

2.5 Containerized Cargo Market Assessment

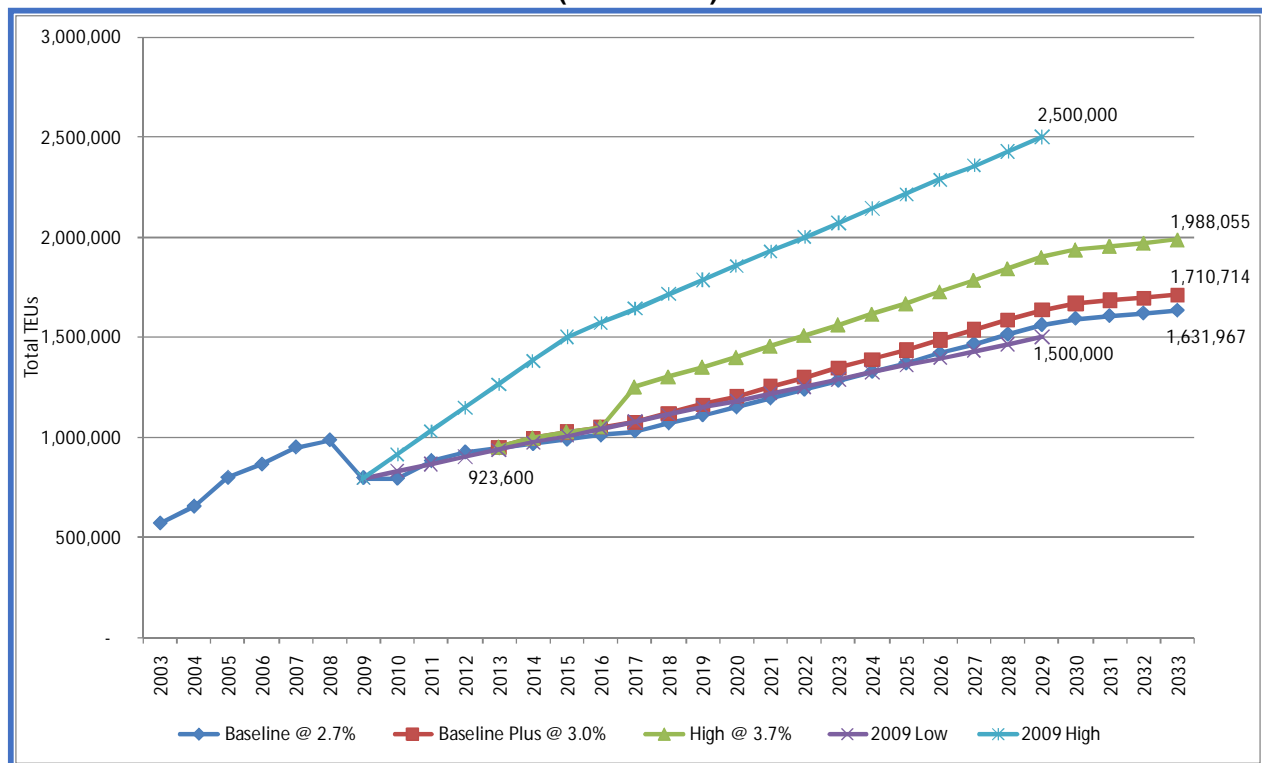
2.5.1 Forecast Summary

Annual containerized cargo demand at Port Everglades was forecast under three scenarios.

- **Baseline.** -- Fully consistent with the *U.S. Army Corps of Engineers (USACE) Harbor Deepening Study*, reflecting no change in Port Everglades' commodity trade lane market shares with respect to competing South Atlantic ports (Charleston, Savannah, Jacksonville, Palm Beach, and Miami).
- **Baseline-Plus.** -- Adding expected traffic (related to Florida East Coast Railway (FEC) near-dock rail improvements and the relocation of the Hapag Lloyd GAX service from PortMiami) not considered in the USACE forecast.
- **High.** -- Adding a new weekly all-water Asia service to Baseline-Plus traffic.

