

North American Port Analysis: Beyond Post-Panamax Basics to Logistics

BY K.C. CONWAY, CRE, MAI

SETTING THE STAGE

A RECENTLY PUBLISHED ANALYSIS on ports (2011) established a foundation for understanding the importance and rank ordering of the United States' primary coastal ports.¹ Thirteen ports spanning the West coast, Gulf of Mexico and East coast were analyzed. The ports of Los Angeles (LA) /Long Beach, New York/New Jersey, Savannah, Oakland and Seattle were identified as the busiest in terms of container traffic handling an aggregate of 26.75 million 20-foot equivalent units (TEUs)—or 65 percent of all U.S. container traffic. New Orleans and Houston were the only two U.S. ports to rank among the world's busiest in terms of tonnage. The ports report also queued up the two most pressing issues confronting the respective coastal port authorities at the onset of 2012:

1. Post-Panamax readiness;
2. Impact of a slowing European economy on U.S. trade and port activity.



Panamax vessel passing through LA/Long Beach 1Q 2012

Subsequently, a number of U.S. ports have accelerated port dredging or crane acquisition projects to be Post-Panamax-ready (PPR) by 2015 (Baltimore, Miami and New York). The world's largest 12,500 TEU container-ships also have started making calls on North American ports. Europe's debt crisis has slowed global trade as the European continent is both China's and the United States' largest trading partner. And, completion of the Panama Canal lock expansion project has been delayed to 2015.

About the Author

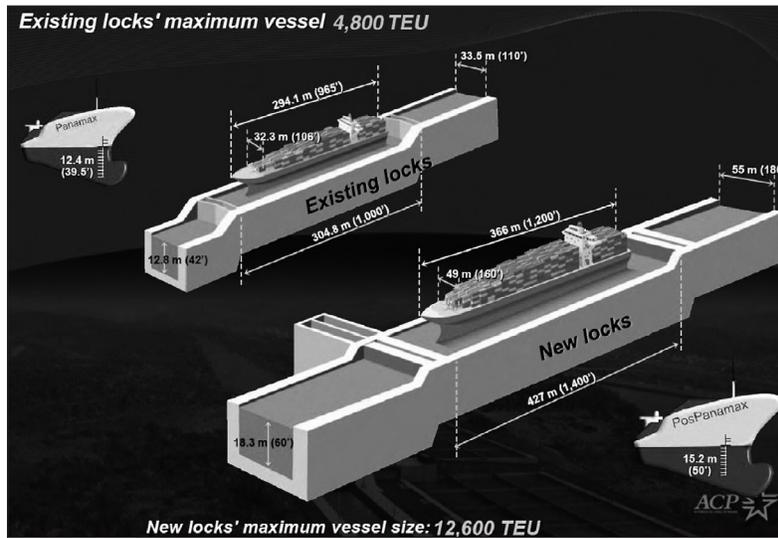


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Specialty Officer" designee to the New York District Bank. In these roles, he briefed Chairman Bernanke, the Board of Governors, Federal Reserve District bank presidents and real estate industry groups on market conditions and burgeoning issues during the 2008–2009 financial crisis. Conway's work at the Federal Reserve was recognized with a Presidential Recognition Award by the Appraisal Institute in 2007, and "Key Player" and "Meritorious Service" awards by the Federal Reserve and the Federal Financial Institutions Examination Council in 2009 and 2010. Conway's career includes serving as an appraiser for Cushman & Wakefield and the former Equitable Real Estate, and in loan workout, portfolio management and asset advisory capacities for Deloitte & Touche, Wells Fargo and Prudential. In 1997, Conway joined SouthTrust Bank where he developed a proprietary system to risk rate and manage its real estate portfolio across 28 states. Conway became a Counselor of Real Estate (CRE®) in 2009, and earned his MAI designation in 1989. He is a graduate of Emory University's School of Business.

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Figure 1



What do these and other events mean for North American ports? This mid-2012 ports update attempts to answer the questions impacting North American ports. It also expands both geographic coverage of ports to Canada and Mexico, and the scope of content to intermodal and logistics.

EXPANSION OF THE PANAMA CANAL LOCKS

The expansion of the Panama Canal locks to accommodate container vessels capable of carrying up to 12,500 containers is altering global trade routes and advancing the science of logistics. The project's completion has been delayed 6–12 months from 2Q 2014, and is now estimated to be completed during 1Q 2015.

The Panama Canal expansion is impacting more than just shipping companies. It is impacting retailer supply-chains, automobile assembly, aircraft manufacturing, commodity trade, agricultural export, and port facilities.

For the first time since World War II, the East coast has surpassed the West coast in container traffic growth (5.5% versus 3.0% - Source: PIERS Q1 2011 – Q1 2012). As China's economy slows and manufacturing expands in the "right-to-work" Southeast, Gulf coast and Midwest states with announcements like those made by Airbus (Mobile, Ala.); Boeing (Charleston, S.C.); Caterpillar

(Athens, Ga.); and Disney ("Bring all into Florida via a Florida port"), container traffic growth at PPR East and Gulf coast ports will likely outpace container traffic at West coast ports—especially after 2015 when the Panama Canal lock expansion project is completed.

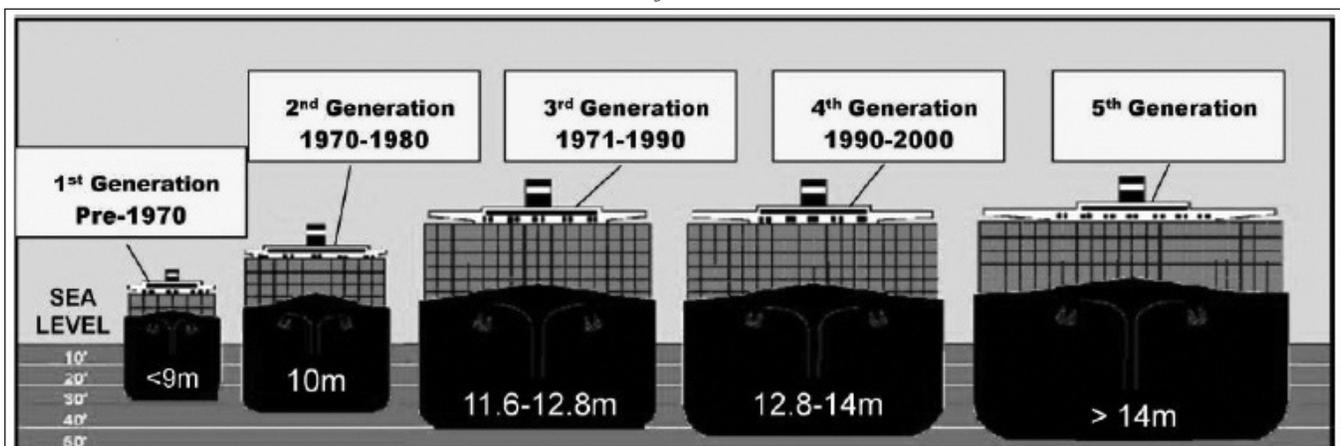
North American ports need to spend billions to become PPR by 2030

when between 60–70 percent of the world's container fleet will be Post-Panamax vessels. Today that figure stands at just 16 percent.

