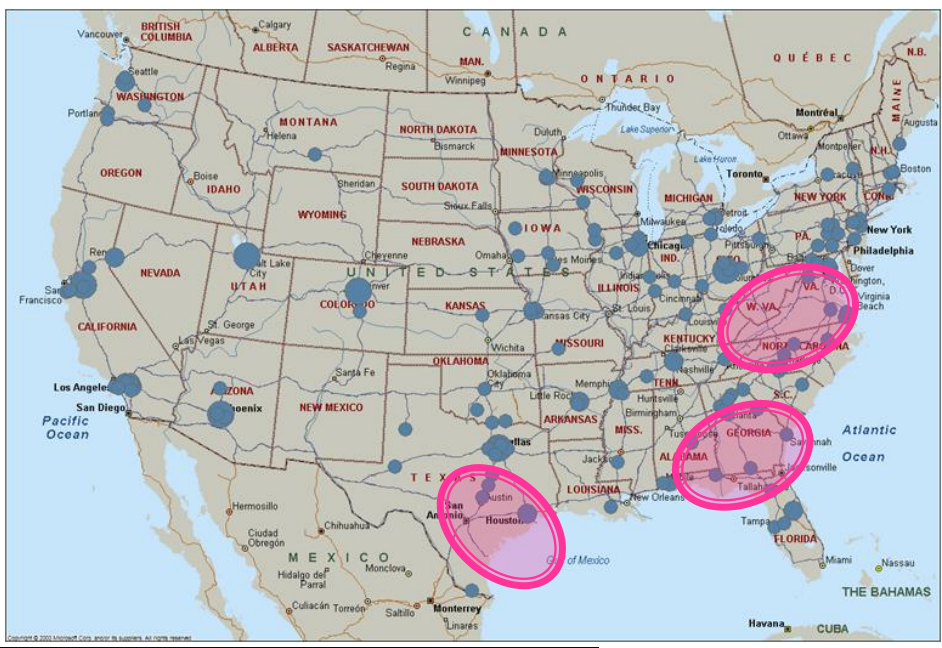
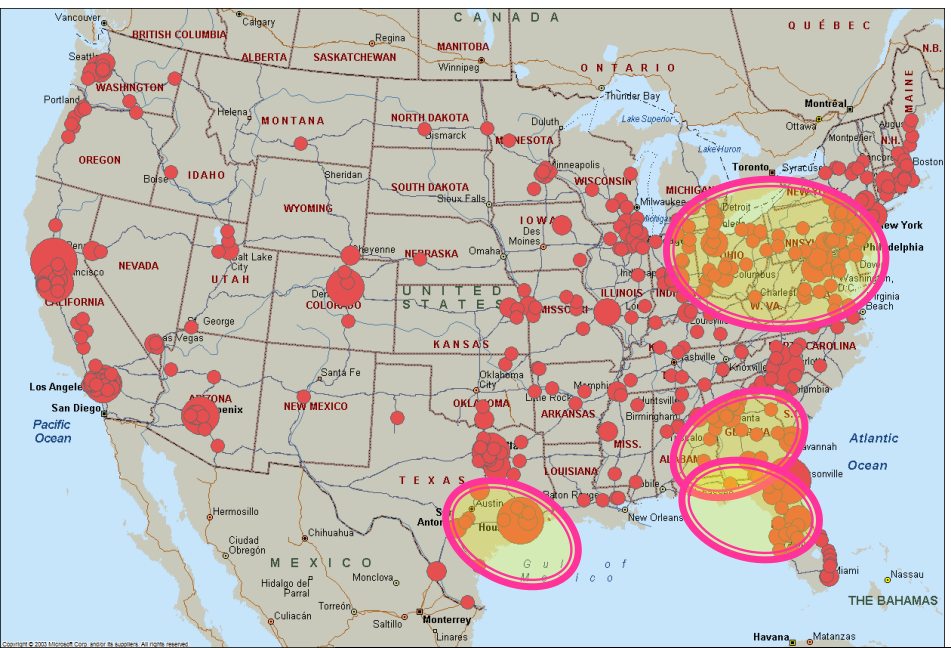
- Significant growth in distribution centers in Gulf and Atlantic port ranges
- Proximity to Southern Asia/India is a positive for Suez Canal routings
- With direct services to East and Gulf Coast, transit time differentials are narrowing
- Port infrastructure investment on East and Gulf Coasts has responded:
 - Terminal development
 - Rail infrastructure



Significant Growth in Distribution Centers in Gulf and Atlantic Port Ranges have Driven Growth in All-Water Services

- Top 25 Retailers

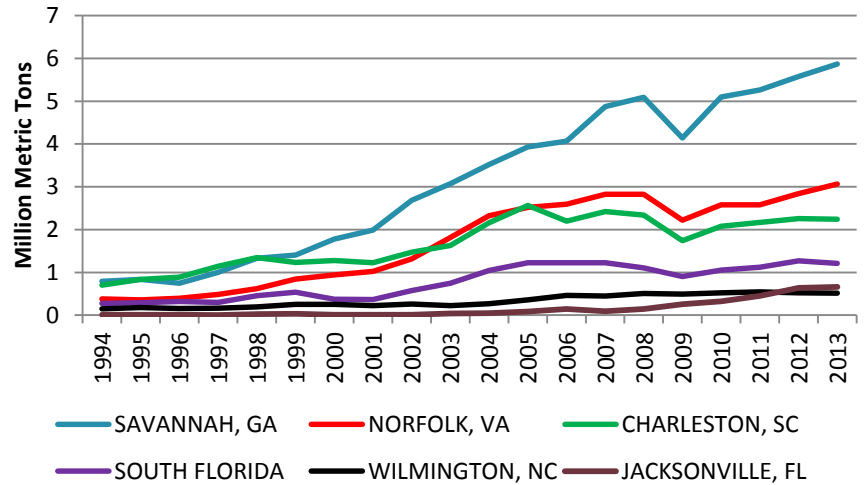
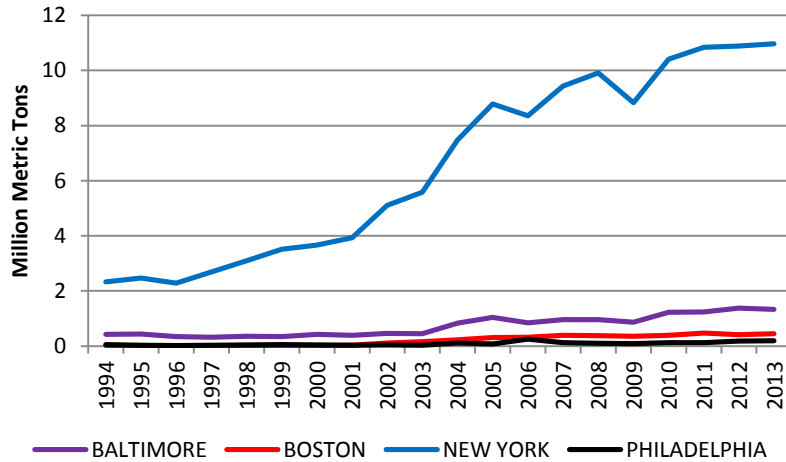
- 26-50 Retailers



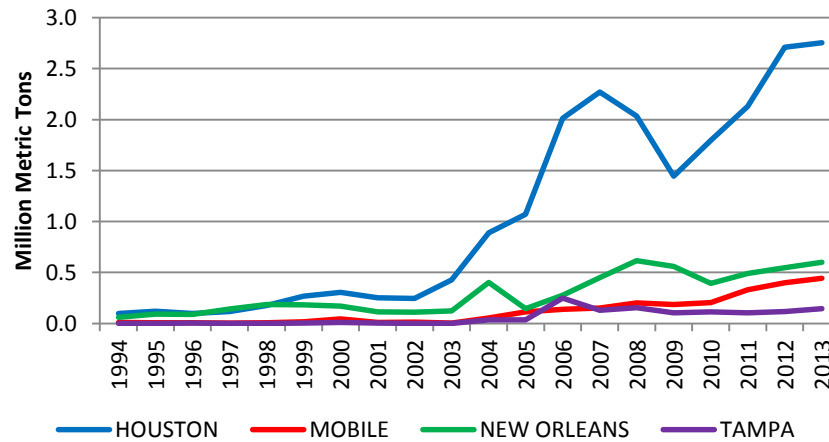
Three areas experiencing declining vacancies: LA, Chicago and Central PA - Lehigh Valley and I-78 Corridor

