Does the Deep Dredge Make Economic Sense for Jacksonville?

St. Johns Riverkeeper
August 5, 2014

Jacksonville is at a critical crossroads in determining the future of its port and its river. The purpose of this document is to assist readers in the assessment of the economic rationale for dredging the St. Johns River to 47 feet by demonstrating 1) the major challenges and obstacles that exist to Jacksonville becoming a first port of call for the supersized post-Panamax ships, 2) the limited economic benefits that may accrue to only a few deep water ports on the East Coast, 3) the significant uncertainties that remain regarding future shipping routes and distribution patterns, 4) the investment decisions that indicate a preference by shippers and railroads for other ports and 5) the opportunities that may exist for Jacksonville to succeed as a cascade-ready port.

Based on the assessments of industry experts, key performance data, and a comparison of the infrastructure and competitive attributes of other East Coast ports, Jacksonville does not appear to be a viable contender as a first-in, last-out port of call. When the irreversible damage that is likely to occur to the St. Johns River is taken into consideration, it makes it even more difficult for Jacksonville to justify such a massive expenditure of public resources. Community leaders and the public must carefully consider the high degree of speculation associated with this project and objectively evaluate the likelihood that Jacksonville can compete against better-positioned ports on the East Coast. Finally, it is imperative for leaders to also assess viable strategies and options for Jacksonville to succeed, if the Deep Dredge doesn’t take place.

JAXPORT Clarification

"JAXPORT" is the entity driving the case for deepening the St. Johns River to 47 feet. The term "JAXPORT" in this note specifically refers to the Jacksonville Port Authority and the terminals it leases to various shipping operators. Not all of the shipping activity in Jacksonville flows through Jaxport.

Other Jacksonville Trade

"Jacksonville’s port trade” or "Jacksonville trade” refers to JAXPORT’s activity plus activity from privately-owned terminals, such as Crowley Marine. As shown by Crowley at the June 18, 2014 Port Task Force meeting, Crowley moves over 160,000 TEU per year from this terminal to and from Puerto Rico.

Due to the reporting process of the American Association of Port Authorities (AAPA), these moves are not counted in the domestic and foreign 926,000 TEU reported commonly cited by JAXPORT. Adding Crowley’s private terminal moves to the AAPA-reported volume increases the Jacksonville trade total to about 1,086,000 TEU.

Key Questions:

1) What part of Jacksonville’s port business will benefit from harbor deepening?
2) Can the Port remain viable if we don’t dredge to 47-feet?
3) Who will benefit from the Panama Canal expansion and the trend towards larger ships?
4) Do automation, ship size and productivity have an impact on the number of jobs created?
   4a) Do larger ships mean more waterfront jobs?
5) What type of jobs would result from an increase in Post-Panamax container traffic?
6) Will the expanded Panama Canal mean more business for East Coast ports?
7) Is it possible that a hub and spoke transshipment distribution model could prevail?
8) Does it make sense for every East Coast port to have deeper water?
9) What is required for a port to be Post-Panamax Ready?
10) Can Jacksonville compete for the Post-Panamax ships?
11) How reliable are the economic forecasts by the Army Corps and JAXPORT’s consultant?
12) Where will the money come from?
13) Where are the railroads investing?
14) Have the shipping companies indicated a preference of ports?
15) How does Jacksonville currently compare to other East Coast ports?
1) What part of Jacksonville’s port business will benefit from harbor deepening?

Five years ago, JAXPORT began handling the Asian container traffic that currently makes up 15% of today’s port tonnage. It is this new trade that is driving the deepening project.

The other Jacksonville trades, making up 85% of today’s volume, and the forecasted growth in these trades, do not need a harbor deeper than 40 feet. See the projected growth by commodity type in the 240-page JAXPORT strategic plan.

The unaffected trade includes these traffic segments: Domestic and Caribbean Container vessels, Bulk Carriers, Auto Carriers and General Break-Bulk cargo ships. These flows do not risk loss of overall volumes or market share erosion due to the current harbor depth.

2) Can the Port remain viable if we don't dredge to 47-feet?

As previously mentioned, many of Jacksonville's current terminal tenants and owners don't require deeper water, including one of Jacksonville's largest, Crowley Maritime. At a recent Port Task Force meeting, Crowley's Tucker Gilliam stated, “The fact of the matter is 47 feet doesn't impact us. It's not important for our business.”