All three scenarios, shown in Figure 2.5-1, assume 48-foot channel depths, along with flat or nearly flat demand growth during construction of planned major improvement projects (Turning Notch extension, new berths, harbor and channel deepening, and near-dock rail).

**Figure 2.5-1
CONTAINER FORECAST SUMMARY
(Total TEUS)**



The Baseline forecast anticipates growth to 1.63 million twenty-foot equivalent container units (TEUs) by 2033, equivalent to a compound annual growth rate of 2.7 percent. The Baseline-Plus forecast anticipates growth to 1.71 million TEUs, an equivalent growth rate of 3.0 percent per year, and a portwide rail share of 12.4 percent. The High forecast anticipates growth to 1.99 million TEUs, an equivalent growth rate of 3.7 percent per year, and a portwide rail share of 12.4 percent.

For historical comparison, the new Baseline forecast scenario is almost identical to the low forecast from the *2009 Port Everglades Master/Vision Plan*; however, the new High forecast scenario is more conservative than the high forecast from the 2009 plan. The new High forecast reflects the slower than expected pace of economic recovery, flat or nearly flat growth during major Port construction, and a more conservative target for capture of new business.

2.5.2 Methodology

The analysis was designed to produce 20-year forecasts for containerized cargo. The underlying goals were to:

- Benchmark overall growth targets, by year, through FY 2033 (in tons, loaded TEUs, and total TEUs).
- Identify key markets, opportunities, constraints, and plan responses.
- Point to opportunities and key strategic decisions to be specifically addressed in Phase II of this 2014 Plan.

The first step in the process was data development. The consultant team assembled data from Port Everglades (vessel movements, carrier volumes, prior forecasts, etc.), the USACE (*Port Everglades Harbor Feasibility Study* and related documents), PIERS (for Port Everglades and competing reports), United States Department of Transportation (USDOT) *Freight Analysis Framework* (for relationships between inland trade regions and global trading blocs), and other sources.

The second step was to formulate definitions for the Baseline, Baseline Plus, and High forecast scenarios. In consultation with Port staff, two significant guiding decisions were made: first, that the USACE forecast was ideally suited to serve as the Baseline scenario; and second, that any additions to the Baseline traffic be tied to specific carrier/customer traffic-routing decisions, and not to hypothetical market capture or market share targets. Sections 2.5.3 through 2.5.5 discuss these scenarios in greater detail.

The third step was to meet with and interview key freight stakeholders -- carriers, terminal operators, and railroad interests – to discuss and understand their respective outlooks on markets and services. This information was used to identify key variables affecting their own traffic projections – which, by extension, affect the overall Port Everglades forecast.

The fourth step was to develop the statistical projections. The USACE forecast (in metric tons) was translated into short tons, loaded TEUs, and total TEUs. Estimates for additional traffic under the Baseline Plus and High forecast conditions were then added in the appropriate years.

The fifth and final step was to apply a series of sensitivity tests to the three forecast scenarios. These sensitivity tests were designed to address key container market variables identified through stakeholder interviews and discussions with Port staff. These variables are summarized in Table 2.5-1.

**Table 2.5-1
KEY CONTAINER MARKET VARIABLES**

Known Strengths	Issues, Variables, Unknowns
<ul style="list-style-type: none"> • Largely captive local market. • Southport improvements (turning notch, wharf, cranes). • USACE recommendation for 48-foot authorized depth. • Truck access and backland availability generally good. • Future on-port intermodal container transfer facility (ICTF). • Americas markets. • Cost structure, strong tenant relationships and commitments. 	<ul style="list-style-type: none"> • Berth limitations – length, number. • Crane limitations – air draft, number. • Seasonality of commodity demand. • Adequacy of 48-foot authorization and impacts of maintaining at 49 feet vs. 50 feet. • Carrier alliances (especially P3), vessel deployment strategies, vessel types, in light of improvements at competing ports and evolving fleet mixes. • Extent of transshipment vs. direct services • ICTF operations and ability to serve hinterland markets. • Transload/integrated logistics center (ILC) potential, on site vs. at inland ports. • Impact of not implementing the recommended deepening.