Source: Chain Store Guide, National Retail Federation

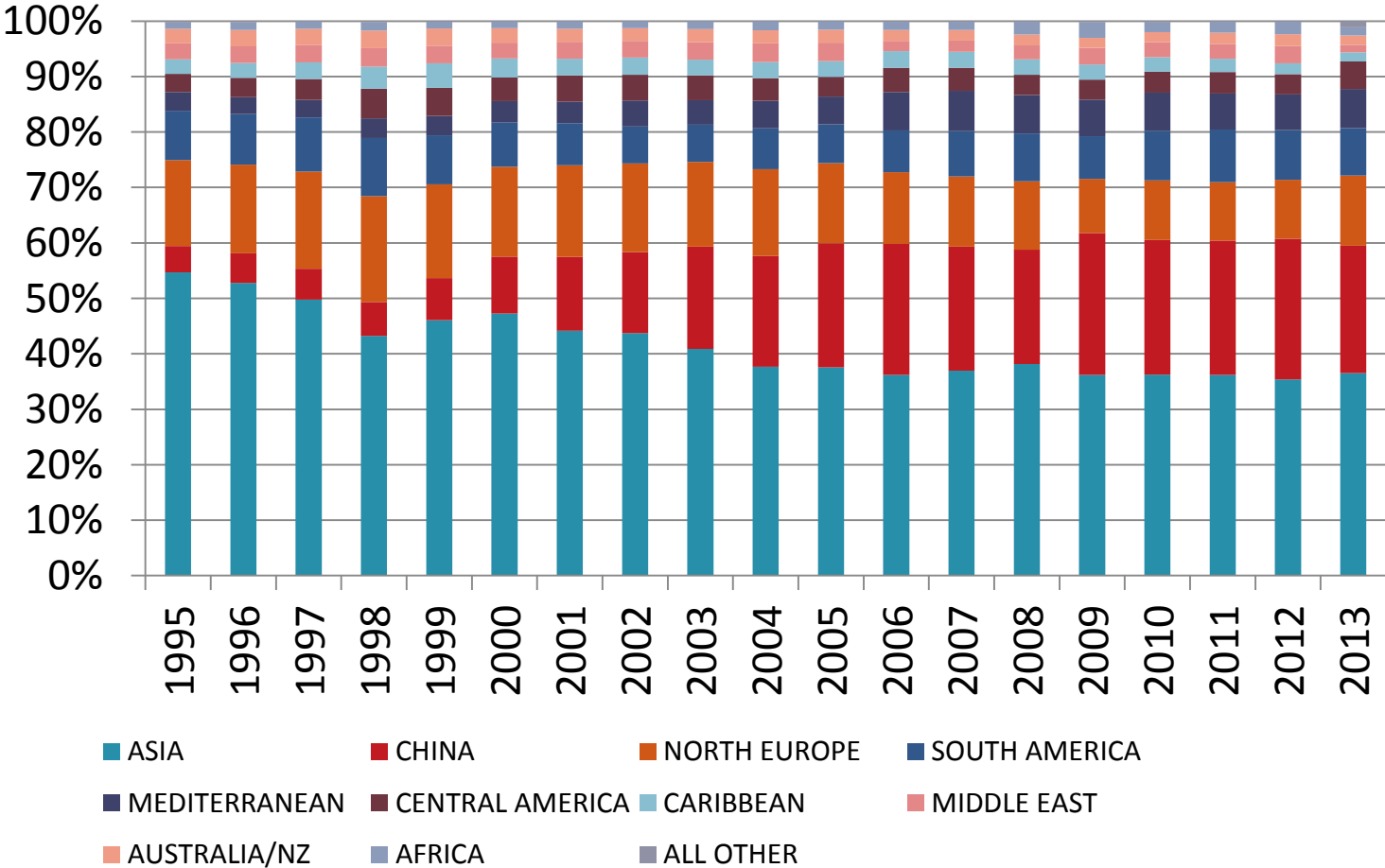
Growth in All-Water Services Accelerated After 2002 - Asian Imports Via Atlantic and Gulf Coast Ports