It is important to note that the newest LNG-powered container ships currently being built for TOTE and Crowley, designed specifically to handle Jacksonville’s trade with the Caribbean and Central America, are less than 3,100 TEU in size, and draw less than 35 feet of water.

Jacksonville also has the opportunity to be a successful niche port in the transshipment supply chain and a leader in growing markets, such as LNG and perishables from South America.

According to JAXPORT’s Strategic Master Plan, “JAXPORT has developed a balanced inventory of lines of business that provide a diverse set of cargo interests. The Port is a leader in handling automobiles, forest products, dry bulk cargoes, perishable cargoes, cruise passengers, as well as containers. This diversity in its business activity provides the Port with the ability to weather changes in specific lines of businesses as well as specific geographical markets. Despite the recession of 2008-2011, JAXPORT was able to grow its cargo and revenue.”

Some Jaxport/Jacksonville strengths include:

- Diverse range of cargos – containers, bulk, breakbulk, and ro-ro
- Niche carrier development with growing markets/economies of Caribbean, Central America and South America – SAMMAX vessels
- Developing LNG bunker fuel facilities for Puerto Rico and Caribbean shipping
- Receive feeder vessels from transshipment hubs in Central America and the Caribbean
- Cultivate Port of Jacksonville firms and private terminal operators such as Crowley
- Mile Point fix will ensure 24 hour access

Remaining competitive at 40 feet will still require a significant upgrade of infrastructure and facilities to increase efficiency and productivity, but would be much cheaper, and much less risky for our river and local taxpayers.

3) Who will benefit from the Panama Canal expansion and the trend towards larger ships?

“The economic function of competition between established regional container ports is to incentivize them to be more responsive to the needs of global maritime freight transportation industry.” (USACE Response to Independent External Peer Review)
“...interport competition results in an unnecessary and unrewarded transfer of wealth from local taxpayers and users to global firms.” (Potter, "Boxed In: How Intermodalism Enabled Destructive Interport Competition")

"It’s not clear just how much Panama will benefit from the canal’s expansion, given that no one knows just how much it will increase traffic...So, really, it’s the shipping companies that are ultimately best situated to benefit. With multiple options, the shipping companies have the canals competing for their business. In a similar way, many of the ports in the region are doing the same."

"In our view, the Corps of Engineers projections are flawed in that they do not make a rational business case for the preparation of any port. In every case we have examined, the benefits accrue almost exclusively to shipping companies. See Table 4 as an example for the Port of Savannah. Or, in a very macroeconomic sense infer "returns to the nation." Further, the Corps examines the case for each port in isolation from the others. We have to think that is not a reasonable approach, as in reality changes in port traffic due to NPX is likely to be more of a zero sum game, with interactions and competition between the ports."

With so many ports competing for a share of the bounty, experts are questioning how big that bounty will be. "Everybody is trying to go after it — there are going to be few beneficiaries, in my judgment," said William D. Ankner, a former official of the Port Authority of New York and New Jersey and a former secretary of transportation for Louisiana."

4) Do automation and productivity have an impact on the number of container jobs created?

Yes, container labor hours for longshoremen have grown at less than half the rate of container tonnage over the last 20 years, as reported by USMX.

USMX is the United States Maritime Alliance, Ltd., which serves as the industry labor bargaining group for East and Gulf Coast port operators and the 10 largest ocean carriers. USMX represents these ocean carriers and port operators as they negotiate with the 14,500 International Longshoremen.

Regarding container labor productivity gains, USMX reports that, for Atlantic and Gulf Coast ports:

- 1992 – 2002, container tons rose by 59%, while ILA hours rose 24%.
- 2002 – 2010, container tons rose by 49%, while ILA labor hours rose 16%.

Jacksonville can expect productivity to improve, generating fewer jobs per TEU, as volumes grow.
The ILA’s most aggressive stance in the last round of contract negotiations was focused on their intent to stop the introduction of new technology that would increase port efficiency and eliminate waterfront jobs. The final contract requires the ILA and USMX to jointly review the job impacts of new technologies, but does not give the ILA the ability to block them.