A report released July 2012 by the U.S. Army Corps of Engineers entitled "U.S. Port and Inland Waterways Modernization: Preparing for Post-Panamax Vessels" details the actions and expenditures required at U.S. ports and inland waterways to remain globally competitive and to expand trade for North American manufactured goods, agricultural products and commodities.

The U.S. fails its ports, though, when it comes to funding. Despite the U.S. being a maritime and trading nation that supports an estimated 13.3 million import/export jobs, of which 10 percent are tied directly to our nation's ports, the U.S. ranks 23rd globally when it comes to funding port infrastructure (Source: American Association of Port Authorities and Martin Associates).

Figure 2



Source: U.S. Army Corps of Engineers

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“INTERMODALISM”

Intermodalism is the 2012 port topic discussed in multinational corporate boardrooms. What is intermodalism, and what does it have to do with the ports? Intermodalism is quite simply “a system whereby standard-sized cargo containers are moved seamlessly between different ‘modes of transport.’” Intermodalism has advanced from the equivalent of the Stone-Age to the Space-Age in just 55 years. Commencing with the maiden voyage of the Ideal X between the Port of Newark and Houston in 1956 with 58 metal containers, through to the call of the MSC Fabiola (largest container vessel now serving U.S.-Asia trade with a capacity of 12,500 TEUs) at the Port of Long Beach this past March, intermodalism has come of age.

No longer can a shipping company, manufacturer or retailer think of the ports and other modes of transportation in isolation. The respective modes are interconnected and are an integral part of the global supply chain. Volatile energy prices, congestion at key inland intermodal points such as Chicago, and the need to fill emptied containers returning to port (a process known as “match-back”) are part of intermodalism.

NORTH AMERICAN PORT READINESS AND RANKINGS

Four East coast ports will now be PPR by 2015 with at least 50-foot channel depths and “Super-Post Panamax” (SPP) cranes (cranes capable of unloading ships 22 or more containers wide) when the Panama Canal locks expansion project is completed. The four ports are an increase from just one today and will include:

- **Norfolk:** Currently PPR;
- **Baltimore:** PPR by end of year 2012;
- **Miami:** PPR by 2015–dredging approved and SPP cranes ordered;
- **New York:** PPR by end of 2015. Obtained approvals and funding to raise Bayonne Bridge in Q2 2012.

The aforementioned will join the ports of LA/Long Beach, Oakland and Seattle, which already are PPR. Therefore, eight North American ports will be PPR by 2015.

Figure 3

North American Post-Panamax Ready Ports				
Port	Post-Panamax Status/Impediment	2012 TEUs (Est. 000s)	2011 TEUs	Global Rank
LA/Long Beach	Currently Ready	14,000	14,000	6th
New York/NJ	2015 - Bayonne Bridge	5,600	5,500	20th
Oakland	Currently Ready	2,400	2,350	<top 50
Seattle	Currently Ready	2,100	2,000	<top 50
Houston	2013 - Dredging	2,100	1,900	<top 50
Norfolk	Currently Ready	1,900	1,900	<top 50
Miami	2015 - Dredging/Cranes	950	900	<top 100
Baltimore	2013 - Cranes	650	630	<top 100
Subtotal		29,700	29,180	
Percent of N.American TEU Containers		66%	65%	

Source: American Association of Port Authorities, Colliers Int'l

Port readiness, though, involves more than a 50-foot channel depth. According to the just-released U.S. Army Corps of Engineers report to Congress on port readiness, (www.iwr.usace.army.mil/docs/portswaterways/rpt/June_20_REPORT_SUMMARY_U.S_Port_and_Inland_Waterways_Modernization.pdf), a port is considered PPR when it has both:

- a channel depth of 50 feet with allowances for tide, as well as sufficient channel width, turning basin size; and
- dock and crane capacity.

Dock capacity is considered sufficient when the wharfing is engineered to handle PPC and SPP cranes that can unload container vessels up to 18–22 containers wide. The outreach, lift height and tonnage capacities for the typical Panamax cranes in use at most U.S. ports today versus the required PPC and SPP cranes are compared as follows:

Panamax Crane: A Panamax crane can fully load and unload containers from a container ship capable of passing through the Panama Canal today (ships 12–13 containers wide).

Figure 4

Typical Feeder - Panamax Crane *	
B Outreach	30.00 - 40.00m
D Lift Height	24.00 - 30.00m
SWL Capacity	40/50T Single - 65T Twin
Hoisting Speed	50 / 125 m/min
Trolley Speed	150 - 180 m/min
Travel Speed	45 m/min
Wheel Load **	30 - 45T Per Meter

Source: LIEBHERR

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Post Panamax Crane: A PPC can fully load and unload containers from a container ship too large (too wide) to pass through the Panama Canal (18 containers wide).

Figure 5

Typical Post Panamax Crane *	
B Outreach	40.00 - 46.00m
D Lift Height	30.00 - 35.00m
SWL Capacity	40/50T Single - 65T Twin
Hoisting Speed	60 / 150 m/min
Trolley Speed	180 - 210 m/min
Travel Speed	45 m/min
Wheel Load **	40 - 55T Per Meter

Source: LIEBHERR

Super-Post Panamax Crane: This crane is the largest modern container crane in use today. It can fully load or unload containers from the largest 12,500 container vessels with a width of 22 or more containers. Baltimore and Miami are adding such cranes to service.