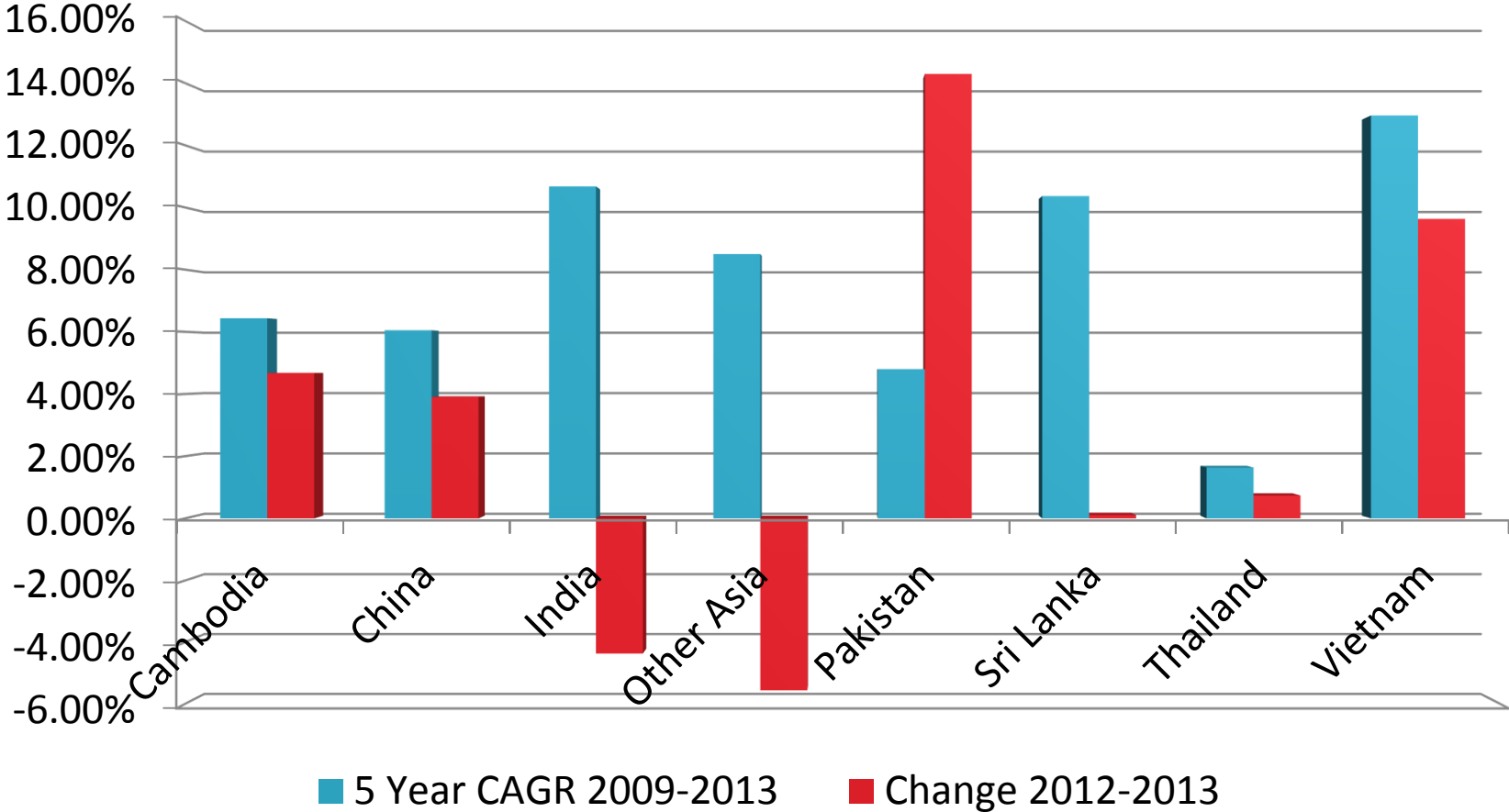
Gulf Coast



China Has Been Responsible for Nearly 40% of Imported Containerized Tonnage



However, Asian Supply Sources are Shifting – Favor Suez Routing



Southwest Asian Supply Sources Favor a Suez All-Water Routing to the East Coast

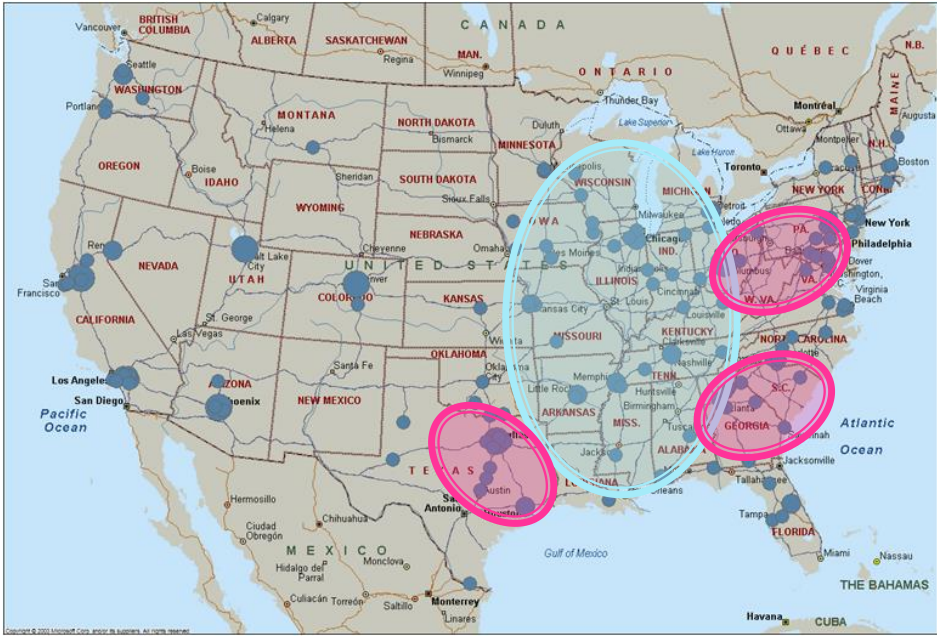
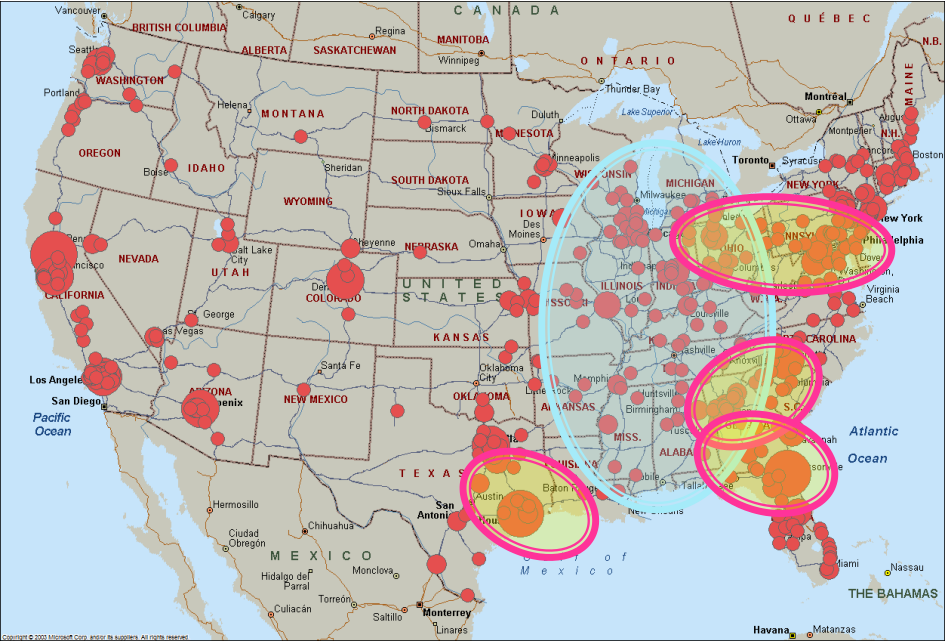