"Robots are taking over the heavy lifting. The Port of Miami certainly stands to see higher cargo volumes as a result of the Panama Canal widening — but increasing automation over the past decade will mute the job gains. ‘A lot of this is automated,’ Conway said. ‘That’s a big fallacy in a lot of these economic forecasts. A lot of these Ph.D.s have been too lazy to go back and look at labor trends. None of them have adjusted their models for what’s really going on in distribution.’ Conway isn’t the only skeptic. Logistics expert Tim Feemster and Greater Houston Port Bureau President Bill Diehl voiced similar questions.” (Kernan Conway is Chief Economist, Collier International)

"Each automated guided vehicle, or AGV, eliminates the use of a traditional yard tractor (bomb cart) manned by a longshoreman, eliminating dozens of jobs. The automated stacking cranes are also unmanned, although dockworkers in the tower remotely control the last move of the ASC as it places the container onto a chassis. However, that move is only about 40 seconds of the ASC’s four-minute duty cycle, so one dockworker in the tower can safely control three or four ASCs, if not more, Ward said. At manual terminals, every rubber-tire gantry crane is driven by a longshoreman."

"With the longest track record, Norfolk’s experience with automated yard operations serves as a cautionary tale. Since the changeover, members of ILA Locals 1248 and 970 have lost almost 100 jobs compared to conventional terminal operations. Lack of work at the container terminal strengthened the hand of break-bulk operators in Norfolk, who forced workers to accept a 36 percent wage cut for handling non-containerized cargo."

4A) Do larger ships mean more waterfront jobs?

No, because of commonly used arrangements called Vessel Sharing Agreements, or VSAs. Consider a port that has two 4,500-TEU ships from two different shipping lines arriving each week, via today’s Panama Canal. In the future, these two carriers can each use ½ of a shared 9,000 TEU ship and still call at the port once per week.

This is a common practice around the world. In this way, both carriers get the benefit of lower costs per container, without having to individually build larger ships and then compete against each other.

In this scenario, there will be half as many ship arrivals to move the same volume of freight. Pilots, line handlers and other people who are paid by the ship will see less work. Truck drivers who carry containers away from the port will be very busy around the ship arrival day, but have fewer busy days per month.

The surge as containers arrive in larger batches forces the port to invest more capital in equipment and property needed to get the larger ships unloaded quickly, so they can get on their way.

5) What type of jobs would result from an increase in Post-Panamax container traffic?

As we see more automation occurring at the ports to increase efficiency and productivity, many of the jobs that are created are associated with the warehousing and distribution functions of the supply chain.

Some studies indicate that most of the jobs created by distribution centers are often low-wage positions. “Yet the proportion of good jobs to low-paying positions and, more strikingly, direct hire to temporary positions, reveals that this industry is heavily reliant on a large low-wage labor force.”
“The widespread practice of classifying them as independent contractors inevitably leads to lower standards of living for truckers....As drivers articulated the problem in an in-depth 2009 study, they are often “paying to work,” and their real income (about 40 to 50 percent of their gross earnings, once all expenses are deducted) may average only $25,000 per year.”

“When we control for job type and industry, we find that warehouse jobs within logistics pay a median annual income of $22,000 per year. Female workers, who account for 33 percent of blue-collar warehouse occupations, earned $19,000, roughly $4,000 less than men.”

Temporary workers are also critical to the just-in-time distribution systems of large retailers. “Temp workers - who are hired to do the same jobs and work at least 20 hours per week - earn a median income of $10,067 per year.”

A study by the Center for Urban Economic Development at the University of Illinois at Chicago and Warehouse Workers for Justice found that 81 percent of new hires and 63 percent of all workers in warehouses were temporary employees; they earned a median $9 an hour while direct-hires earned $12.

A survey of New Jersey logistics workers found that “42.3% of the families of logistics workers with children fall under the Federal Poverty Level” and “only three percent of families with children captured in the survey had incomes meeting the Self-Sufficiency Standard.”

6) Will the expanded Panama Canal mean more business for East Coast ports?

There is no guarantee that shippers will find the all-water route via the Canal cheaper or more advantageous than landing cargo on the West Coast and transporting it by rail across the country. The land bridge is still faster, and the Canal tolls are expected to increase in the future to finance the $5.25 billion expansion. The canal authority has increased tolls by 146% since 2005 ($32/TEU in 2005 to $78.80) and have a pricing plan that requires 3.5 percent annual increases over the next 20 years.