Figure 6

Typical Super Post Panamax / Megamax	
B Outreach	46.00 - 69.00m
D Lift Height	35.00 - 49.00m
SWL Capacity	65T Twin - 80T Tandem
Hoisting Speed	70 / 175 m/min
Trolley Speed	210 - 240 m/min
Travel Speed	45 m/min
Wheel Load **	60 - 80T Per Meter

Source: LIEBHERR

China, Korea and the Netherlands surpass the U.S. in PPR and container traffic with ports handling between 11 and 29 million TEUs annually. Although the top 70 primary container ports in North America handle approximately 45 million TEU container units per year, that figure is the equivalent of just 35 percent of China's 130 million annual TEU containers.

PORT RANKINGS: GLOBALLY AND IN NORTH AMERICA

From a global perspective, the busiest container ports in the world are located in China. Among the world's 10 busiest container ports, six are located in China (led by Shanghai with 29 million TEUs); one in Singapore (28 million TEUs); one in South Korea (Port Busan with 14.2 million TEUs); one in the United Arab Emirates with 11.6 million TEUs; and one in the Netherlands (Rotterdam with 11.1 million TEUs). Only if the TEUs from the ports

of Los Angeles and Long Beach were combined (14 million) would North America have a container port ranked among the top 10 in the world. Aggregating all Canadian and Mexican ports' TEU container traffic (8.7 million containers) equates to just 62 percent of the container traffic through LA/Long Beach (Source: American Association of Port Authorities).

NORTH AMERICAN PORT RANKINGS:

Delineation of container traffic in North America is dominated by the U.S., followed by Mexico and Canada:

- Canada's leading five ports handle 4.8 million TEUs;
- Mexico's top 10 ports handle 4.2 million TEUs; and
- The U.S.' top 50 ports handle 32.5 million TEUs.

Canada: Port Vancouver (BC) handles the most container traffic among Canada's five largest ports, with 2.5 million TEUs in 2011—equivalent to Oakland, Calif.



Source: Port of Vancouver

Mexico: Port Manzanillo handles the most container traffic in Mexico (1.75 million TEUs—equivalent to Tacoma, Wash., or Charleston, S.C. in the U.S.).

United States: LA/Long Beach, New York/New Jersey, Savannah, Ga., Oakland, Calif. and Seattle are the top five container ports in the U.S. with annual container TEUs of 14 million; 5.5 million; 2.9 million; 2.3 million; and 2.0 million, respectively.

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Figure 7

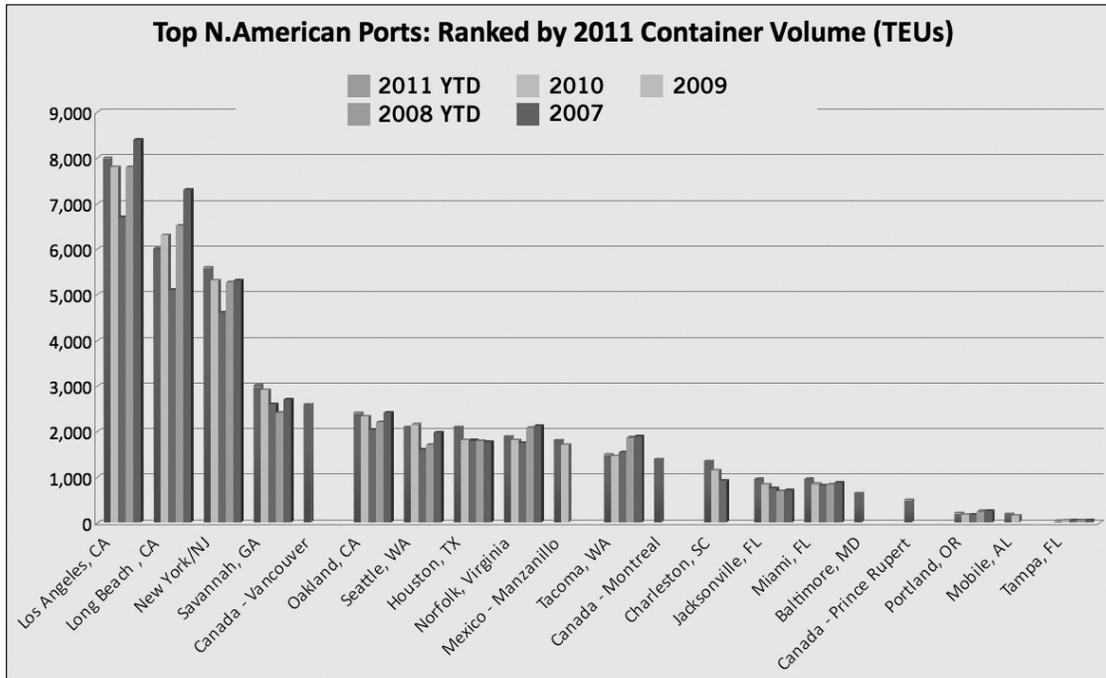
Top-20 North American Container Ports				
These 20 Ports = 94% of N.Am Container TEUs				
No. American Port	2012 TEUs (Est. 000s)	2011 TEUs	2010 TEUs	Rank (2011 TEUs)
Los Angeles, CA	8,000	7,900	7,800	1
Long Beach, CA	6,000	6,100	6,300	2
New York/NJ	5,600	5,500	5,300	3
Savannah, GA	3,000	2,900	2,900	4
Canada - Vancouver	2,600	2,500		5
Oakland, CA	2,400	2,350	2,330	6
Seattle, WA	2,100	2,000	2,150	7
Houston, TX	2,100	1,900	1,812	8-9
Norfolk, VA	1,950	1,900	1,895	8-9
Mexico - Manzanillo	1,800	1,750	1,700	10
Tacoma, WA	1,500	1,500	1,455	11
Canada - Montreal	1,400	1,300		12
Charleston, SC	1,350	1,300	1,147	13
Jacksonville, FL	950	900	827	14
Miami, FL	950	900	847	15
Baltimore, MD	650	632		16
Canada - Prince Rupert	500	410		17
Portland, OR	210	200	181	18
Mobile, AL	190	170	145	19
Tampa, FL (a bulk cargo port)	45	40	44	20
Subtotals	43,295	42,152	36,833	
Percent of N.Am TEUs	96%	94%		

Source: American Association of Port Authorities, Colliers Int'l

In summary, North America's top 20 ports, with respect to container traffic, are dominated by U.S. ports. All but three of the 20 busiest ports are located in the U.S.—two are located in Canada, and one is in Mexico. LA/Long Beach is the busiest North American container port, followed by New York/New Jersey, Savannah, Ga., and Canada's Vancouver. Only thirteen of the top 20 North American ports handle more than 1.0 million annual TEUs, and surprisingly, none of Florida's ports handles more than 1.0 million TEU containers annually. Why?