Source: U.S. Bureau of Census, USA Trade Online

The Midwest is the Battleground for All-Water vs. Trans-Pacific Service

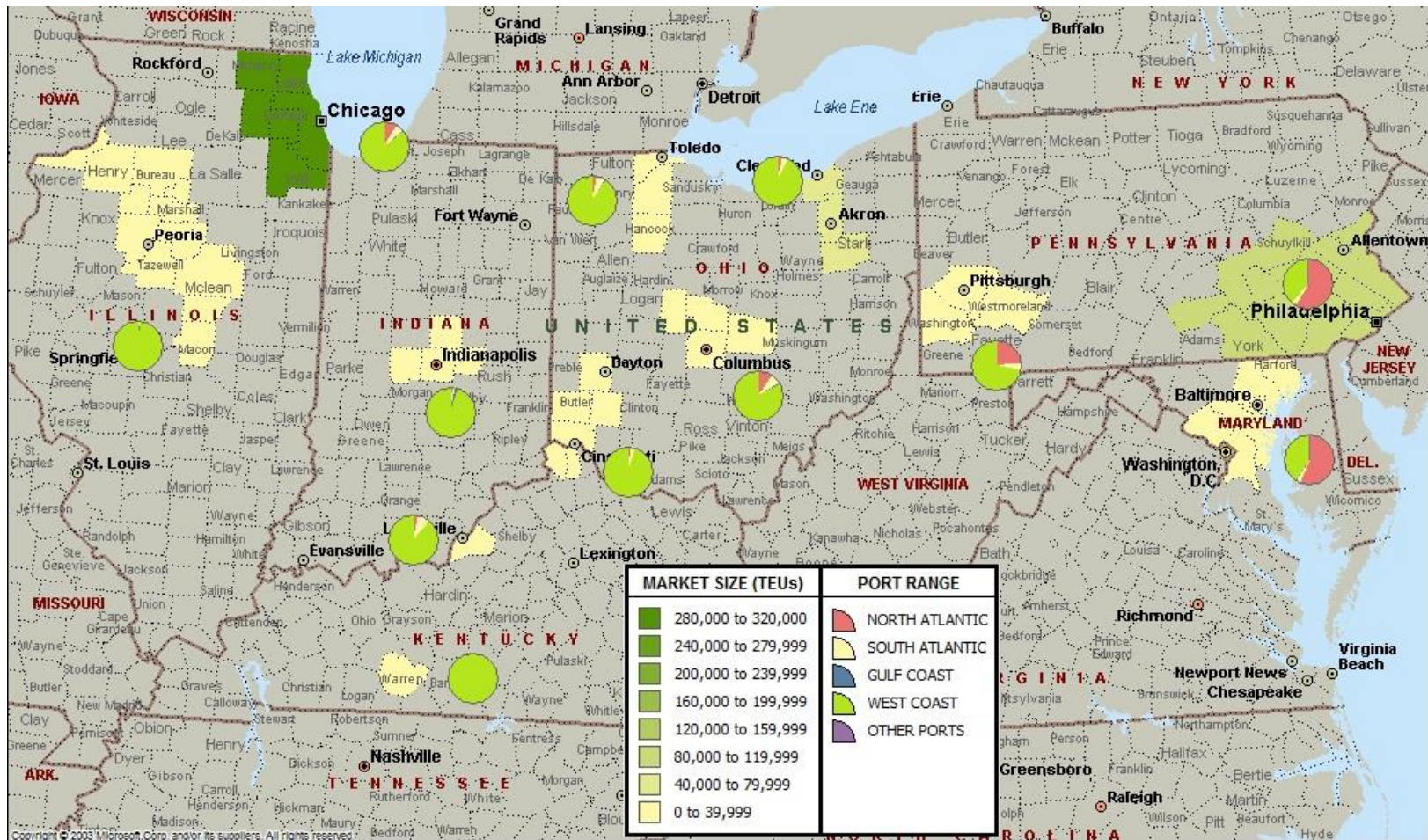
- Top 25 Retailers

- 26-50 Retailers



Source: Chain Store Guide, National Retail Federation

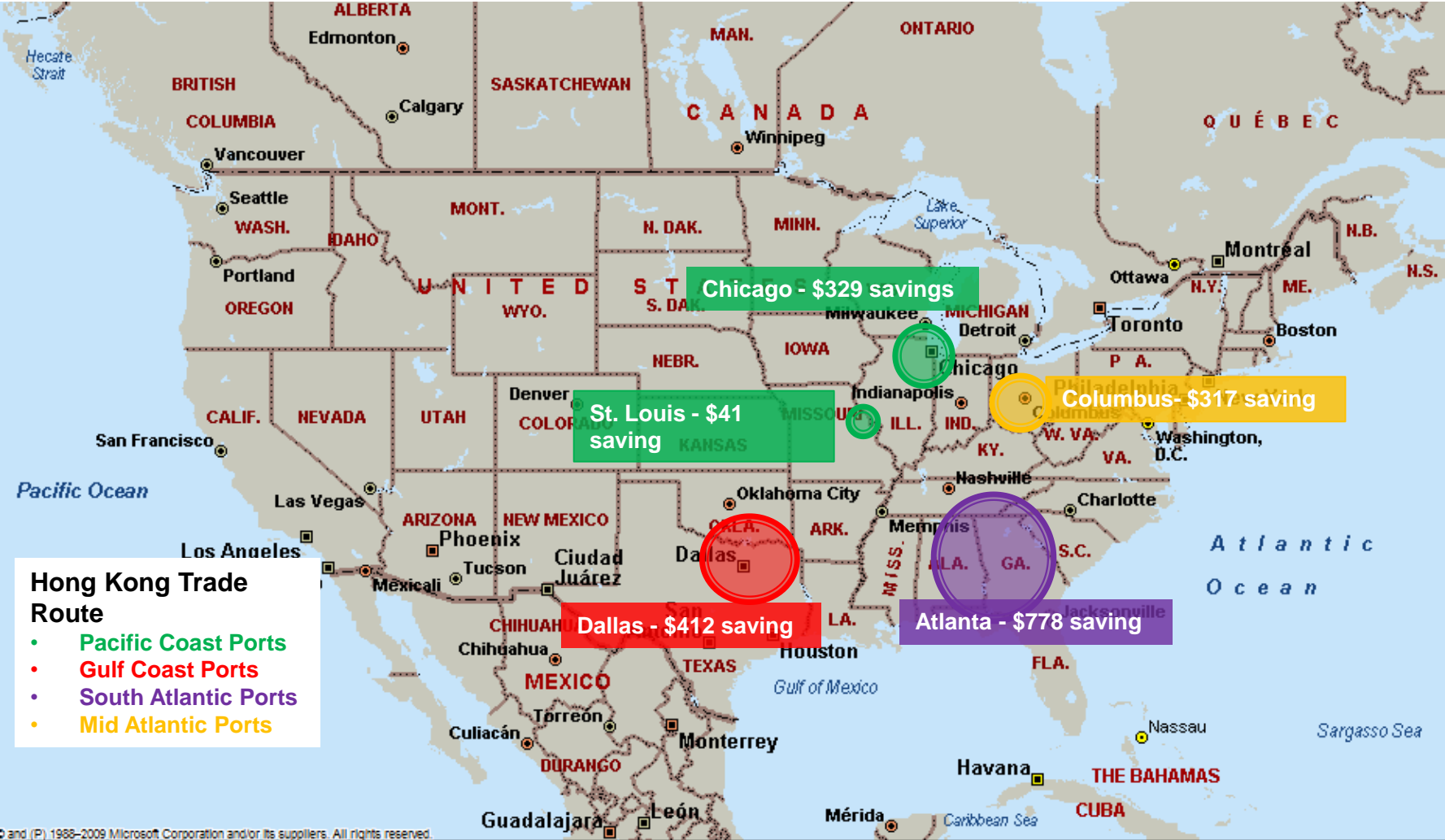
China Imports by Location and Ports Currently Used



Rail Projects are Underway to Increase Access to Midwestern Markets

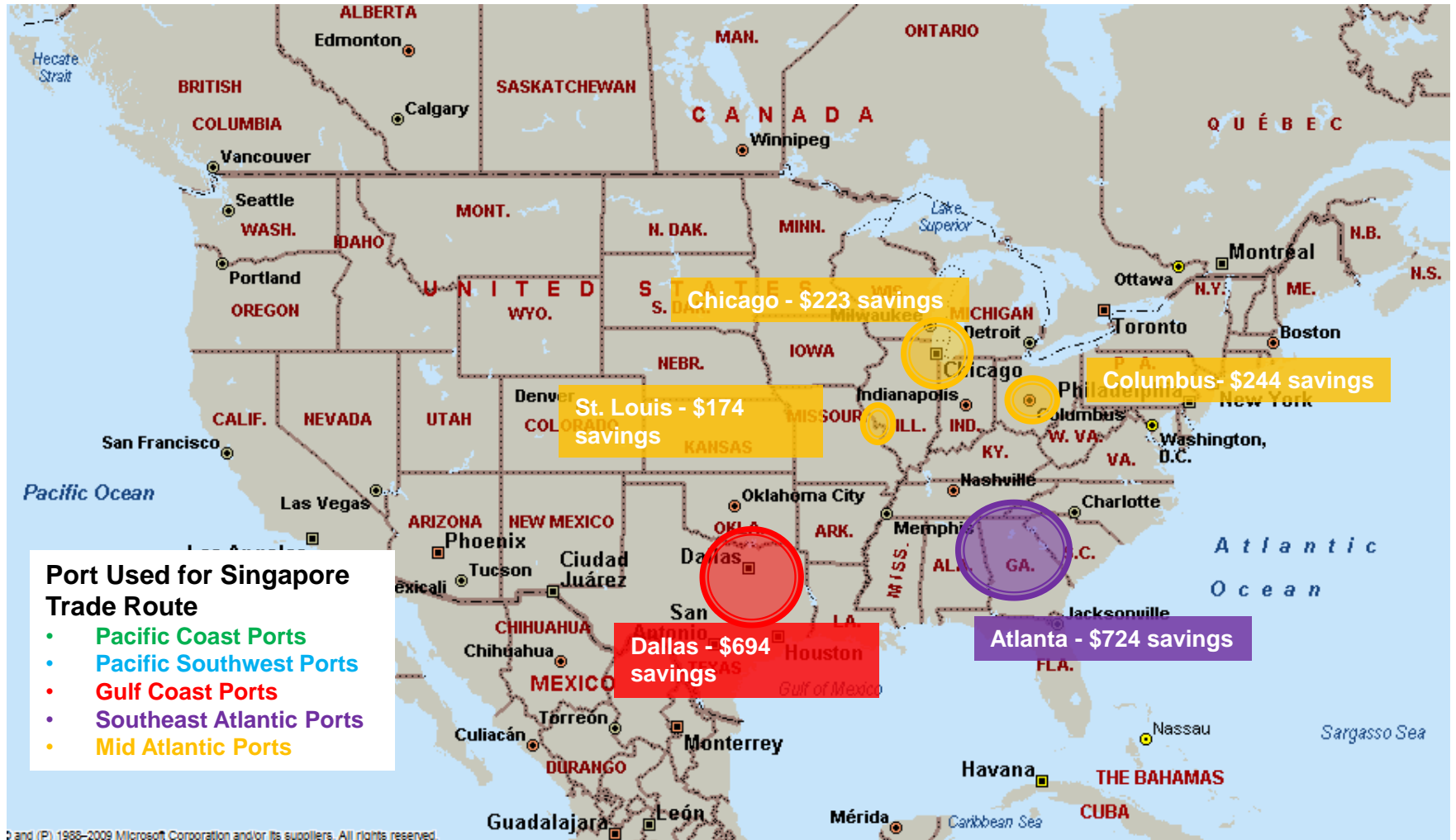
- **CSX investment in National Gateway project:**
 - ICTF in North Baltimore, Ohio is key
 - Ports of Baltimore and New York, both with 50 ft. of water, are key gateways to this system
- **Heartland Corridor Project, will provide reduced transit times into the Midwestern market via NS:**
 - Norfolk, with 50 ft., is the key gateway for this project
- **Savannah, Houston, Jacksonville and Miami (with 50 ft.), are also targeting traditional intermodal markets in the Southeastern U.S.**
- **Prince Rupert feeds directly into the Midwestern market**