Also, the West Coast Ports are pouring billions into upgrading infrastructure, becoming even more efficient. For example, “the ports of Los Angeles and Long Beach, which together handle about 40 percent of U.S. imports from Asia, will spend more than $7 billion in the coming decade on larger, more efficient terminals and improved connectivity to rail and highway networks.”

Port consultant John Martin says the idea that the Panama Canal will instantly bring more business to the Eastern Seaboard is an “urban myth.” Whatever business the Atlantic ports could easily take from Los Angeles and other Pacific cities has already moved east, he says.

In addition, many of the ships are either too big for the expanded Canal or have found advantages to using the Suez Canal or other trade routes. In 2013, 19% of container ships were too big for the Panama Canal locks, representing 45% of TEU capacity.

“China is no longer the low-cost supplier to the world, so some industries are not going to grow in China but in South Asia and a little bit in Mexico,” said Walter Kemmsies, chief economist for port engineering firm Moffatt & Nichol. Vietnam, Thailand, Indonesia and India are following the Chinese model of making massive investments in infrastructure for exports to Europe and North America, he said. “The liner companies can offer better services with bigger ships, and that makes the Suez Canal the more viable option.”

"To capitalize on the increasing volume through the Suez route and to handle super-sized ships, there are two very large dedicated intermodal port facilities proposed in Northeastern Canada. These planned deep-water facilities would be purpose-built for the largest ships, and rapid unloading, vessel-to-vessel transfers, and intermodal connections, allowing the largest vessels to service the northeast U.S. markets whose ports are too small or too shallow to accommodate these ships. Oh, and these ports make the Suez journey one day shorter: good for carriers and shipping rates."
"The fastest way to get cargo from China to the U.S. east coast is by ship (12.3 days for a ship to go from China to the U.S. west coast) and rail (6 days from the west coast to the east coast) - a total of 18.3 days. For this reason, 75% of Asian imports go this way. Only 20% go through the Panama Canal because it's longer, at 21.6 days. The rest goes through the Suez Canal directly to the U.S. east coast, which takes 21 days.” (Source: USDA, Impact of Panama Canal Expansion on the U.S. Intermodal System, January 2010)

"If 100% of the freight currently received on the West Coast and shipped to the East Coast was moved through the Panama Canal, this data suggests the addition of one post-panamax ship's equivalent of containers a day for all the East Coast ports, in total (not each East Coast port). Knowing that the widening of the Panama Canal is not going to cause a complete shift of freight, the Commodity Flow Survey data indicates there likely will not be a large number of new ships calling on ports on the East Coast. Instead, ports will start to see larger ships less often on a new port of call rotation schedule.” (Source: IMPACT OF THE EXPANSION OF THE PANAMA CANAL: AN ENGINEERING ANALYSIS by Charles W. W. Mitchell, III.)

"While what is known is fairly straightforward, such as the operational characteristics of the expanded canal, it is by far supplemented by what remains uncertain, namely trade flows, shipping network configurations and the growth of the amount of transshipment in the region. The problem in assessing the potential impacts of such a capacity expansion project is that in reality the consequences are multidimensional and prone with feedback effects, some of which may even be unintended consequences. It can be inferred that the expansion of the Panama Canal is going to be a game-changer, but the new rules of the game are not clear.

"It's not clear just how much Panama will benefit from the canal's expansion, given that no one knows just how much it will increase traffic....That seems to be the message for just about everyone: Nothing is guaranteed.

Scudder Smith, a consultant with the engineering consulting firm Parsons Brinkerhoff, said that a water passage, “all things being equal, will cause cost reductions — but all things are not equal,” he added, and so “I'm not at all confident in any numbers.”

"As argued in this article, anticipated coastal shifts may be minimal and competition affecting such shifts may also be illusory.”

"Unless routing cargo through an expanded canal helps shippers substantially improve their overall supply chain costs, they will not greatly increase their usage of all-water service from Asia to the USEC. If such savings were present, shippers would abandon the USWC today—something that is not happening.”