Florida's ports are oriented to more bulk cargo vessels (Tampa—largest fertilizer export port in the world) and cruise ships (Miami—largest cruise ship terminal in the world, handling 35 percent of all global cruise ship traffic). Florida also has the most ports of any U.S. coastal state that tends to keep cargo more widely dispersed. This anomaly is expected to change post 2015 as Florida completes upgrades to port facilities in Miami, Tampa and Jacksonville that will make all three ports Post-Panamax-ready and able to compete for more East and Gulf coast container traffic.

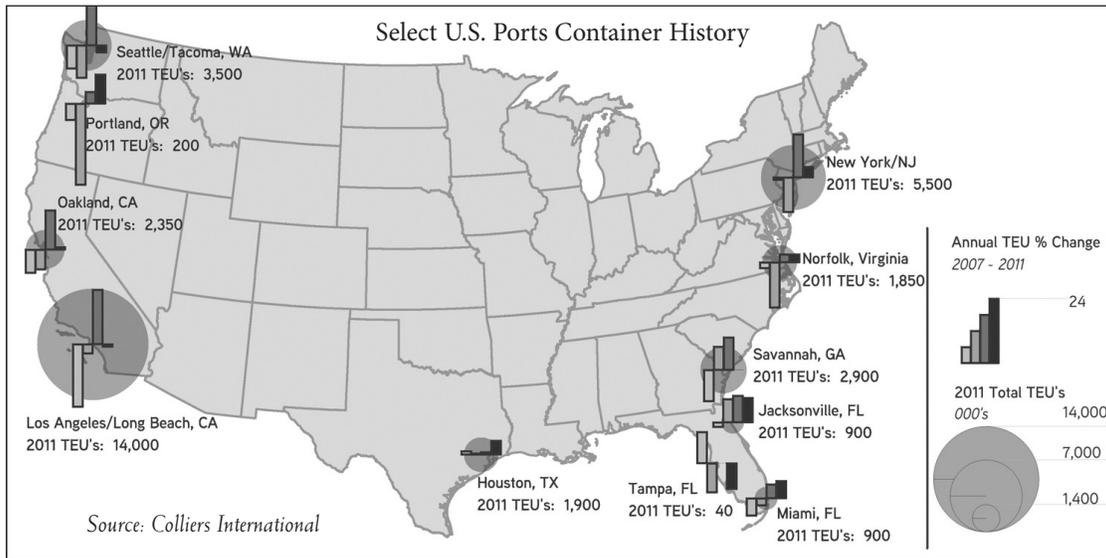
Figure 8



Source: Colliers International

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Figure 9



NEW DATA FOR SHIPPING AND LOGISTICS COMPANIES

For the first time, shippers have weekly data detailing the surpluses and shortages of TEU maritime containers at 18 inland U.S. intermodal load points. In July, the U.S. Department of Agriculture introduced the Ocean Shipping Container Availability Report (OSCAR). OSCAR will enable distributors, retailers and others to better manage transportation costs and the process of “match-backs” (matching an emptied import container with goods or materials for its return trip to port) to further reduce shipping costs. OSCAR contains up to three weeks of forward perspective on the inventory of 20- and 40-foot “Dry,” “High-Cube” and “Reefer” (refrigerated) containers.

THE RAIL AND INTERMODAL PIECES OF THE PORT PUZZLE

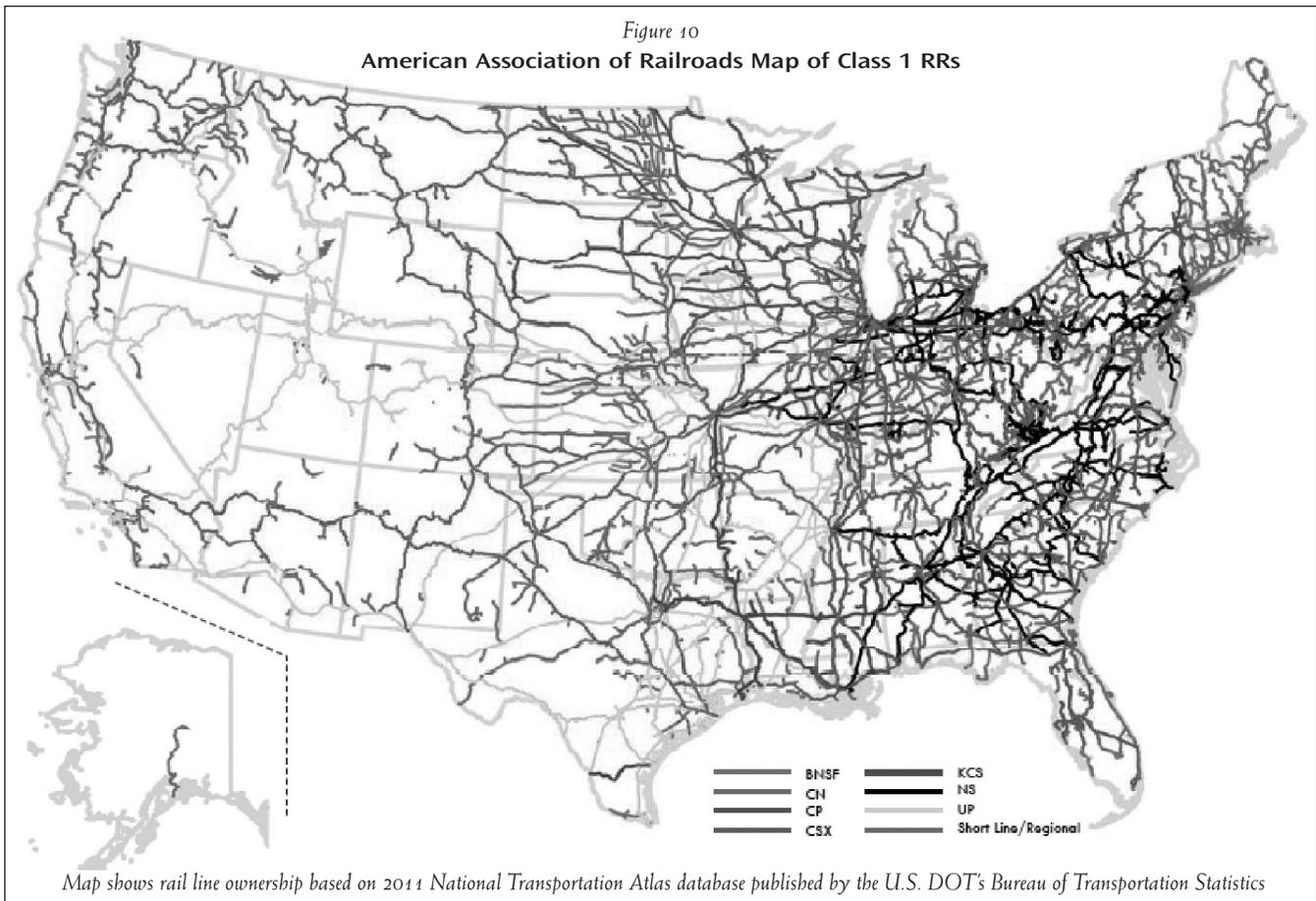
Cargo arrival to North American coastlines is just the beginning of the port story. As retailers and manufacturers are discovering, in an e-commerce driven economy, the logistics of moving cargo from port to end consumer—and then matching the emptied containers with cargo en route back to the ports—is “the rest of the story” (as the late Paul Harvey was famous for saying). Historically, trucking has been the preferred mode of transporting containerized goods inland from North American ports, and rail the means by which bulk commodities have flowed outbound. However, as diesel fuel prices remain volatile, shortages of truckers worsens and traffic congestion on highways slows the movement of goods, rail and air cargo are becoming important and