Specific sensitivity tests included:

- Providing 50-foot effective channel depth through maintenance.
- Crane restrictions for largest vessels.
- Carrier alliances and vessel routings.
- Transloading and inland ports.
- Inland market access.
- Seasonality.
- Transshipment.
- Improvement programs at competing ports.
- Failure to deepen at Port Everglades.

Appendix E provides detailed analyses of the factors that went into these forecasts.

2.5.3 Baseline Forecast

Approach. The Baseline forecast is derived directly from the USACE *Port Everglades Harbor Feasibility Study Socio-Economic Appendix* (Draft, June 2013).

The USACE developed forecasts for containerized trade in metric tons through FY 2067. In highly simplified form, the USACE's process steps were as follows.

- The USACE obtained an IHS Global Insight world trade forecast for the South Atlantic ports region (Charleston to Miami).
- For each commodity trade lane (e.g., grapes from Chile to the South Atlantic ports), the USACE calculated the historic market share of each port.
- From the IHS forecast, the USACE estimated the growth in each commodity trade lane for the entire South Atlantic range. The USACE then allocated that growth among the different South Atlantic ports, based on their historic market shares.
- The USACE summed the total commodity trade lane traffic associated with Port Everglades through the forecast period.
- The USACE utilized a proprietary model to allocate the total traffic among a likely distribution of vessel types and sizes, based on assumptions about controlling channel depths.

Because the forecast was allocated among different ports based on historic market shares, no consideration was given to factors or improvements that might increase or decrease a particular port's competitiveness in a given commodity trade lane. In practice, it is known that Port Everglades is investing heavily in improvements that will enhance its competitiveness; however, it is also known that competing ports are doing or planning their own investments. The USACE's "constant share" approach assumes that each port makes its best effort to compete, and as a result each port maintains its market share in the aggregate.

This approach is ideally suited to serve as the Baseline scenario for the 2014 Plan, for several reasons:

- It avoids speculating on "winners and losers" among competing ports.
- With respect to Port Everglades, it is extremely conservative, in that it requires Port Everglades to do nothing more than maintain its current market shares.
- It is consistent with the expectations of the Port's carriers and terminal operators.
- It ensures full forecast consistency between the *Port Everglades Harbor Deepening Study* and this 2014 Plan.

USACE Forecast Analysis. Between FY 2008 and FY 2011, Port Everglades' share of South Atlantic port container trades was between 10.5 percent and 12.0 percent, as shown in Table 2.5-2. Port Everglades consistently held a dominant share of Central American traffic and a strong share of South American traffic. Conversely, it held only a small share of Asian, European, and Middle Eastern traffic.

**Table 2.5-2
PORT EVERGLADES' SHARE OF SOUTH ATLANTIC PORT CONTAINERIZED TONNAGE
BY TRADE REGION
FY 2008-FY 2011**

Source USACE *Port Everglades Harbor Feasibility Study, Socio-Economic Appendix, Draft June 2013*

Region	2008	2009	2010	2011	Average
ASIA	2.65%	2.31%	1.62%	2.24%	2.20%
CARIBBEAN	18.56%	16.74%	15.10%	15.45%	16.46%
CENTRAL AMERICA	51.58%	49.68%	49.39%	50.56%	50.30%
EUROPE	1.66%	2.16%	3.20%	2.78%	2.45%
MEDITERANEAN	11.32%	10.18%	10.55%	13.07%	11.28%
MIDEAST	1.98%	4.62%	5.45%	5.18%	4.31%
EAST COAST SOUTH AMERICA	33.31%	27.24%	14.78%	13.27%	22.15%
WEST COAST SOUTH AMERICA	18.08%	19.60%	23.84%	24.01%	21.38%
NORTH COAST SOUTH AMERICA	36.36%	36.03%	33.63%	34.92%	35.24%
AFRICA/OCEANIA/NORTH AMERICA/OTHER	2.63%	2.63%	2.37%	2.67%	2.58%
Overall Share	12.02%	11.56%	10.54%	10.99%	11.28%

For imported containerizable goods, Port Everglades is especially strong in food and farm products and relatively strong in primary manufactured goods. Since 2003, however, the Port's share of primary manufactured goods has generally declined, while its share of food and farm products has generally increased.