"Yet, as ports carry out such extensive projects, questions and skepticism linger over the future direction of freight movement and the long-term economic implications. How will ports handle the extra time it takes to load and unload the new mammoth ships? How will Pacific port investments in the United States and Canada counter the investments at the Atlantic ports? These uncertainties complicate analysts’ and policymakers’ abilities to identify exactly how the expansion will shift the precise location and scope of all freight flows.”

VDOT Freight Planning Specialist Erik Johnson emphasizes the uncertainty: "Rather than being about competition among ports or states, it will really be about how the transportation system on the East Coast is ready to handle the increase that could come as a result. We don't know that just because bigger ships are going to come here, that there will be more containers - we could see bigger ships carrying the same volume of containers.”

Based on their research, Dr. Jean-Paul Rodrigue and Dr. Theo Notteboom, professors at Hofstra University and the University of Antwerp, stated: "While what is known is fairly straightforward, such as the operational characteristics of the expanded canal, it is by far supplemented by what remains uncertain—namely trade flows, shipping network configurations, and the growth of the amount of transshipment in the region."
"The other USEC ports would do well to remember the words of former Montreal Mayor Jean Drapeau, who said, 'The Olympics can no more lose money than a man can have a baby.' Following the 1976 Olympics, the city was left with a debt that took 30 years to repay. Some ports that are betting on a post-2014 cargo boom could suffer a similar fate."

7) Is it possible that a hub and spoke transshipment distribution model could prevail?

Yes. "New transshipment activity could change shipping patterns from the United States to the Caribbean, with negative consequences for ports in Florida, and create incentives for importers to resort to packaging goods offshore for store delivery instead of at U.S.-based distribution centers, John Martin, a well-known port economist and the head of Martin Associates, recently told a gathering of maritime industry stakeholders." The Bahamas and Jamaica are both improving their ports, with the Chinese investing millions into their distribution centers.

"It is not unfeasible that that introduction of ships too large for USEC ports’ newly-dredged channels will trigger a change in the service pattern of both AWP and AWS to hub and spoke. In this case, USEC ports would find themselves served by feeder services based on foreign hubs in the Caribbean region for AWP and Canada for AWS."

According to the Florida Chamber Foundation, "To be cost-effective, the larger container vessels transiting the Panama Canal must make fewer stops and spend less time in port. This need creates opportunities for seaports in Panama, the Bahamas, Jamaica, and other locations that operate almost exclusively by transferring loads from large mother vessels to smaller feeder vessels bound for seaports in the United States or South America. Many U.S. ports are unable to fill this role because of limitations on channel depth and container yard space. The Merchant Marine Act of 1920 (Jones Act) also limits the ability of U.S. seaports to act as transshipment hubs by requiring any vessels carrying cargo between U.S. seaports to be American built, owned, registered, and crewed."

"Ashaf Ashar, a research professor with the National Ports and Waterways Initiative and an independent consultant, believes after the expanded Panama Canal opens in 2015, giant hubs in ports such as Kingston, Jamaica may be developed and large containerships coming from Asia will turn around in the Caribbean instead of sailing to U.S. ports."

8) Does it make sense for every East Coast port to have deeper water?

No. Many industry experts cite the need for only 2-3 deep water ports on the East Coast. "There are five to seven ports that expect to be major gateways post-2014. Yet it is unlikely that more than two or three will achieve that status."

The shippers want to consolidate cargo and containers on to larger ships and make fewer stops. According to industry consultant John Martin, "The large ships can't call multiple ports. Carriers lose all economies of scale once they start doing milk runs."

According to the Florida Chamber Foundation, "Ocean carriers are likely to focus on a small number of seaports in the Eastern United States to berth larger vessels. These seaports must have channels dredged to at least 50 feet and offer larger berths, bigger cranes, and more efficient infrastructure and intermodal connections. By 2015, only New York, Norfolk, Baltimore, and Miami along the Eastern seaboard will be ready for post-Panamax vessels."

"What seems clear at this point is that vessel operators looking to maximize the value of expensive megaships are unlikely to make multiple calls along the East Coast. Some liners may choose just two ports, one in the North (either New York or Norfolk) and one in the south (Charleston, Savannah, or Miami). Foltz believes most liners will choose three ports: New York because of its enormous consumer base, Norfolk because it rules the geographic sweet spot midway between New York and the Southeast ports, and either
Charleston or Savannah. Miami is considered the outsider because its location is too far removed from major population centers other than south and central Florida."