Hong Kong Trade Route Total Transportation Cost Savings

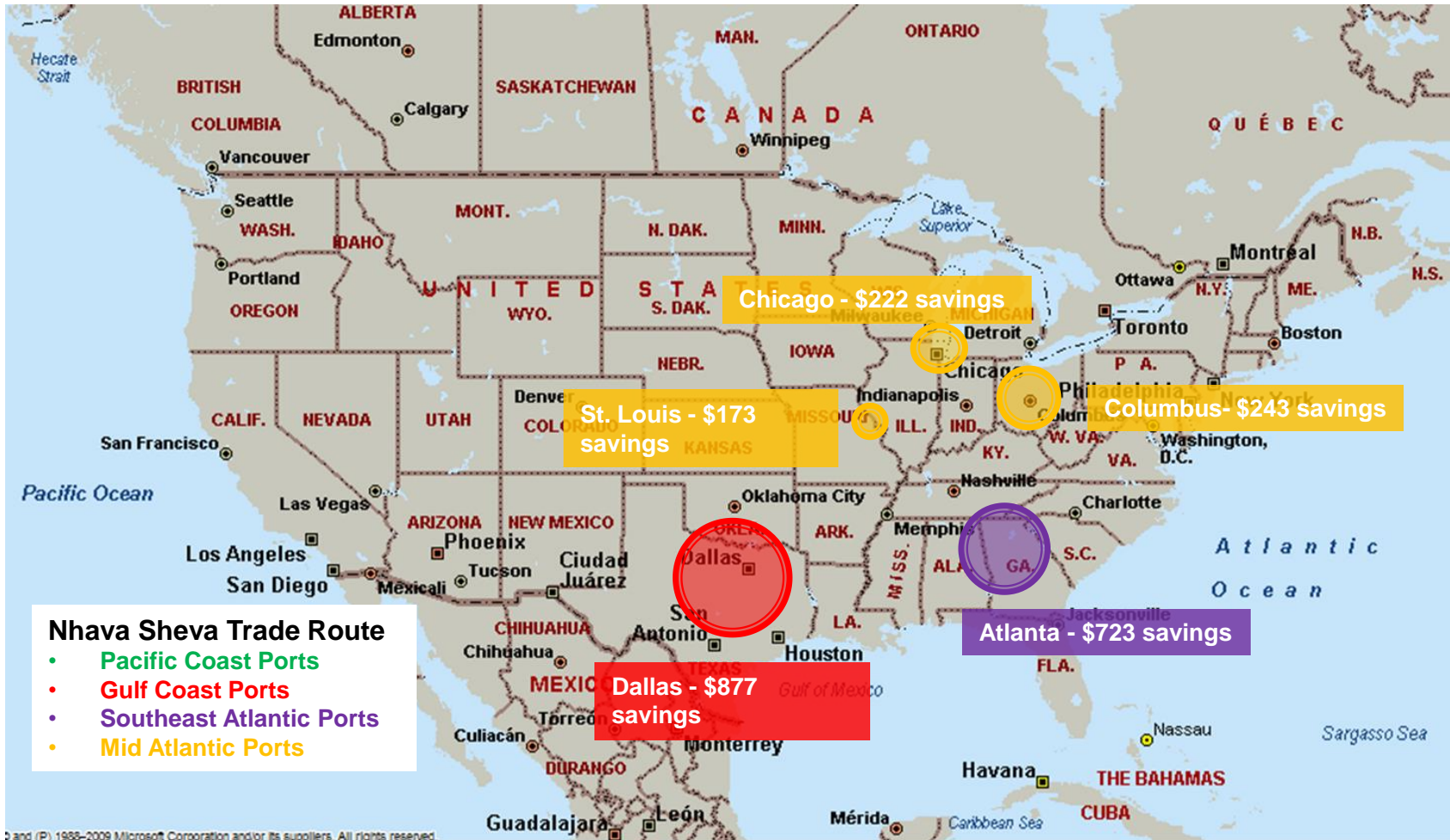


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Singapore Trade Route Total Transportation Cost Savings



Nhava Sheva Route Total Transportation Cost Savings



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Implications of Panama Canal Expansion and Growth in Suez Traffic

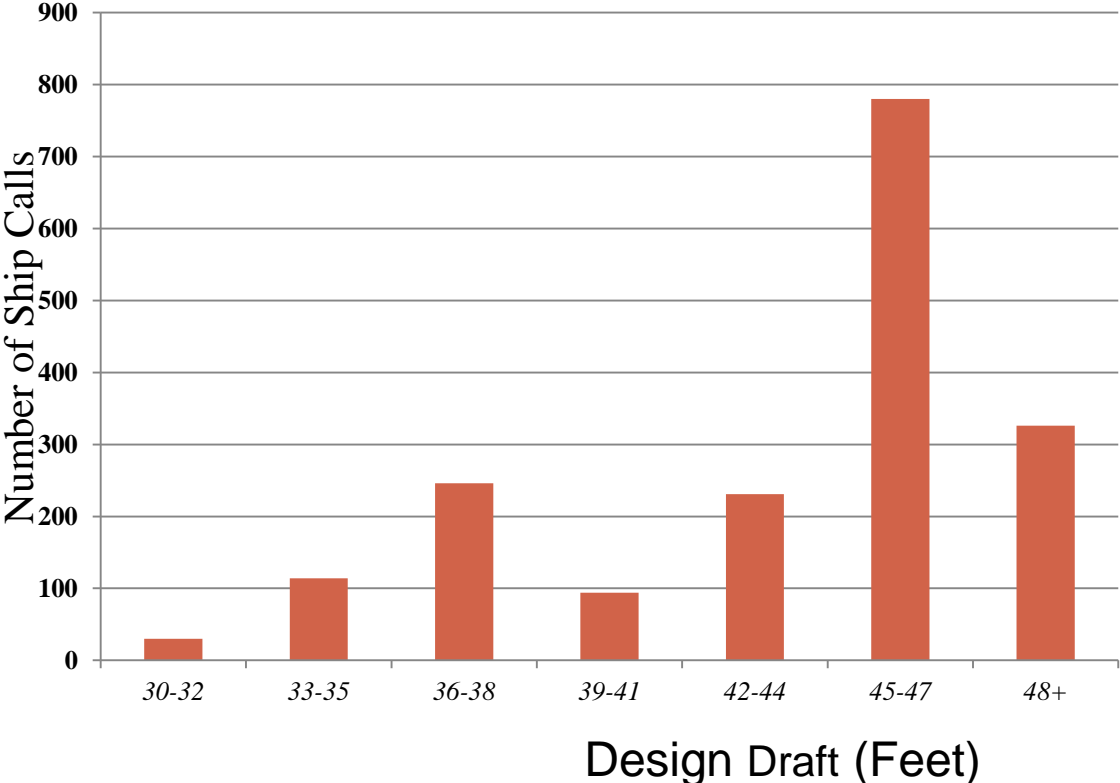
- **East and Gulf Coasts will have to compete to handle the larger sized vessels that will be deployed:**
 - Channel Depth
 - Berth Capacity
 - Crane outreach capability
 - Terminal productivity to minimize time in port
 - *All require capital investment*
- **East and Gulf Coast ports will need to compete for:**
 - Local market
 - Access to discretionary cargo for both truck and rail
- **West Coast ports and railroads will respond:**
 - Competitive intermodal rates
 - Terminal productivity
 - More aggressive ILWU?
- **Uncertainty over Panama Canal Tolls**

Implications of Panama Canal Expansion and Growth in Suez Traffic on Atlantic and Gulf Coast Ports

- **After 2015/16?, the composition of the fleet will likely change, as 6,500+ TEU vessels will be deployed through Canal**
- **Actual volume increases through the Panama Canal into the U.S. Atlantic and Gulf Coast may be less than anticipated:**
 - Shifts to all-water services have been occurring since 2002
 - Significant growth in all-water service depends on total logistics costs
 - Growth in trade with areas more efficiently served via Suez Canal
 - Caribbean transshipment centers will likely compete with mainland for import DCs
 - Growth in near-market sourcing may reduce trade with China in longer run

Composition of Current Trans-Pacific Container Fleet at West Coast Ports will Dictate New All-Water Vessel Size

Current Distribution of Container Vessel Calls at West Coast Port, by Design Draft