more reliable components of the intermodal story in North America. Retailers and manufacturers, confronted with increasing time pressures that compress with every technological advancement, have to balance both the cost and speed by which goods and materials flow. The primary consideration is no longer solely the cost of shipping. Of equal or greater importance is the speed by which raw materials and finished goods move into the assembly process or consumers’ hands. Clothiers can’t put the seasons on hold while cargo remains held up at a choke point in the supply chain. If necessary, retailers incorporate air cargo into their logistics and intermodal equation (Columbus, Ohio and Memphis, Tenn.) to have inventory on hand for the change of seasons, start back to school or onset of the peak holiday shopping season. As a result, retailers and manufacturers are remaking their entire supply chains. Distribution centers are appearing in what many might perceive to be off-the-beaten-path locations. Ashley Furniture, for example, frustrated with freight train delays in Chicago and seeing the export opportunities developing along the Mid-Atlantic and Southeast coast, announced in Q1 2012 an expansion to North Carolina to meet global and intermodal logistics needs. Today, there is even the existence of a U.S. Intermodal Hubs Database which identifies more than 3,000 points to designate facilities where freight shipments are handled by two or more modes of transportation. Retailers and manufacturers are studying these locations and spending almost as much Cap-Ex on new distribution centers and logistics technology as they are for new store openings. **How can one visualize and**

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Figure 10

American Association of Railroads Map of Class 1 RRs



quantify this trend? The answer lies in an examination of the routes for the seven Class 1 North American railroads in conjunction with the 18 designated OSCAR load points where container shortages and surpluses are being tracked for the first time starting in 2Q 2012.

These 18 OSCAR destinations are the linkage between all that has to connect in logistics:

- ports (global trade is imports/exports);
- inland population centers (the end consumers);
- container availability (where's the box to ship it?);
- labor and materials; and
- banking and financial markets (the grease that lubricates trade and global commerce).

Florida appears to be a large hole in the OSCAR coverage. Florida's elected and business leaders' 2012 adoption of a "What is consumed in Florida must enter Florida by way of a Florida port" campaign may expedite container tracking in Florida by OSCAR in 2013. In the meantime, the OSCAR for logistics goes to the 18 designated MSAs for containerization intelligence.

Figure 11

OSCAR: Ocean Shipping Container Availability Report			
The OSCAR goes to 18 US Markets with the Logistics Data			
Region	MSA	Region	MSA
West Coast:	Long Beach, CA	Inland:	Chicago, IL
	Oakland, CA		Cincinnati, OH
	Seattle, WA		Columbus, OH
	Tacoma, WA		Dallas, TX
East Coast:	New York	Denver, CO	Kansas City, MO
	Norfolk, VA	Memphis, TN	Minneapolis, MN
	Charleston, SC		
	Savannah, GA		
Gulf Coast:	Houston, TX	OSCAR	Atlanta
	New Orleans, LA	Omissions	Florida/Jacksonville Indianapolis

Source: U.S. Dept. of Agriculture

Agree or disagree, these 18 OSCAR markets have all the pieces required to meet today's definition of inter-modalism and logistics. They encompass the:

- port markets that process 75 percent of all North American TEU containers;
- primary intersecting points for all seven Class 1 railroads (Dallas, Denver, Kansas City, Chicago,

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Minneapolis, Memphis, Norfolk and New York). Only Atlanta and Indianapolis are oddly omitted; and

- financially important MSAs located in all twelve of the Federal Reserve's districts, except Boston and Philadelphia.

With three exceptions (Atlanta, Indianapolis and Jacksonville) OSCAR defines the epicenters of intermodalism and logistics in North America. These 21 markets (OSCAR 18, plus Atlanta, Indianapolis and Jacksonville additions missing from OSCAR) will be the leading intermodal and logistics centers for North American retailers and manufacturers in the first Post-Panamax decade (2015–2025).

PORT AND INTERMODAL RISKS AT MID-2012

The opportunities ahead for shippers, manufacturers, retailers, and industrial real estate investors resulting from the expansion of the Panama Canal locks, technological advances in logistics, cost efficiencies in supply chain management, and the convergence of retail and industrial real estate, fueled by e-commerce, are limited only by the risks. What are these risks heading into a Post-Panamax era in 2015? The risks can be categorized into five buckets:

- **geo-political:** close to home and not oceans away;
- **environmental:** diesel emissions and dredging;
- **global economic:** slowing China GDP and EU debt;
- **labor:** International Longshoremen's Association (ILA) Fall 2012 strike threat; shortages of skilled transportation labor and dock workers;
- **CapEx:** Funding port maintenance and upgrades while state budgets are in fiscal disarray.