New York/NJ is a lock. Norfolk is extremely well positioned for the Mid-Atlantic region. That may leave only one more potential deep water port necessary in the Southeast - either Charleston, Savannah, Jacksonville or Miami. With every major port on the East Coast spending hundreds of millions if not billions on infrastructure improvements, they could be engaging in a race to the bottom. A glut of Post Panamax Ready (PPR) ports could drive down port fees, resulting with the shippers in the driver's seat and most of the benefits and many of the ports at less than capacity with significant debt. This could also result in a huge waste of federal and local taxpayer dollars, since we don't need every port to be PPR.

"Our challenge is to invest in capacity expansion in the right places at the right time consistent with industry needs...South of Norfolk there are no ports that are fully post-Panamax ready. The ports of Savannah, Charleston and Miami are at various stages of capacity expansion. Successful development at these ports would fill the critical need on the Southeast coast. However, there may be a need for "cascade ready" expansion at some of the smaller ports." (U.S. Port and Inland Waterways Modernization: Preparing for Post-Panamax Vessels. Institute for Water Resources.U.S. Army Corps of Engineers)

"Certainly we as an association and in the industry as a whole recognize and believe that not every port in the country needs to be at a depth to be able to accommodate the largest vessels in international trade," Kurt Nagle, American Association of Port Authorities.

There is "no guarantee that US East Coast ports will win from the expansion, and even if they do triumph there certainly won't be enough traffic to warrant all the works being undertaken at East Coast ports.... despite the very persuasive arguments they make, US East Coast ports can't all be winners."

"The danger, then, is that ego will prevail over business logic. Everyone wants to be able to tout the ability to handle larger ships. With taxpayer money, it may be all too easy to ignore the business case which should be made prior to expansion."

<table>
<thead>
<tr>
<th>Port</th>
<th>2012 volume (m teu)</th>
<th>Current channel depth</th>
<th>Project</th>
<th>Estimated cost</th>
<th>Likely earliest completion date</th>
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<tbody>
<tr>
<td>New York / New Jersey</td>
<td>5.53</td>
<td>Mostly 50ft (15.2m)</td>
<td>Raising Bayonne Bridge</td>
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<td>2015-16</td>
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<td></td>
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<td>Dredging to 50ft (15.2m)</td>
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<td>2.97</td>
<td>42ft (12.8m)</td>
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<td>No date announced but likely to be similar to Charleston</td>
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9) **What is required for a port to be Post-Panamax Ready?**

Most experts identify the following minimum criteria for a post-Panamax ready (PPR) port: "channel depths of 15m (50 ft) with sufficient width and turning basin; cranes capable of loading and unloading the larger vessels; and docks engineered to handle the new, bigger cranes." Four East Coast ports will be PPR by 2015 - Norfolk, Baltimore, Miami, and New York.
10) Can Jacksonville compete for the Post-Panamax ships?

Trade publications and many experts rarely mention Jacksonville as a viable contender and for good reason. While Jacksonville has good intermodal connections, it lacks many of the competitive advantages of other major East Coast ports.

**Savannah** has a logistics infrastructure that is superior to its competitors and is closer to Atlanta, a key distribution hub. They also have 9 Post-Panamax and 16 Super Post-Panamax cranes in operation and an unrivaled network of distribution centers. The Georgia legislature has also already put aside $231 million for the dredging.

**Charleston** will be 50-feet, and according to one of the articles below, "has the industry's most efficient loading and unloading operation, with 43 crane moves an hour (according to Colliers, Savannah is close behind at between 40 and 42 moves)." The Port has 8 Super Post-Panamax cranes and 10 Post-Panamax cranes. Charleston has received a commitment from the state of S.C. to fund the entire $300 million cost, if federal funding doesn't come through. **The Port is also currently building a new $700 million terminal.**

**Miami** will be 50-feet and has 6 Super Post-Panamax cranes and is investing $2 billion in infrastructure improvements, including on-site intermodal rail service and the Tunnel project to expedite truck traffic.

**Baltimore** is 50-feet, has 4 Super Post-Panamax cranes (7 Post-Panamax), and is constructing a 70-acre, $90 million dollar intermodal facility with CSX.