For exported containerizable goods, Port Everglades is extremely strong in goods "unknown or not elsewhere classified," a category that consists primarily of mixed shipments that are consolidated into container loads for shipment to Central America, South America, and the Caribbean. The Port's market share of these shipments peaked prior to 2007 and declined substantially with the recession.

Table 2.5-3 shows the Port's share of South Atlantic port trade tonnage by commodity/direction.

Applying Port Everglades' commodity-trade lane market shares to its long-range IHS Global Insight trade forecast, the USACE projects an average growth rate of 4.03 percent per year for Port Everglades containerized tonnage between FY 2017 and FY 2029, its fastest growing period through FY 2067. This 2014 Plan forecast covers FY 2013 through FY 2033, and over that period, the USACE projects an average growth rate of 3.25 percent for the Port's containerized tonnage (see Figure 2.5-2).

Table 2.5-3
PORT EVERGLADES SHARE OF SOUTH ATLANTIC PORT TRADE TONNAGE
BY COMMODITY/DIRECTION
FY 2003-FY 2010

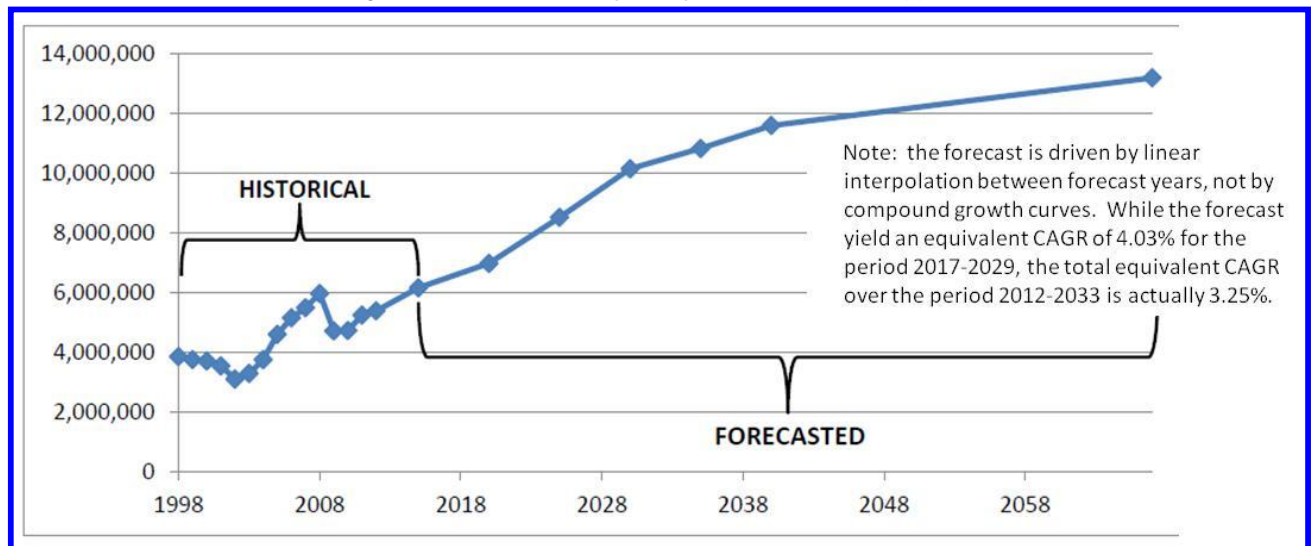
Source: USACE, *Port Everglades Harbor Feasibility Study, Socio-Economic Appendix, Draft June 2013*