Macro geo-political: When Americans or U.S.-based retailers and manufacturers hear this phraseology, they immediately assume it refers to trade disputes between the U.S. and China or India. However, for this analysis, the directly impacting geo-political risks to our ports and intermodalism are closer to home. The two primary risks lie within or adjoin our U.S. borders.

The first risk emanates from a 2012 Federal Maritime Commission report critical of Canadian and Mexican port actions to encourage the diversion of U.S. bound cargo to their ports for the purpose of avoiding payment of the U.S. harbor maintenance tax on waterborne commerce entering U.S. ports. At issue is port and inland waterway funding that greatly benefits Canada and Mexico. Port competitiveness is also central to the issue. From an earlier discussion in this report, underfunding

the maintenance and modernization of U.S. ports is a key takeaway. The U.S. already ranks 23rd globally in port funding, and much of that funding gets diverted by Congress for other fiscal purposes. Canada and Mexico undermine their own port readiness by undermining harbor maintenance at U.S. ports and along inland waterways that connect Canada to the Gulf of Mexico. Leadership between the respective governments is required to ensure that U.S., Canadian and Mexican ports operate on a level playing field with respect to port maintenance, funding and cargo fees. Without such leadership, the efficiencies of intermodalism and logistics begin to break down—and shipping costs reverse course from a decades-long trend of decline.

For some final perspective on this point, consider the cost of shipping goods by ocean. Fifty years ago the cost represented approximately 15 percent of the value of shipped goods. In 2012, that ratio is, on average, less than one percent. Freight rates today are less than they were even 20 years ago despite the fuel, labor, environmental compliance and terminal fee increases. Why? Global trade growth has enabled scale to work. No product offering epitomizes this observation better than agriculture.

Environmental: Dredging and diesel fuel emissions from idling ships, trucks and gantry cranes loading/unloading cargo are the leading environmental challenges at North America's container ports. The benefits of mitigating the adverse impact from both diesel emissions and dredging are understood and embraced by most port authorities. Baltimore is recognized as "The Green Port" for its limited impact on the Chesapeake Bay. LA/Long Beach and Houston are both leaders among North American port authorities for funding environmental upgrades. And, Miami is leading East and Gulf coast ports with the electrification of its cranes to eliminate one entire source of diesel emissions. So, what is the risk? The risk is that the cost/benefit analysis in an era of state and federal budget crises will not be enacted. Incentives and financing mechanisms are required for port authorities to maintain progress on environmental projects. Vital environmental initiatives at North American ports, such as the electrification of gantry cranes and automation of port facilities to reduce idling vessel and truck emissions face two primary headwinds: 1) funding; and 2) organized labor resistance.

Global Economic: China's slowing GDP and Europe's unresolved debt crisis are risks to global trade. Less global trade translates to a reduction in the collection of fees necessary to maintain and upgrade ports—such as the

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U.S. Harbor Maintenance fee imposed on all U.S. water-borne commerce. Keep in mind that Europe is both the United States' and China's largest trading partner, and that China's five primary ports originate approximately 45 percent of all global container cargo. A moderate five percent reduction in global container traffic translates to the equivalent of all of the TEU cargo containers handled annually by a LA/Long Beach—or North America's busiest container port. In other words, Europe's fiscal health and China's GDP are the two canaries in the global trade coal mine. As goes the GDP in Europe and Asia, so goes the volume of global container traffic.

Labor: Strikes have recently impacted, and continue to threaten, container traffic in North America. In its latest Q2 earnings release, the Canadian Pacific Railway blamed a nine-day strike for a nearly 20 percent drop in second-quarter profit. That was minor compared to the potential impact from an ILA strike at U.S. ports this fall (October 1, following the expiration of the ILA existing labor agreement). The timing of such a strike would impact retailers just as they are transporting imported goods into ports for stocking e-commerce warehouses and stores for the holiday shopping season.

WHAT IS THE CONTROVERSY?

At the root of the ILA strike threat are two concerns:

1. port automation leading to elimination of jobs; and
2. jurisdiction of intermodal equipment.

This latter item is more complex than port automation. As port authorities and multinational shipping companies have wrestled with the need to simultaneously upgrade facilities and finance Post-Panamax port equipment, they have turned to leasing companies for solutions. The ILA is concerned that transfer of the ownership of intermodal equipment and some port facilities will lead to work being transferred to non-union labor—or other labor unions, such as electrical workers—for new electric gantry cranes. The transfer of union jobs was central to a pair of 1Q 2012 ILA showdowns at grain terminals in both Washington State and Oregon. The risk to monitor is whether the U.S. is re-entering a new phase of ILA activism and work disruption. It is enough of a concern for the National Retail Federation to weigh in on the risk. In a July 2012 open letter to ILA President Harold Daggett and James Capo, chairman and CEO of United States Maritime Alliance, NRF President Matthew Shay wrote: "Retailers are growing nervous as they approach the summer-fall peak season for holiday imports. If ILA talks don't show progress by end of July, retailers will

accelerate shipments or begin to divert cargo through other modes and ports not affected by the ILA."

CapEx: It is clear that the U.S. lags the major trading countries of the world in funding its ports, with a global ranking of 23rd; however, what is not well understood is that the fiscal condition of U.S. states is also an impediment to improving funding. Among the annual Forbes ranking of state debt and fiscal conditions, half of the top 10 U.S. container ports (LA/Long Beach, Oakland, New York and New Jersey) are located within states ranking in the bottom 10 for fiscal soundness (New York, New Jersey and California). In addition, the most vital intermodal MSA in North America, Chicago, is located in the most fiscally distressed state in the U.S. The cost to cure Chicago's intermodal congestion problem (due to loading passenger traffic onto the same rail lines that move freight) is \$3 billion—\$3 billion from a state that is operating a \$500 million annual deficit and is described by its own Treasurer as "being in a fiscal crisis worse than Greece."

Recognizing that most port authorities are creations of state legislatures and local government for the purpose of economic development, the state fiscal crisis in the U.S. is a material risk to vital U.S. ports, such as LA/Long Beach and New York, and pivotal inland intermodal centers such as Chicago. Note that only one top 20 North American port (Norfolk) is located in a state ranked fiscally sound by *Forbes* (Virginia).