**Norfolk** is 50-feet, all of its berth are also 50-feet, and has 8 Super Post-Panamax cranes. The port "contains the APM Terminals in Portsmouth—the most technologically advanced container terminal in the world" and "construction of Craney Island Marine Terminal is underway "that will more than double the existing throughput capacity of the Port." Norfolk also "currently has service by two Class I railroads, Norfolk Southern and CSX" and CSX is currently building the $850 million National Gateway that will increase the use of double-stack trains and help connect the Mid-Atlantic ports to the critical Midwestern markets. In addition, Norfolk Southern is building the $150 million Heartland Corridor to facilitate more efficient travel from Norfolk to Chicago and Columbus and the $2.5 billion Crescent Corridor between New Jersey and New Orleans.

Also, productivity and efficiency are the name of the game. Savannah (60), Charleston (56), Norfolk (54), and New York (52) all rank in the top 15 ports of the Americas in berth productivity.

"There are five to seven ports that expect to be major gateways post-2014. Yet it is unlikely that more than two or three will achieve that status....In the Southeast, the ports of Charleston, South Carolina, and Savannah, Georgia, will probably both remain dominant. Both have competitive advantages and disadvantages relative to the other. (Charleston is closer to the ocean and has deeper water, while Savannah has plenty of land and established arrangements with big retail importers.) Wilmington, North Carolina, and Jacksonville, Florida, will remain minor all-water players and will continue to rely on other business segments to prosper.” **Supply Chain Quarterly**

"It's not going to be there from the canal," said Ed Sands, global practice leader at the transportation procurement firm Procurian. "Places like Florida don't have the distribution activity that the big cargo ships need so I don't really see them going there even if the harbors are deeper," he said.

11) How reliable are the economic forecasts by the Army Corps and JAXPORT's consultant?

The economic analysis that has been conducted by the Corps and Martin must be further evaluated, as well. The Independent Expert Panel Review (IEPR) of the Corps’ Environmental Impact Study concluded that "The Regional Economic Development (RED) benefits are incorrectly attributed to the harbor deepening and therefore overemphasize regional benefits of the Jacksonville Harbor Project."
Although Savannah currently has significant competitive advantages over Jacksonville, the Army Corps conducted a multi-port analysis for its port but not Jacksonville's. As a result, the IEPR concluded: "Federal interest has not been demonstrated in the General Reevaluation Report II (GRRII) because a multi-port analysis assessing competition among regional ports is not provided." If a multiport analysis had been conducted for Jacksonville, it is likely that the USACE would not have recommended dredging.

In addition, the local jobs report by Martin and Associates was not evaluated by the Corps and the assumptions and inputs used by Martin have not been independently peer-reviewed and validated. Dr. Paul Mason from UNF was commissioned by Jaxport to review the methodology, but he had to preface his evaluation by saying, "presuming that the inputs of the model are valid..." This phrase or a similar one is used several times in the report. Even if you accept the validity of the methodology used by Martin, no one has evaluated the inputs that went into the projections, including Dr. Mason and the Port. The quality and accuracy of the modeling is only as good as the inputs. This analysis clearly deserves much more scrutiny.

12) Where will the money come from?

The Jacksonville harbor deepening project is projected by the Army Corps of Engineers to cost at least $684 million, with Jaxport and the local community responsible for over $371 million. However, this does not include all of the associated infrastructure upgrades that would be necessary, cost increases due to inflation, unanticipated expenses that may arise, and cost overruns that often typical of megaprojects. Automation is also becoming increasing important to improve efficiencies, lower costs, and remain competitive. However, “automating a terminal can cost $200 million to $500 million or more.”

PortMiami acquired so much debt to fund its expansion, that its bond rating was downgraded. "The port of Miami, the world’s largest cruise-ship hub, is selling a record $389 million of debt to boost its cargo business as the Panama Canal expands. Investors are balking, as the plan would triple the facility’s bond load in four years.... Moodys cut the seaport’s rating one level last month to A3. By 2017, net revenue from the port won’t be able to cover its bonds and debt issued by Miami-Dade County on its behalf, said David Jacobson, a Moody’s spokesman in New York. The port may have to use reserves, Jacobson said."