Port Everglades Imports Percent Share of South Atlantic Imports by Commodity Category	2003	2004	2005	2006	2007	2008	2009	2010	Import Share Average
All Commodities	14.76%	16.66%	16.10%	15.80%	15.65%	13.66%	13.41%	12.94%	14.87%
Total Chemicals and Related Products	2.00%	2.41%	3.50%	2.43%	5.90%	8.28%	7.92%	2.16%	4.32%
Total Coal, Lignite and Coal Coke	2.83%	4.21%	0.22%	0.01%	0.01%	0.01%	0.18%	0.01%	0.93%
Total Crude Materials, Inedible Except Fuels	4.02%	5.37%	4.57%	4.08%	4.67%	5.54%	4.27%	3.46%	4.50%
Total Food and Farm Products	15.99%	20.09%	21.50%	23.48%	26.71%	27.61%	25.32%	23.91%	23.08%
Total All Manufactured Equipment, Machinery	6.10%	6.30%	7.64%	7.04%	6.91%	5.87%	4.87%	4.78%	6.19%
Total Petroleum and Petroleum Products	25.85%	30.63%	29.84%	28.21%	28.28%	27.58%	24.13%	26.42%	27.62%
Total Primary Manufactured Goods	22.92%	23.14%	20.07%	21.72%	19.49%	12.00%	10.23%	10.01%	17.45%
Total Unknown or Not Elsewhere Classified	3.05%	5.32%	5.21%	3.54%	4.45%	6.16%	5.31%	9.93%	5.37%

Port Everglades Exports Percent Share of South Atlantic Exports by Commodity Category	2003	2004	2005	2006	2007	2008	2009	2010	Export Share Average
All Commodities	8.62%	8.92%	9.95%	10.63%	10.44%	10.26%	9.26%	9.33%	9.67%
Total Chemicals and Related Products	4.99%	3.73%	4.16%	4.72%	4.19%	4.91%	5.19%	4.42%	4.54%
Total Coal, Lignite and Coal Coke	2.55%	3.96%	1.82%	3.67%	3.72%	6.32%	17.25%	9.54%	6.10%
Total Crude Materials, Inedible Except Fuels	1.59%	1.31%	2.23%	2.67%	3.00%	3.51%	3.97%	4.50%	2.85%
Total Food and Farm Products	7.93%	7.85%	9.59%	9.79%	9.22%	10.03%	8.43%	8.15%	8.87%
Total All Manufactured Equipment, Machinery	15.64%	17.42%	18.67%	18.84%	18.56%	17.79%	16.53%	14.73%	17.27%
Total Petroleum and Petroleum Products	43.32%	40.72%	41.82%	38.48%	59.06%	20.18%	23.42%	21.57%	36.07%
Total Primary Manufactured Goods	9.39%	9.87%	9.67%	10.51%	8.43%	9.57%	8.57%	9.32%	9.42%
Total Unknown or Not Elsewhere Classified	23.68%	31.09%	36.73%	39.90%	38.47%	23.75%	24.48%	22.31%	30.05%

Figure 2.5-2
USACE FORECAST FOR PORT EVERGLADES CONTAINERIZED TONNAGE
(Metric Tons)

Source: USACE *Port Everglades Harbor Feasibility Study, Socio-Economic Appendix, Draft June 2013*



2014 Master/Vision Plan Baseline Forecast. The 2014 Plan Baseline forecast is driven by the USACE’s forecast of containerized tonnage. The consultant team interpolated between USACE forecast years, based on linear growth, converted metric tons to short tons, converted short tons to loaded TEUs (based on the Port’s FY 2012 loading factor, with increasing load factors assumed over time), and converted loaded TEUs to total TEUs (based on the Port’s FY 2012 load-to-total ratio, with increasing ratios assumed over time). For the FY 2013 to FY 2016 period, Port volumes are assumed constant, while major projects (Turning Notch extension, berth improvements, harbor and channel deepening, and ICTF construction) are under way; growth resumes on the USACE forecast trajectory as of FY 2017 (see Table 2.5-4).

Overall, Port Everglades handled 923,600 total TEUs in FY 2012; under the Baseline forecast; as shown in Figure 2.5-3; this throughput is projected to increase to 1,631,967 TEUs by FY 2033. This is equivalent to a compound annual growth rate of 2.7 percent over the forecast period. The growth in total TEUs is somewhat lower than the growth in containerized tonnage, because container weights and load-to-total ratios are expected to increase gradually over time.