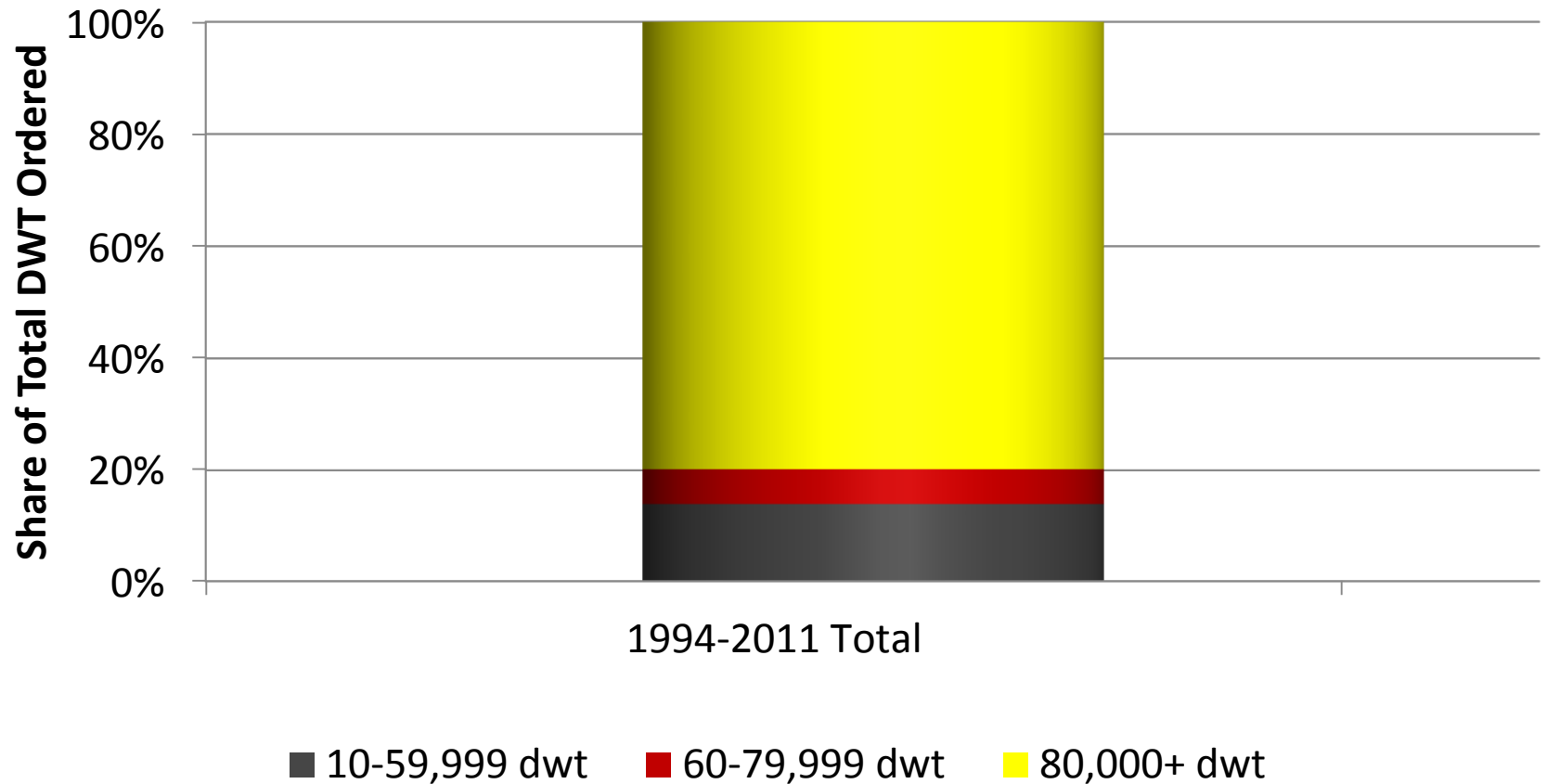


Source: Martin Associates proprietary data file

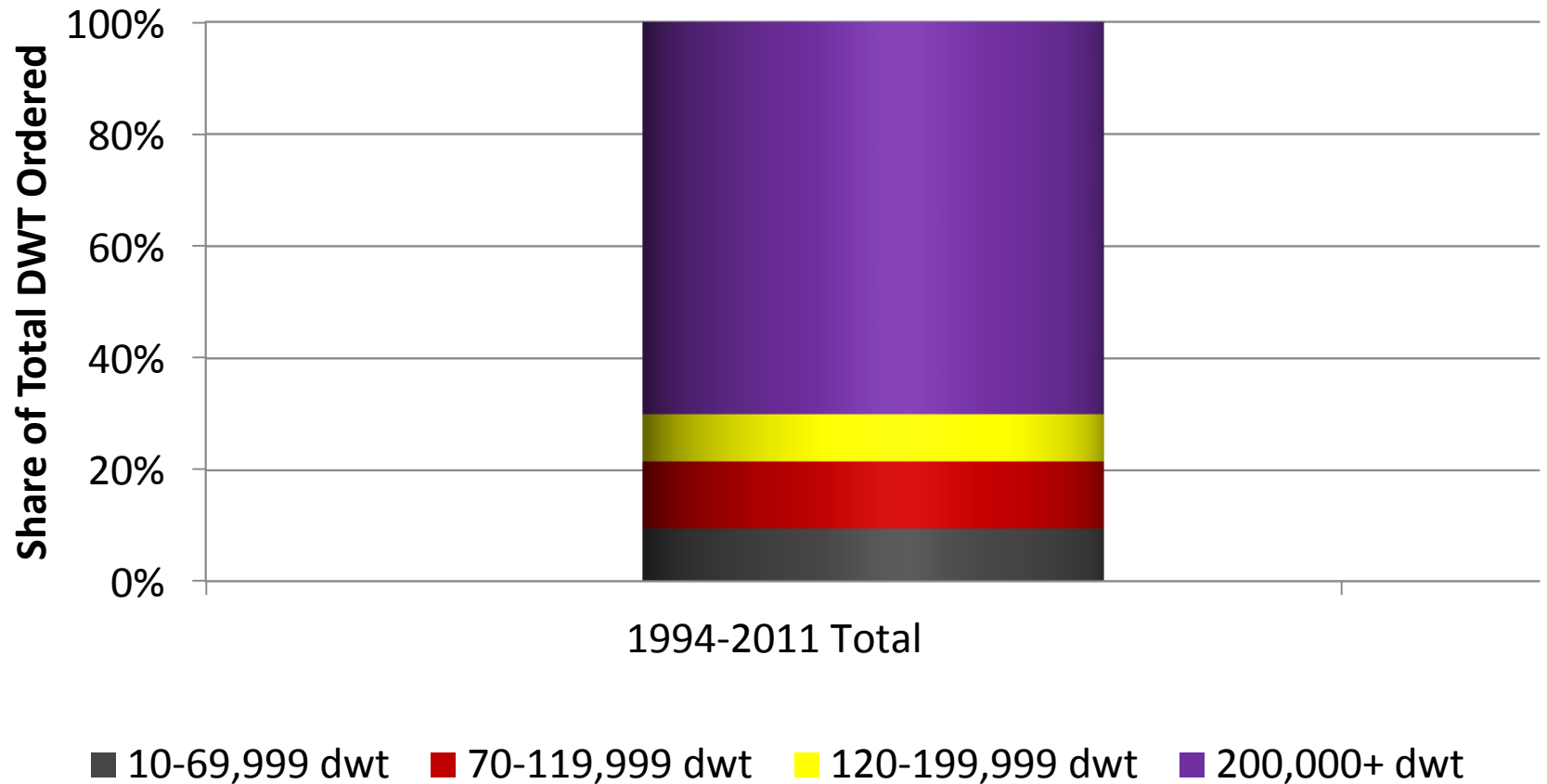
43% of the Current Container Order Book Consists of Vessels in Excess of 8,000 TEUS

TEU Size Class	Current Fleet	Order Book
<999	1,099	32
1000 < 1999	1,286	87
2000 < 3999	1,046	89
4000 < 5999	921	110
6000 < 7999	250	42
8000 < 9999	280	106
>= 10,000	<u>111</u>	<u>165</u>
Total	4,993	631

Total New Orders of Bulkers by Size (DWT)



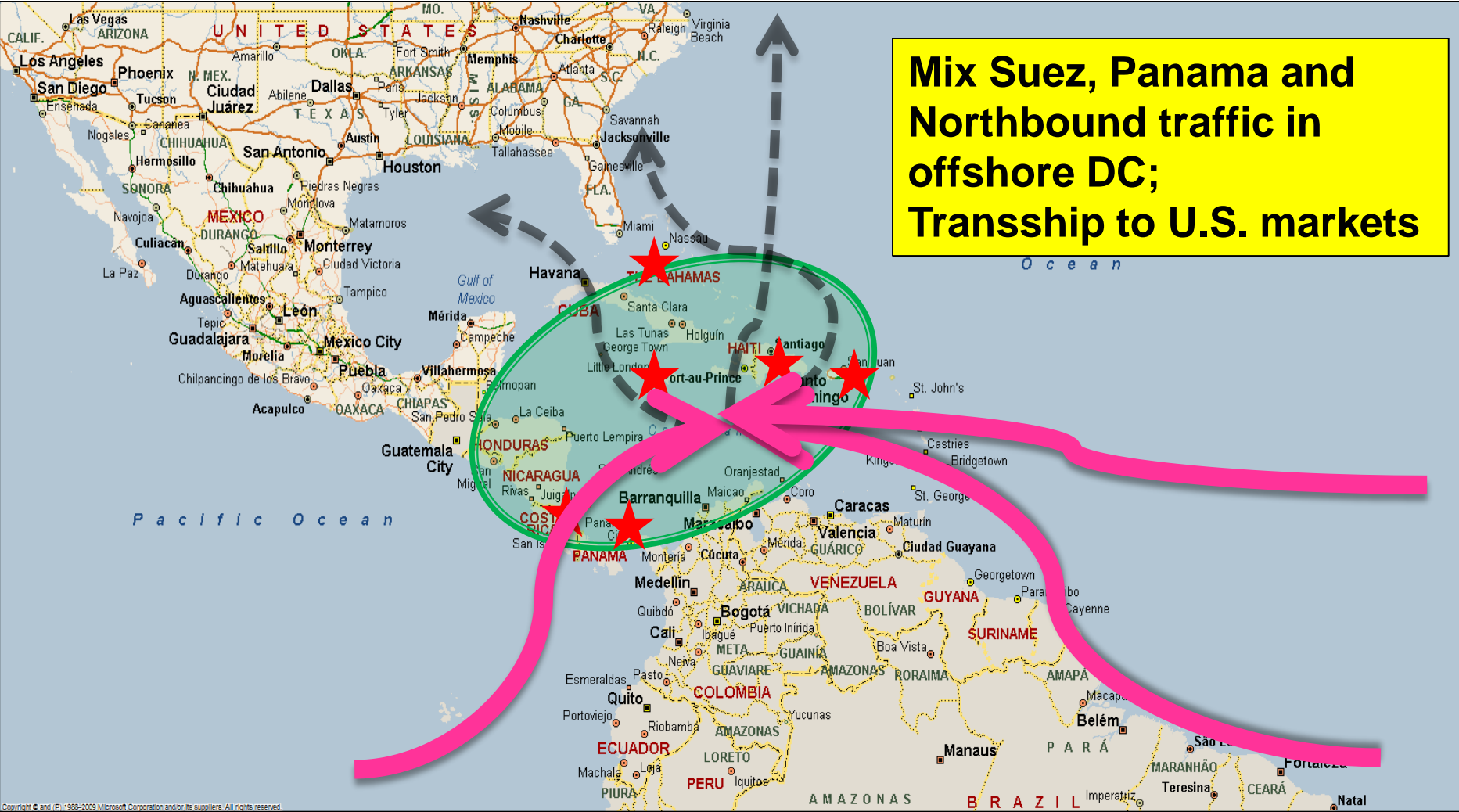
Total New Orders of Tankers by Size (DWT)



