DYNAMICS OF THE US CONTAINER INDUSTRY AND KEY ISSUES FACING THE US PORT INDUSTRY

A PRESENTATION TO:
AMERICAN ASSOCIATION OF PORT AUTHORITIES
2013 ANNUAL CONVENTION

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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
- A National Maritime Plan?
Panama vs. the Suez
In terms of tonnage, containerized cargo declined 6% in 2012 after reaching a record year in 2011; Imported containerized cargo dominates, but exports have been increasing since 2005.

- Exports: 3.0% CAGR
- Imports: 5.4% CAGR
3.6% CAGR in Imports by 2003-2012

Million Import Containerized Tons

- PACIFIC
- ATLANTIC
- AMERICAS


- 4.1% CAGR
- 2.5% CAGR
- 0.5% CAGR
5.3% CAGR in Exports by 2003-2012

Million Export Containerized Tons

- PACIFIC: 4.9% CAGR
- ATLANTIC: 3.8% CAGR
- AMERICAS: 5.2% CAGR
Share of West Coast containerized cargo has been declining
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 imported Asian container tonnage in the North Atlantic, South Atlantic and Gulf port ranges

Source: US Bureau of Census, USA Trade Online
China Has Been Responsible for Nearly 40% of Imported Containerized Tonnage
However, Asian Supply Sources are Shifting
Southwest Asian supply sources favor a Suez all-water routing to the East Coast

Source: US 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
Implications of Panama Canal expansion and growth in Suez traffic on Atlantic and Gulf Coast ports:

- After 2015, 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 US 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

<table>
<thead>
<tr>
<th>TEU Size Class</th>
<th>Current Fleet</th>
<th>Order Book</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;999</td>
<td>1,099</td>
<td>32</td>
</tr>
<tr>
<td>1000 &lt; 1999</td>
<td>1,286</td>
<td>87</td>
</tr>
<tr>
<td>2000 &lt; 3999</td>
<td>1,046</td>
<td>89</td>
</tr>
<tr>
<td>4000 &lt; 5999</td>
<td>921</td>
<td>110</td>
</tr>
<tr>
<td>6000 &lt; 7999</td>
<td>250</td>
<td>42</td>
</tr>
<tr>
<td>8000 &lt; 9999</td>
<td>280</td>
<td>106</td>
</tr>
<tr>
<td>&gt;= 10,000</td>
<td>111</td>
<td>165</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,993</strong></td>
<td><strong>631</strong></td>
</tr>
</tbody>
</table>
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
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

- 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.

Mix Suez, Panama and Northbound traffic in offshore DC; Transship to US markets.
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

- US 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 US
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 inbound 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
Job creation potential of a first in-bound port call

- A weekly first in-bound/last outbound port call with an 8,500 TEU vessel generates significant economic activity to the local and regional economy:
  - Assume 75% of boxes discharged then reloaded
  - Assume 30% of inbound transshipped
  - Assume 70% of inbound goes to distribution center activity

- Port Impacts:
  - 7,900 direct, induced and indirect jobs from terminal operations and movement to DC’s:
    - 2,700 direct jobs
    - 5,200 induced and indirect jobs
  - $500 million total wages and salaries and local consumption activity
  - $115 million Federal Taxes

- Total logistics activity impact less Port Impacts:
  - 11,500 total jobs due to distribution/logistics center activity
  - $660 million wages and salaries and local consumption
  - $152 million Federal Taxes
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 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 Pacific Coast niche ports

- West Coast of South America, Mexico and Central America 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 located on Pacific
  - Relays to Asia and East Coast of South America
    - PSA International Terminal
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 2008-2012 for top 10 US container ports and key Canadian and Mexican ports

CAGR 2008-2012, TEUS

Source: AAPA; full and empty TEUS
Comparison of productivity at the world’s leading container ports (Journal of Commerce)

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

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

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-inbound/last-outbound* vessel call

<table>
<thead>
<tr>
<th>State</th>
<th>Port Name</th>
<th>Current Depth</th>
<th>Planned Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maryland</td>
<td>Baltimore</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>Boston</td>
<td>40</td>
<td>48</td>
</tr>
<tr>
<td>South Carolina</td>
<td>Charleston</td>
<td>45</td>
<td>45+</td>
</tr>
<tr>
<td>Texas</td>
<td>Corpus Christi (Authorized)</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>Delaware River</td>
<td>DE, PA, NJ Ports Portions Underway</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td>Texas</td>
<td>Freeport (Authorized)</td>
<td>45</td>
<td>55</td>
</tr>
<tr>
<td>Texas</td>
<td>Houston-Galveston</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>Florida</td>
<td>Jacksonville</td>
<td>40</td>
<td>45+</td>
</tr>
<tr>
<td>Florida</td>
<td>Manatee</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Florida</td>
<td>Miami (Authorized and Funded)</td>
<td>42</td>
<td>50</td>
</tr>
<tr>
<td>Alabama</td>
<td>Mobile</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>Louisiana</td>
<td>New Orleans</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>New York</td>
<td>New York (Underway)</td>
<td>45-50</td>
<td>50</td>
</tr>
<tr>
<td>Virginia</td>
<td>Norfolk/Hampton Roads</td>
<td>50</td>
<td>55</td>
</tr>
<tr>
<td>Florida</td>
<td>Port Everglades</td>
<td>42</td>
<td>50</td>
</tr>
<tr>
<td>Texas</td>
<td>Sabine Naches</td>
<td>40-42</td>
<td>42-48</td>
</tr>
<tr>
<td>Georgia</td>
<td>Savannah</td>
<td>42</td>
<td>48</td>
</tr>
<tr>
<td>Florida</td>
<td>Tampa</td>
<td>43</td>
<td>43</td>
</tr>
</tbody>
</table>
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 US 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 US 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 US 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%

- NOT ANY MORE !!

- Most funds are now looking at emerging markets where returns can be made:
  - Caribbean
  - Africa
  - South America
  - Vietnam

- High level of perceived risk in US port investment:
  - Labor
  - Navigational projects uncertainty

- Bulk export facilities remain of some interest
Private sector investment

- Conduit financing of projects where port provides access to municipal bonds
  - However, bonding capacity becomes issue
  - Lease specifications are critical

- US 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)
  - 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
Economic value of waterborne cargo moving via Florida Seaports

- 554,347 total jobs in Florida
- $23.3 billion in wages and salaries and consumption impacts
- $66.3 billion in economic value to the State – 9% of state GDP
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 US economy
- Can it be removed from politics -- the Slippery Slope!!
The Marine Transportation System is a key economic engine

- 16.2 million jobs supported cargo and passenger activity:
  - 13.2 million jobs supported by deepwater port activity
  - 2.5 million jobs supported by inland waterways
  - 354,000 jobs supported by US cruise activity
- More than $3.2 trillion economic value – 25% of the US Gross Domestic Product
- What other sectors of the US/regional economy represent such a major catalyst for economic development and growth?
- *The Marine Transportation System represents a key market for future stimulus funding and cannot be ignored as the economic development dividends have been well documented*
THANK YOU!