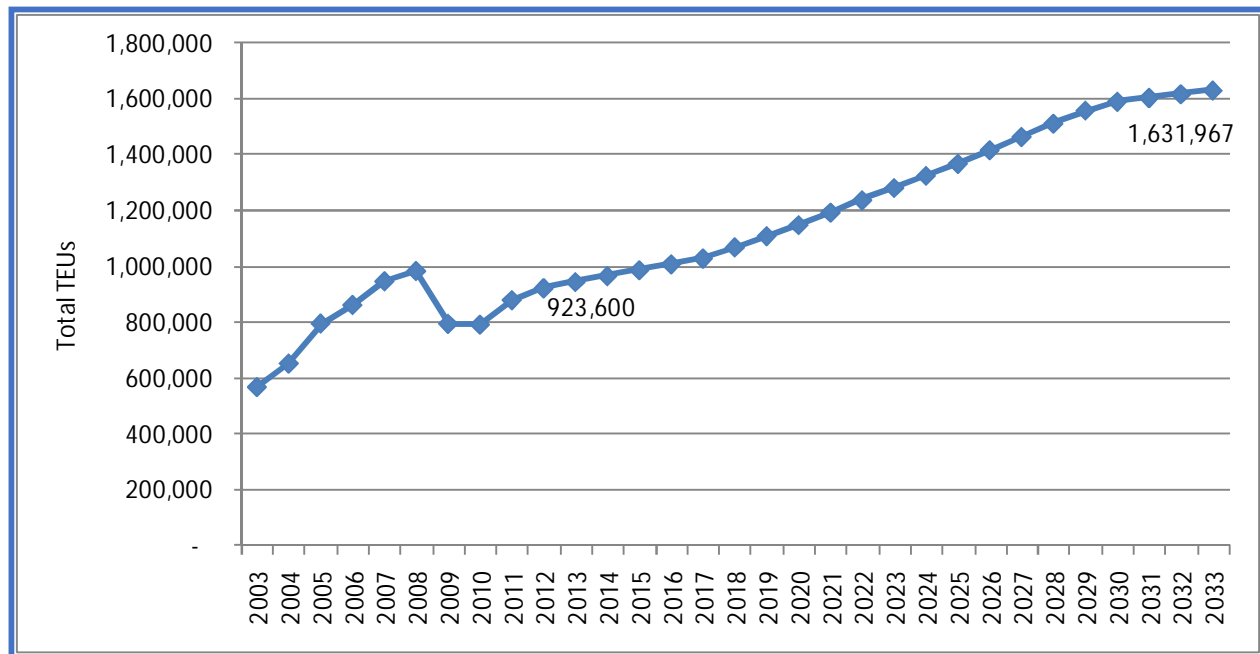
While the new baseline forecast is similar to the 2009 “Low” forecast, the two forecasts are completely independent. The new forecast reflects current conditions and opportunities; assumptions were not “carried over” from 2009 to the present.

The relationship between trade growth and gross domestic product (GDP) is an interesting topic. Historically, U.S. trade has significantly outpaced U.S. GDP, often by a factor of 2 to 1 (see Appendix E). This was largely due to the lengthening of supply chains, where commodities historically produced in the U.S. saw their production moved overseas, introducing trade requirements where none had existed before. Many economists believe the wave of “offshoring” has crested, and that overall U.S. trade growth will more closely track GDP in the future, growing at more conservative rates than in recent decades. U.S. GDP forecasts are in the range of 2.0 percent to 2.5 percent (see Appendix E), and the Baseline forecast (2.7 percent) is only slightly higher than U.S. GDP – so the Baseline forecast for this 2014 Plan is generally consistent with that viewpoint.