"In a nutshell, the issue is the port will be spending $1.32 billion to dredge, build the tunnel and build an intermodal rail yard, but it will take time to ramp up the business that will help pay for the $389 million in debt it is issuing this week plus other obligations. The port might have to dip into reserves to repay money it owes the county for debt issued on its behalf, The county is so strapped for money that it’s raiding a rainy day fund to avoid layoffs and maintain hours for its library system, the Miami Herald reports." (PortMiami bond rating drop shows not reward without risk, South Florida Business Journal)

Recently, Moody's Investors Service “downgraded Jacksonville’s credit rating, a move that could cost the city an additional $1.4 million in interest payments.”

13) Where are the railroads investing?

Fredrik Eliasson, Executive VP & CFO for CSX, said that the recent Port Task Force meeting that CSX doesn't invest in ports; they invest in infrastructure to move cargo away from ports. If this is true, then it stands to reason that railroads will invest where they see the best opportunities. It appears that CSX and other railroads are investing substantially more in other East Coast port markets than in Jacksonville.

For instance, CSX is currently investing approximately $575 million in the $850 million National Gateway that will increase the use of double-stack trains and help connect the Mid-Atlantic ports to the critical Midwestern markets. In addition, Norfolk Southern is building the $150 million Heartland Corridor to facilitate more efficient travel from Norfolk to Chicago and Columbus and the $2.5 billion Crescent Corridor between New Jersey and New Orleans.
“Georgia Ports Garden City Terminal is the only container port on the East Coast that can boast two on-site rail yards served by Class I providers...”

Baltimore is constructing a 70-acre, $90 million dollar intermodal facility with CSX.

Norfolk Southern partnered with the South Carolina State Ports Authority to develop a new inland port in Green, S.C. This 10-year, $1.3 billion project opened in September 2013, making international shipments between the Port of Charleston and across the Southeast more efficient.

While Mr. Eliasson said that he does not believe that Miami and Port Everglades are contenders for the larger ships, FEC must disagree. They are investing heavily in PortMiami and Port Everglades. FEC is contributing $9 million to a $50 million project in Miami to reconnect the port with freight-rail service. “In addition, commercial real estate firm Flagler, an FEC sister company, is developing the South Florida Logistics Center adjacent to FEC’s intermodal center in Miami. The center will offer shippers transloading, perishable- and dry-freight warehouse capabilities, helping them reduce drayage costs...Meanwhile, FEC broke ground in January on an on-dock intermodal container transfer facility that the railway is building with Port Everglades in Fort Lauderdale.”

14) Have the shipping companies indicated a preference of ports?

One way to determine the future direction of shipping container traffic, and the port preferences of the major shipping lines, is to examine the port rotations that have been revealed by developing carrier alliances.

The tables below indicate that there is a clear preference for Jacksonville’s competitors when choosing the ports of call.

Tables 1 and 2 show how the G6 and P3 alliances planned to start their respective East Coast Transatlantic schedules in 2Q 2014. These include G6 calls in New York/New Jersey, Norfolk, Charleston, Savannah, and Port Everglades, and P3 calls in New York/New Jersey, Boston, Baltimore, Norfolk, Charleston, Savannah, and Miami. Note: After China recently rejected the P3 alliance, Maersk and MSC have joined together in a vessel sharing agreement (2M VSA).

Table 1: Port Calls of Proposed G6 Transatlantic Services

<table>
<thead>
<tr>
<th>Service</th>
<th>USEC ports</th>
<th>New York/ New Jersey</th>
<th>Norfolk</th>
<th>Charleston</th>
<th>Savannah</th>
<th>Port Everglades</th>
</tr>
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<tbody>
<tr>
<td>AX1 (Atlantic Express 1)</td>
<td>✔️</td>
<td>✔️</td>
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<td></td>
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<td>AX2 (Atlantic Express 2)</td>
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<tr>
<td>AX3 (Atlantic Express 3)</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
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<td></td>
</tr>
</tbody>
</table>
15) How does Jacksonville currently compare to other East Coast ports?

According to the American Association of Port Authorities, Jacksonville ranks 33rd in trade by volume among U.S. ports and 10th on the East Coast. By number of TEU’s, Jacksonville ranks 19th in the U.S. and 8th among its East Coast competitors.