Market Snapshot: Containers

Presented By: Vijay Agrawal, PE, AECOM

- North America market grew 40% from 45M to 62M, with Mexico leading the growth

<table>
<thead>
<tr>
<th>Total growth (2009 - 2018)</th>
<th>years CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANADA</td>
<td>65.3%</td>
</tr>
<tr>
<td>MEXICO</td>
<td>142.8%</td>
</tr>
<tr>
<td>UNITED STATES</td>
<td>28.8%</td>
</tr>
<tr>
<td>NORTH AMERICA</td>
<td>39.5%</td>
</tr>
</tbody>
</table>

- CY 2018 marked the first year of negative growth for United States

Source: AAPA

- United States market grew 29% from 38M to 49M, with Southeast Ports leading the growth

- In CY 2018, Southeast and Gulf market grew despite negative growth in the Pacific and Northeast

<table>
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<tr>
<th></th>
<th>Total growth (2009 - 2018)</th>
<th>10-years CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific</td>
<td>24.7%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Northeast</td>
<td>10.5%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Southeast</td>
<td>71.0%</td>
<td>6.1%</td>
</tr>
<tr>
<td>Gulf Coast</td>
<td>57.0%</td>
<td>5.1%</td>
</tr>
</tbody>
</table>

Source: AAPA
Southeast + Gulf Market demand grew at 5.4% CAGR since 2010
- Handled ~15.5M TEU in CY2019
- Added 6M TEU in 10 years since beginning of 2010

2029 Market Forecast between:
- 21M TEU: based on 3.3% CAGR
- 26M TEU: based on 5.4% CAGR

<table>
<thead>
<tr>
<th>Year</th>
<th>Coastal</th>
<th>Non-Coastal</th>
<th>Total</th>
<th>TEU/year</th>
<th>TEU/1M People</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>80,310,739</td>
<td>41,854,895</td>
<td>122,165,634</td>
<td>9,341,240</td>
<td>76,464</td>
</tr>
<tr>
<td>2018</td>
<td>88,522,771</td>
<td>42,836,329</td>
<td>131,359,100</td>
<td>14,142,663</td>
<td>107,664</td>
</tr>
</tbody>
</table>

% Growth: 10.2% / 2.3% | 7.5% / 51.4% / 41%

Source: U.S. Census Data, Port Websites and News Articles
CY2019 Market Size was ~15.5M TEU, 2/3rd of it Handled by 3 Ports
When the Market grows, Most Ports grow... Some more than others

Growth > 5.4% CAGR
- Charleston (6.7%)
- Savannah (5.6%)
- Jacksonville (5.5%)
- Tampa (10.2%)
- Mobile (14.3%)
- Houston (5.7%)

Growth < 5.4% CAGR
- West Palm Beach (3.1%)
- Port Everglades (3.2%)
- Miami (3.2%)
- Gulfport (-0.2%)
- New Orleans (4.7%)
- Freeport (4.9%)
Market Shifting towards Ports with Faster & Extended Reach to Customers with Capacity to Expand

- **Market Share went down**
  - Port Miami (-1.6%)
  - Port Everglades (-1.4%)
  - Gulfport (-0.8%)

- **Market Share went up**
  - Charleston (1.6%)
  - Mobile (1.4%)
  - Savannah (0.6%)
  - Houston (0.5%)

*All other ports maintained market share (+/-0.5%)

Source: AECOM
Year 2029: Potential 21M to 26M Annual TEU Market

- Additional 6M to 11M TEU Demand
- High Demand @ 5.4% CAGR of 26M*
- Avg Demand @ 3.3% CAGR of 21M*
  accounts for
  - Similar population growth
  - 140,000 TEU / 1M Population (National Avg)

* Disclaimer: this forecast should not be used for financing or construction of any Project

- The Panama Canal Expansion
  - Shifted Port throughput from West to East
  - Direct all-water service to Southeast & Gulf
  - Allows transit of large LNG vessels to Asia

- POLA/LB Clean Air Action Plan

- Adoption of Full Automation and Electrification
  - 2014, PANYJ, GCT (ASC + manual shuttles)
  - 2015, POLB, LBCT (ASC + Autostrads)
  - 2016, POLA, Trapac Terminal (ASC + AGVs)
  - Electric RTGs (Savannah, Miami, Charleston?)
Three Biggest Challenges Facing the Container Industry

1. Big ships
2. Aging Infrastructure
3. Climate Change, Sea-Level Rise
4. Inland Connectivity
5. Rising Labor Cost
6. Automation & Electrification
7. Environmental Permitting
8. Shipping lines M&A
9. Supply of truck drivers
10. Railroads targeting markets
11. Issues with Chassis pool
12. Many….more…
Three Biggest Challenges Facing the Container Industry, Climate Change & Sea Level Rise

Global average:
- Since 1870 (tide gages): +1.8mm/yr
- Since 1993 (satellite+ tide gages): +3.2 mm/yr –nearly 2x the previous rate
Southeast + Gulf Market Added Approximately 4M TEU Capacity since 2010

- Excessive capacity was available since the 2008 downturn
  - Most of the capacity gain is incremental and AS-NEEDED basis
    - Charleston: added capacity at Wando Welch Terminal but converted Columbus Street Terminal
    - Savannah added 100+ acres of container yard and added 7+ new QCs and retrofitted berths
    - Jacksonville added 75+ acres and 4 QCs
    - Miami added 65+ acres and 1 QC
    - Mobile, new capacity became available
    - New Orleans added 45+ acres and upgraded the berth
    - Houston added 2000+ ft of Berth, 60+ acres of container yard and added new 8 QCs and retrofitted berths
    - Freeport, new capacity became available
9M TEU of New Container Terminal Capacity by 2029

– Up to 9M TEU of publicly known planned new capacity by 2029
  • Charleston HLT Terminal: 2.4M TEU
  • Savannah: Plans to expand to 8M TEU, additional 3M TEU
  • Jacksonville: New SSA Terminal, additional 600k TEU
  • Port Everglades Southport Turning Notch: 1M TEU
  • Port Miami conversion to RTGs: 200k TEU
  • Port of New Orleans Nashville Ave Upgrades: 700k TEU
  • Bayport Wharf Upgrades: 400k TEU
  • Port Canaveral: 200k TEU
  • Port Manatee: 200k TEU
  • Other Misc. 300k TEU

Additional Capacity Post 2029:
– Jasper County Terminal (SC+GA): 1500 Acres, 6+M TEU Capacity?
Concluding Remarks

- North America enjoyed a strong growth over last 10 years with Mexican and Canadian Ports growing faster than United States Ports
- CY 2018 marked the first year of negative growth for United States
- Southeast and Gulf Coast Container Ports market is growing faster than rest of the United States Ports
- Panama canal gate expansion opened new trade opportunities for the United States Ports
- Many Southeast and Gulf Coast ports racing to upgrade terminals to service container ships greater than 14000 TEU capacity
- Addressing Sea-level-rise and climate change is becoming more important for several Port facilities