Figure 12

FORBES: Annual FY Ranking of State Debt: FY 2010-2011				
Top 10 Ranked States / Bottom 10 Ranked States				
Rank	State	Debt Per Capita (\$)	Unfunded Pensions Per	
			Capita (\$) ¹	Gross State Product (\$Bil)
1	Utah	\$447	\$7,272	\$86
2	New Hampshi	525	7,524	50
3	Nebraska	17	4,878	65
4	Texas	520	7,744	916
5	Virginia	782	7,556	326
6	North Dakota	356	6,080	25
7	Nevada	865	10,115	99
8	Iowa	79	8,126	109
9	Montana	391	9,923	27
10	Colorado	340	15,548	200
40	Kentucky	1,477	12,555	122
41	Wisconsin	1,429	16,418	195
42	Massachuset	4,323	9,249	306
43	Ohio	962	19,110	373
44	Mississippi	1,478	12,523	71
45	Louisiana	1,164	10,180	144
46	New Jersey	3,621	16,838	380
47	California	1,805	13,015	1,506
48	Connecticut	4,490	17,622	173
49	New York	2,921	8,620	938
50	Illinois	1,877	17,230	503

Source: Forbes

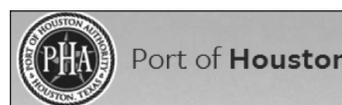
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CONCLUSION:

Expansion of the Panama Canal locks to accommodate container vessels 160 percent larger than today's Panamax vessels is altering global trade routes and advancing the science of logistics. This one project has advanced intermodalism from the Stone Age to the Space Age. The cost of transporting ocean borne cargo has declined from 15 percent of the value of goods 50 years ago to less than one percent today. Agriculture has been just one key U.S. industry that has benefitted from this trend. Looking forward into 2Q 2012 and the beginning of the first Post-Panamax decade (2015–2015), the opportunities for retailers, manufacturers, shipping companies and industrial real estate investors is limited only by the risks. Those risks are less nature-made (hurricanes, global warming, disrupting shipping routes, and the supply of petroleum) and more government-made ("not in my backyard") environmentalism, fiscal deficits, geo-political disputes between countries and even U.S. states—Florida's "all consumed in Florida imported through a Florida port" campaign. The root of these government-made risks is over-competitiveness and transportation fees. Leadership among North American governments is required to mitigate the damage from risks, such as ILA strikes. The future growth of North American trade resides in collaboration and not isolation. Container traffic is global in nature. No single country or continent controls all the resources, facilities or technology. Retail and industrial real estate is converging as a result of the growth in global e-commerce and the science of logistics. In North America, the 21 markets leading in intermodalism and logistics are defined largely by the new OSCAR report—with three exceptions omitted in the initial coverage of this Ocean Shipping Container Availability report (Atlanta, Indianapolis and Jacksonville). These 21 markets likely will be where absorption and construction of modern distribution centers occur at the strongest pace in the first Post-Panamax decade (2015–2025). Assessment of the U.S. ports has moved beyond understanding the basics of what Post-Panamax means to understanding intermodalism and logistics.

Ten of North America's top 70 ports are recognized for distinguishing features and/or achievements vital to intermodalism and logistics. The 10 ports are featured as follows:

Best About North American Ports



"MOST IRREPLACEABLE" PORT

Port of Houston

Houston's port authority can make the argument for being the "port of firsts." Dating back to the early 1900s, the Houston Port Authority has been a leader in cargo movement (first to introduce double-stacking rail cargo), creation of foreign trade zones and ISO certifications for both environmental management and security. In 2011, the Houston Port Authority was named "Port Authority of the Year" among all global ports by "Containerisation International." What the Port of Los Angeles is to trade with Asia—and the Port of Louisiana is to trade along 1,400 miles of Mississippi waterways—Houston is to trade in the Gulf of Mexico and the nation's petrochemical needs. Unlike the nation's key East and West coast ports (New York, Savannah and LA/Long Beach), there is not any redundancy for the Port of Houston. New Orleans and Tampa could possibly handle Houston's vessel traffic, but they lack the other vital energy, security and inland infrastructure (pipelines, refineries, intermodal assets, etc.) to back up the Port of Houston should it ever go off-line. The Port of Houston also handles 70 percent of all the containerized cargo in the U.S. Gulf of Mexico.



"MY SHIP IS BIGGER THAN YOURS"

Ports of LA/Long Beach

The ports of LA and Long Beach are the "Big" in all that is containerization in North America. Since 2000, the ports of LA/Long Beach have ranked number one in volume as the busiest container ports in North America. In 2006, the port authority surpassed 8.5 million TEUs for the first time for any North American port—and it has never looked back. In March 2012, the largest container vessel in operation today—the MSC Fabiola—made call on the port of LA/Long Beach loaded with 12,000 TEU containers. The MSC Fabiola is the largest container vessel now serving the U.S.-Asia trading routes. As the port's director said last March: "Few ports can handle these giant ships, but LA/LB is Big-Ship ready."

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“CAN-DO SPIRIT AND GET IT DONE WITH LESS” PORT: Port of Savannah

The Port of Savannah has become the third busiest container port in North America, while having the shallowest channel depth of any of North America's top-15 ports (42 feet). The Georgia Port Authority has been ahead of East coast port authorities in Post-Panamax planning with less federal and state funding than other ports along the East coast. It has not let a lack of resources be an excuse to be just Panamax. This past spring, the Port of Savannah received U.S. Army Corps of Engineers approval to dredge to 47 feet while other ports along the East coast were still struggling to complete their dredging impact studies. For an “up and coming” port like the Port of Mobile, there is no better model for “success with less” than the Port of Savannah. The port's Center for Innovation and Logistics is also unmatched along the East coast. If you are a shipping company, retailer or agricultural products exporter along the East coast, Georgia Port Authority is on your mind.



“GET ‘ER DONE” PORT Port of Charleston

The port of Charleston started late in obtaining dredging approvals to increase its channel depth to 50 feet and getting its state legislature to appropriate the funds to become a Post-Panamax-ready port. However, it got the job done in 2012 like no other port has accomplished in the past decade. The port and U.S. Army Corps of Engineers recently announced that four years have been shaved off the anticipated dredging approval process, and the South Carolina legislature appropriated a record \$180 million for the port upgrades and dredging necessary to be Post-Panamax-ready between 2015 and 2017. At a time of maximum bureaucracy in Washington and deficits in state budgets, these accomplishments stand out for “Get ‘er done” recognition.