Increased Investment is Necessary to Compete with Development of Transshipment Centers and Logistics Hubs in the Caribbean and Central America

- **Key transshipment center development capitalizing on water depth and East-West and North-South trade lanes:**
 - Panama
 - Bahamas
 - Jamaica
 - Dominican Republic
 - Costa Rica
 - Colombia
 - Cuba
- **Natural progression is to logistics center development – Outsourcing of distribution center functions:**
 - Potential to develop competing Logistics/Distribution Centers to mainland locations:
 - Lower cost labor
 - Lower cost land costs
 - Packaging, labeling, pre-racking
 - 53 ft. domestics?
 - Support near market sourcing development in Central America

Investment in Port Infrastructure is Critical to Compete with Caribbean Transshipment Hubs for Development of Logistics Centers/Off-Shore Distribution



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Growth in Near Market Sourcing in the Caribbean and Central America

- **Location decisions for off-shore production historically were driven by labor costs:**
 - China became the dominant player
 - Transportation and logistics costs were outweighed by labor costs
 - Growth in domestic demand has resulted in growth in labor costs
 - Logistics costs have become more critical in total costs and location decisions:
 - Fuel surcharges
 - Vessel capacity restrictions, service disruptions
- **Increasing development in Mexico, Central America and Caribbean:**
 - Increases market potential for smaller, non-load center ports with limited water
 - Likely growth in Gulf Coast ports and Mexican/Central American ports

Growth of Near Market-Sourcing will Continue to Compete with Asian-Sourced Goods

- **Textiles and apparel industry, and manufacturing:**

- Increased labor costs in China
- Transportation costs becoming more critical (e.g. fuel):
 - Slow Steaming
 - Capacity Restrictions
 - Increase in logistics costs
- Faster time to market, quick changes/flexibility
- Lean supply chains – less inventory in chain
- Opportunities for ports with limited water depth and berth length

- **U.S. Trade Policy:**

- Free Trade Agreements (FTA):
 - Colombia and Panama
- Trans-Pacific Partnership (TPP):
 - 11 countries – Malaysia, Brunei, Vietnam, New Zealand, Chile, Mexico, Canada, Australia, Peru, Singapore and U.S.

MARKET DYNAMICS - IMPLICATIONS FOR PORT STRATEGIES

Port Strategies to Respond to Changing Trade Dynamics, and Compete with Transshipment Hub Development – Deepwater Strategy

- **Leverage deepwater, on-dock rail to attract first in-bound port call -- Asian Trade (Suez or Panama):**
 - Serve local and regional
 - Serve discretionary markets
 - Attract distribution center/logistics center development
 - Provide economies to ocean carriers:
 - Improve transit times into key markets
 - Potential for carriers to reduce vessels on a specific rotation
 - Investment in highly productive carriers becomes a necessity
 - Compete with Caribbean transshipment hubs - South Atlantic and Gulf Coast ports
 - Maximize job creation

Port Strategies to Respond to Transshipment Hub Development – Deepwater Strategy

- **Leverage deepwater, on-dock rail to establish last outbound port call:**
 - Focus on heavy weight exports:
 - Maximize weight of container
 - Reduce truck traffic/emissions
 - Fully utilize capacity of greater than Panamax ships deepwater and on-dock rail
 - Eliminate additional port calls
 - Leverage last outbound to attract manufacturing
 - Maximize job creation

Feeder Operations and Growth in Near Market Sourcing – Implications for Ports with less than 45 ft. of Water

- Need for 47+ ft of water not always critical
- Focus on growth in South American/Central American markets
- Potential to establish relationship with terminal operators in the transshipment hubs
- Development of common carrier service between ports with less water, but proximity to consumer markets/distribution centers
- Requires less capital investment than load center port strategy, but still provides significant economic impact

Feeder Operations and Growth in Near Market Sourcing – Implications for Smaller Niche Ports

- **West Coast of South America, Mexico, Central America and Africa are growth markets**
- **Focus on smaller second and third tier carriers serving North-South trade lanes**
- **Develop relationships with transshipment ports in Panama, Mexico and Central America and the Caribbean**

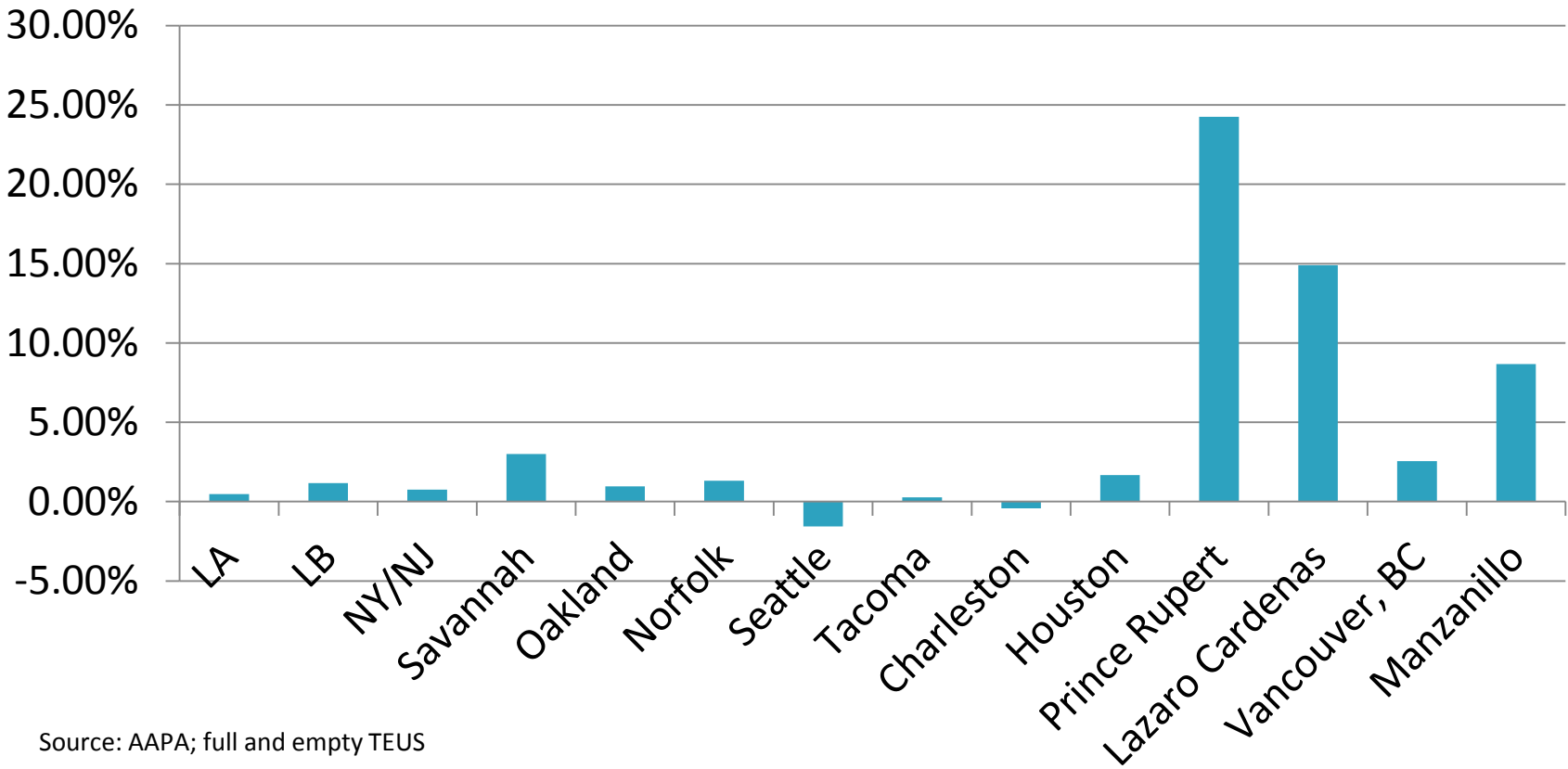
Leads to the Need for Long Term Strategic Planning by Ports