**Table 2.5-4
BASELINE FORECAST, CONTAINER TRAFFIC**

	Short Tons			TEUs				Metric Tons
	Tons	Growth	Tons per LTEU	Loaded TEUs	% Loaded	Total TEUs	Growth	
2003	3,633,610		8.75	415,186	72.9%	569,743		3,296,356
2004	4,145,394	14.1%	8.52	486,598	74.4%	653,628	14.7%	3,760,638
2005	5,076,403	22.5%	8.87	572,342	71.8%	797,238	22.0%	4,605,235
2006	5,688,442	12.1%	9.11	624,524	72.3%	864,030	8.4%	5,160,468
2007	6,060,149	6.5%	9.10	665,729	70.2%	948,680	9.8%	5,497,675
2008	6,584,747	8.7%	9.44	697,808	70.8%	985,095	3.8%	5,973,582
2009	5,204,103	-21.0%	9.43	551,862	69.3%	796,160	-19.2%	4,721,083
2010	5,216,831	0.2%	9.44	552,871	69.7%	793,227	-0.4%	4,732,629
2011	5,787,961	10.9%	9.31	621,632	70.6%	880,999	11.1%	5,250,750
2012	5,944,513	2.7%	9.07	655,046	70.9%	923,600	4.8%	5,392,771
2013	6,114,670	2.9%	9.09	672,315	71.1%	945,283	2.3%	5,547,136
2014	6,284,828	2.8%	9.11	689,507	71.3%	966,737	2.3%	5,701,500
2015	6,454,985	2.7%	9.13	706,625	71.5%	987,967	2.2%	5,855,864
2016	6,625,142	2.6%	9.15	723,667	71.7%	1,008,974	2.1%	6,010,228
2017	6,795,299	2.6%	9.17	740,636	71.9%	1,029,760	2.1%	6,164,592
2018	7,096,170	4.4%	9.19	771,746	72.1%	1,070,040	3.9%	6,437,537
2019	7,397,041	4.2%	9.21	802,721	72.3%	1,109,910	3.7%	6,710,483
2020	7,697,912	4.1%	9.23	833,562	72.5%	1,149,375	3.6%	6,983,428
2021	8,038,032	4.4%	9.25	868,511	72.7%	1,194,271	3.9%	7,291,980
2022	8,378,153	4.2%	9.27	903,309	72.9%	1,238,714	3.7%	7,600,533
2023	8,718,274	4.1%	9.29	937,958	73.1%	1,282,710	3.6%	7,909,085
2024	9,058,395	3.9%	9.31	972,457	73.3%	1,326,263	3.4%	8,217,638
2025	9,398,516	3.8%	9.33	1,006,809	73.5%	1,369,377	3.3%	8,526,190
2026	9,777,998	4.0%	9.35	1,045,221	73.7%	1,417,766	3.5%	8,870,451
2027	10,157,481	3.9%	9.37	1,083,470	73.9%	1,465,671	3.4%	9,214,712
2028	10,536,964	3.7%	9.39	1,121,556	74.1%	1,513,098	3.2%	9,558,973
2029	10,916,447	3.6%	9.41	1,159,479	74.3%	1,560,052	3.1%	9,903,234
2030	11,189,358	2.5%	9.43	1,185,947	74.5%	1,591,381	2.0%	10,150,815
2031	11,339,796	1.3%	9.45	1,199,350	74.7%	1,605,058	0.9%	10,287,290
2032	11,490,233	1.3%	9.47	1,212,695	74.9%	1,618,586	0.8%	10,423,764
2033	11,640,671	1.3%	9.49	1,225,985	75.1%	1,631,967	0.8%	10,560,239
2034								10,696,713
2035								10,833,188
Total, 2012-2033		3.3%					2.7%	

Figure 2.5-3
BASELINE FORECAST, CONTAINER TRAFFIC



2.5.4 Baseline-Plus Forecast

The “constant share” assumption underlying the USACE forecast and the 2014 Plan Baseline forecast does not consider factors that would increase Port Everglades’ market share with respect to its competitors. The Baseline-Plus forecast includes two factors that are nearly certain to increase Port Everglades’ market share:

- Relocation of the Hapag-Lloyd GAX service from PortMiami to Port Everglades, as of August 2013. The Baseline Plus forecast adds the expected traffic from this service in its first full year of operation (15,000 TEUs in FY 2014), with subsequent growth over time.
- Construction of the new near-dock ICTF south of Eller Drive and west of McIntosh Road. The near-dock facility will eliminate the current cost (estimated at around \$175 per trip) for trucks to haul containers to off-port rail terminals. The Baseline Plus forecast assumes that improved rail competitiveness will have two effects: it will allow some Port traffic that would otherwise move by truck to shift to rail; and it will attract new over-the-wharf cargo that would not otherwise call at Port Everglades,

For this 2014 Plan, the consultant team estimated the Port’s future “rail share” (the percentage of over-the-wharf container traffic that is moved to/from the region by rail) based on a State Infrastructure Bank (SIB) loan application by the FEC. The SIB application is the most recent set of volume projections put forth by FEC; updated estimates from FEC were requested for the 2014 Plan but could not be obtained.