“DEEP BEFORE IT WAS COOL TO BE 50 FEET DEEP” Port of Virginia

Currently, there is just one East coast port with a 50-foot channel depth that is Post-Panamax-ready—and that is the Port of Virginia. The port has become a leading ocean container terminal complex on the U.S. East Coast because of its military roots. Although its annual TEU figures (approximately 2 million) rank it only fifth among U.S. ports, behind Oakland, Calif., it ranks first for competitiveness by *Site Selection* magazine for 2011. The Port of Virginia is an “East coast sleeper” that will likely become a first port-of-call for Post-Panamax container vessels post 2015. Companies such as Ace Hardware, which selected the Hampton Roads area for its U.S. imports distribution center, are already recognizing the Port of Virginia's competitiveness.



“THE DELICATE TOUCH” PORT Port of Baltimore

Aside from becoming one of America's Top 15 container ports while maintaining the ecological balance with one of the most delicate wetlands along the East coast (the Chesapeake Bay), the Port of Baltimore demonstrated it also has a delicate engineering touch when it maneuvered four new “Super-Post Panamax” cranes under the Chesapeake Bay Bridge on June 20. The new cranes, along with the deepening and reconstruction of the Seabirth Marine Terminal, gives Baltimore the distinction of being one of only two Post-Panamax-ready ports along the East Coast in 2012. The port has a 50-foot deep channel and now seven “Super-Post Panamax cranes.

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“CRUISING TO LATIN AMERICAN SUCCESS”

Port of Miami

The Port of Miami has long been regarded as America's “cruise port.” Whether it is Carnival, Disney, Norwegian, Royal Caribbean, or one of eight other existing and newly expanding cruise lines, there is hardly an internationally-flagged cruise line that does not make Miami a primary port of call. The statistics speak volumes. The Port of Miami reports in excess of 4.5 million annual cruise passengers flow through its terminals—and that figure is up one-third over the past decade, despite the 2008–2009 recession. Miami is using its cruise ship success to be so much more than a cruise ship port. The necessary dredging and Super-Post Panamax crane upgrade projects are underway, and these Post-Panamax readiness projects resulted in the ports of Miami and Panama entering into an agreement this past year to promote more trade between their two ports. Miami (and Port Everglades, located north of Miami and south of Palm Beach) are advancing their capabilities to capitalize on the boom in container and cargo traffic flowing through the expanded Panama Canal locks in 2015. The Port of Miami is no longer just your grandparents' port of call after retirement. It is cruising to one of the Americas' primary container trading ports.

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

“ENGINEERING FEAT OF 2012”

Port Authority of New York & New Jersey

At year-end 2012, it appeared that New York would not become Post-Panamax-ready by 2015 because of the cost and engineering hurdles presented in raising the Bayonne Bridge, a critical passage for container and cargo traffic linking the Hudson River and New York Bay to Newark Bay.

The bridge's current 151-foot air draft prohibits some post-Panamax ships from passing underneath on their way to four of the port's biggest container terminals on the west side of the harbor. The port authority plans to raise the air draft 61 feet by lifting the four-lane highway across the bridge (an incredibly complicated engineering undertaking), but first, the U.S. Coast Guard and other agencies must complete a study of the project's impact on the environment and on the bridge's historic structure. However, in true Empire State fashion, both an approval and engineering feat have been hurdled. On July 18, the N.Y. Port Authority announced that the \$1 billion project has been moved up six months, and the project has been placed on President Obama's list of projects for expedited review. It now appears certain the Bayonne Bridge will have enough clearance by Fall 2015 to handle larger Post-Panamax ships.



“THE UNDERDOG MAKING A COMEBACK”

Jacksonville

Florida has more port facilities and miles of waterways than any other U.S. coastal state. As a result, capital resources for dredging, cranes and wharfing or berthing upgrade projects have tended to be rationed under the state's current fiscal situation emanating from the post-2007 housing crisis. Since the onset of the U.S. housing and banking-led recession, Florida has tended to allocate a disproportionate share of state funding to the ports of Miami and Tampa for Post-Panamax readiness at the expense of the state's other 15 ports, such as Jacksonville. The port of Jacksonville has been the overlooked “step-port” in the funding process. That is changing, and north Florida's only deep-water port is making a comeback.

In July, Disney Resorts announced it would be transporting all resort-bound imports for its Central Florida

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properties through the port of Jacksonville. Disney explained that it made the decision based upon: 1) the quality of Jacksonville's port facilities, as well as proximity to Disney's Central Florida resorts; and 2) adoption of a statewide movement led by the governor to encourage businesses to bring into Florida the goods, materials and products that it consumes or sells through a Florida port. This campaign, known as "Bring Florida-bound cargo in through a Florida port," is worth monitoring to assess the impact it has on neighboring East and Gulf coast ports outside Florida. Alabama, Louisiana, South Carolina, Georgia and Virginia port authorities may see a material impact on container traffic and respond with their own campaigns, tax incentives, etc.

Figure 13



What seems like a strategic idea to boost Florida port traffic may place manufacturers, retailers and shippers in the midst of a port economic development war.



"THE NEW UP-AND-COMER"

Port of Mobile

On July 2, Airbus announced it would construct a \$600 million aircraft assembly plant in Mobile, Ala. The facility will build Airbus' industry-leading family of A319, A320 and A321 aircraft. The company said construction of the assembly line will begin in summer 2013. Aircraft assembly is planned to begin in 2015, with first deliveries from the Mobile facility beginning in 2016. Airbus anticipates the facility will produce between 40 and 50 aircraft per year by 2018. Like Boeing's decision to construct its newest aircraft assembly plant in Charleston, S.C. in 2010, a material part of the decision was the port. This announcement is a game changer for the Port of Mobile.

Many port authorities along the Gulf and southern portions of the East coast are surprised to learn that Post-Panamax vessels have started to call on the Port of Mobile. As a case in point, the MSC Laura docked in Mobile in June and was the first Post-Panamax vessel in the Mediterranean Shipping Company's fleet that will provide new weekly direct service from the North European ports of Antwerp, Felixstowe, Bremerhaven and Le Havre. Between the Airbus announcement and near-30 percent growth in container traffic already occurring at the port of Mobile, it is the "Up-and-Comer" port in the U.S. to monitor. ■

ENDNOTE

1. Conway, K.C., Colliers International, 2011.