- **Deepwater strategy vs. “status quo strategy”:**
 - What is my long term role?
 - Is deepwater necessary, and at what cost?
- **Long term optimization of resources:**
 - Identification of long term growth markets and trends in:
 - Cargo handling
 - Vessel size/deployments
 - Terminal innovation
 - Matching land banking with future demand and existing terminals with state of the art technology
 - Optimizing terminals:
 - Water depth needs
 - Green development
 - Optimizing dredge disposal needs and implications of near term development
- **Developing the long term strategic position of the Port to be financially self sufficient and operate within physical constraints**

**FEDERAL FUNDING CRISIS –
the Port Productivity Gap**

Comparison of CAGR 2008-2013 for Top 10 U.S. Container Ports and Key Canadian and Mexican Ports

CAGR 2008-2013, TEUS



Source: AAPA; full and empty TEUS

Comparison of Productivity at the World's Leading Container Ports (Journal of Commerce)

Port	Country	Berth Productivity
Qingdao	China	96
Ningbo	China	88
Dalian	China	86
Shanghai	China	86
Tianjin	China	86
Yokohama	Japan	85
Jebel Ali	United Arab Emirates	81
Busan	South Korea	80
Nhava Sheva (Jawaharlal Nehru)	India	79
Yantian	China	78
Taipei	Taiwan	77
Xiamen	China	76
Long Beach	U.S.	74
Khor al Fakkan	United Arab Emirates	74
Elizabeth	U.S.	74
Nansha	China	73
Kaohsiung	Taiwan	72
Salalah	Oman	72
Mawan	China	71
Southampton	U.K.	71

Rankings based on average container moves per hour while ship is in port

Comparison of Productivity at the Leading Ports in the Americas (Journal of Commerce)

Port	Country	Berth Productivity
Long Beach	U.S.	74
Elizabeth	U.S.	74
Prince Rupert	Canada	68
Lázaro Cárdenas	Mexico	65
Vancouver	Canada	63
Savannah	U.S.	60
Tacoma	U.S.	58
Bayonne	U.S.	58
Charleston	U.S.	56
Norfolk	U.S.	54
New York	U.S.	52
Los Angeles	U.S.	52
Balboa	Panama	51
Houston	U.S.	50
Halifax	Canada	50
Seattle	U.S.	48
Veracruz	Mexico	48
Caucedo	Dominican Republic	43
San Antonio	Chile	43
Manzanillo	Mexico	42

Source: JOC Research

Top 20 ports, by region, in 2012. Rankings based on average container moves per hour while ship is in port.

Federal Funding is Required for Deepening Projects at Atlantic and Gulf Coast Ports

Port Name	Current Depth	Planned Depth
Baltimore	50	50
Boston	40	48
Charleston	45	45+
Corpus Christi (Authorized)	45	55
DE, PA, NJ Ports Portions Underway	40	45
Freeport (Authorized)	45	55
Houston-Galveston	45	45
Jacksonville (Authorized)	40	47
Manatee	40	40
Miami (Under Way)	42	50
Mobile	45	45
New Orleans	45	45
New York (Underway)	45-50	50
Norfolk/Hampton Roads	50	55
Palm Beach	33	33
Port Everglades	42	47+
Port Canaveral	41	50+
Sabine Naches	40-42	42-48
Savannah	42	47
Tampa	43	43

After Miami is deepened, Port *MIAMI* will join New York, Baltimore and Norfolk as the only ports on the USEC/Gulf to have 50 feet of water

Ability to attract ***first-in-bound/last-out-bound*** vessel call

Infrastructure Funding is the Critical Issue to Economic Growth

- **Ports have lost funding for system preservation projects, let alone major infrastructure projects:**
 - After 9/11 - security investments competing with system preservation investments
 - Downturn of trade reducing port revenues
 - Economic crisis reducing state/municipal public funding
 - USACE/Federal Government cannot fund the dredging/deepening projects and infrastructure projects
- **\$64 billion over next five years is needed – (Mexican Government investing \$54 billion in next 6 years)**
- **Need for highly productive automated terminals to serve the largest container vessels**
- **Need for efficient rail and highway access**

More Infrastructure Funding in Addition to Deepwater Ports is Necessary

- **12,000 miles of inland waterways:**
 - 191 lock systems
 - 237 lock chambers
- **Replacement cost estimated at \$125 billion in 1994**
- **50% of the locks and dams over 60 years of age**
- **Efficient River Transportation System necessary for bulk exports**
- **Failure would be catastrophic in terms of:**
 - Economic cost
 - Loss of life

The National Export Initiative (NEI) Cannot be Accomplished Without Infrastructure Investment

- *Doubling exports over five years (2014)*
- **Policy decision-making efforts:**
 - Improving trade advocacy and export promotion efforts
 - Increasing access to credit
 - Removing barriers to the sale of U.S. goods/services abroad
 - Pursuing policies at the global level to promote sustainable growth
- **FTAs with Panama, Colombia and South Korea have been ratified**
- **Without adequately maintained shipping channels and port infrastructure, the U.S. participation and benefits will not be maximized:**
 - Heavy weight exports (agricultural products, forest products, chemicals)
 - Last port of call for exports – deep water critical

Possible Solutions to Federal Funding Crisis

- **Deepening and maintenance projects impact ports on all coasts, as well as inland river ports**
- **To date, there is a very limited understanding at the Federal level of:**
 - Importance of the U.S. port industry
 - Impact of the delays in navigational projects
 - Overall bureaucratic process and often “changing rules” of the USACE
 - To date, the port industry has not been unified in its message to the Federal government, focusing on individual/state issues

Possible Solutions to Federal Funding Crisis

- **Undertake navigational solutions at local level:**
 - State investments
 - Private sector investment
- **Focus efforts at a national maritime system level, rather than the Port/State level**
- **Direct communications to “highest level” of federal government, with a bi-partisan effort:**
 - Cabinet level focus
 - Transportation and Infrastructure Committee Focus

PORT-SPECIFIC INFRASTRUCTURE FUNDING – IS PRIVATE SECTOR THE ANSWER?

Private Sector Investment

- **Private sector participation reached a peak in 2006-2007 period:**
 - Multiples on EBITDA were over 25
 - Expectations of a continued 6-10% annual growth
 - Anticipated returns 12-15%
- **Most funds are now looking at emerging markets where returns can be made:**
 - Caribbean
 - Africa
 - South America
 - Vietnam
- **High level of perceived risk in U.S. port investment:**
 - Labor
 - Navigational projects uncertainty
- **There is a current resurgent of interest in the U.S.**

Private Sector Investment

- **Conduit financing of projects where port provides access to municipal bonds:**
 - However, bonding capacity becomes issue
 - Lease specifications are critical
- **U.S. Ports need to refocus on participation by the terminal operators:**
 - Reduced lease payments but increased lease length in response to terminal operator investment in capital projects:
 - Baltimore (Ports America Chesapeake)
 - New York (GLOBAL)
 - Los Angeles (MOL)
 - Port Canaveral (Gulftainer)
 - Outright purchase of terminals – Kinder Morgan at Wilmington, DE
 - SSA Sacramento agreement
- **State's take on larger role in direct investment:**
 - Florida is key example

A National Port Plan???

- **Possible solution to port funding issues**
- **Could result in optimization of resources:**
 - Consolidation of ports in same geographical region
 - Winners and losers with respect to navigational and funding issues
- **Levels the playing field with other modes of transportation, even the private railroads with federal support on key regional/national projects/corridors**
- **Potentially result in greater investment in infrastructure to improve competitive position of U.S. economy**
- **Can it be removed from politics -- the Slippery Slope!!**

THANK YOU!