The FEC’s estimates run through 2021. For domestic traffic, which does not involve over-the-wharf movements using Port facilities, the consultant team utilized the actual estimates provided

by FEC without modification, except to extend projected growth through 2033. For international traffic, the FEC assumed significantly faster growth in Port traffic than the Baseline Forecast, so the consultant translated the FEC forecast into equivalent rail shares, and then applied the rail shares to the new Baseline Plus forecast (see Table 2.5-5). The resulting estimate is fully consistent with the rail shares anticipated by FEC, although the total annual volumes are somewhat lower. For new international traffic moving through the ICTF, the assumption is that half is due to truck traffic shifting to rail, and half is due to new over-the-wharf traffic attracted by more competitive rail service. Container moves were converted to TEU moves at 1.6 TEUs per container, the conversion factor used by FEC.

**Table 2.5-5
ICTF TRAFFIC PROJECTIONS**

	PEV Traffic		Existing Customers			New Customers			Domestic	Total
	FEC Projection	Baseline	FEC forecast	Share of FEC Projection	Share Applied to Baseline	FEC Forecast	Share of FEC Projection	Share Applied to Baseline	Projected TEUs	ICTF TEUs
2012	921,655	923,600	56,520	6.13%	56,639				56,520	113,159
2013	967,737	945,283	59,346	6.13%	58,275				59,346	117,621
2014	1,083,866	966,737	66,467	6.13%	61,015	28,800	2.66%	26,438	66,467	153,920
2015	1,192,253	987,967	73,115	6.13%	62,921	52,800	4.43%	45,438	73,115	181,474
2016	1,228,020	1,008,974	75,309	6.13%	64,429	60,720	4.94%	51,948	75,309	191,685
2017	1,264,861	1,029,760	77,568	6.13%	65,951	69,829	5.52%	59,371	77,568	202,889
2018	1,302,807	1,070,040	79,894	6.13%	68,662	76,811	5.90%	66,013	79,894	214,569
2019	1,341,891	1,109,910	82,291	6.13%	71,263	80,651	6.01%	69,842	82,291	223,396
2020	1,382,147	1,149,375	84,760	6.13%	73,841	84,683	6.13%	73,774	84,760	232,375
2021	1,423,612	1,194,271	87,302	6.13%	76,772	88,918	6.25%	78,193	87,302	242,268
2022		1,238,714		6.13%	79,629		6.25%	81,103	89,921	250,654
2023		1,282,710		6.13%	82,457		6.25%	83,984	92,619	259,060
2024		1,326,263		6.13%	85,257		6.25%	86,835	95,398	267,490
2025		1,369,377		6.13%	88,029		6.25%	89,658	98,260	275,946
2026		1,417,766		6.13%	91,139		6.25%	92,826	101,207	285,173
2027		1,465,671		6.13%	94,219		6.25%	95,963	104,244	294,425
2028		1,513,098		6.13%	97,267		6.25%	99,068	107,371	303,706
2029		1,560,052		6.13%	100,286		6.25%	102,142	110,592	313,020
2030		1,591,381		6.13%	102,300		6.25%	104,193	113,910	320,403
2031		1,605,058		6.13%	103,179		6.25%	105,089	117,327	325,595
2032		1,618,586		6.13%	104,049		6.25%	105,975	120,847	330,870
2033		1,631,967		6.13%	104,909		6.25%	106,851	124,472	336,232

Based on this projection, the Port will achieve a rail share of 12.4 percent from FY 2021 forward. In FY 2033, the ICTF will handle a very robust 336,309 TEUs. Of this amount, 124,472 TEUs will be from domestic traffic, 104,947 TEUs will be from growth associated with current rail users; and 106,890 TEUs will be from new rail users (see Table 2.5-6).

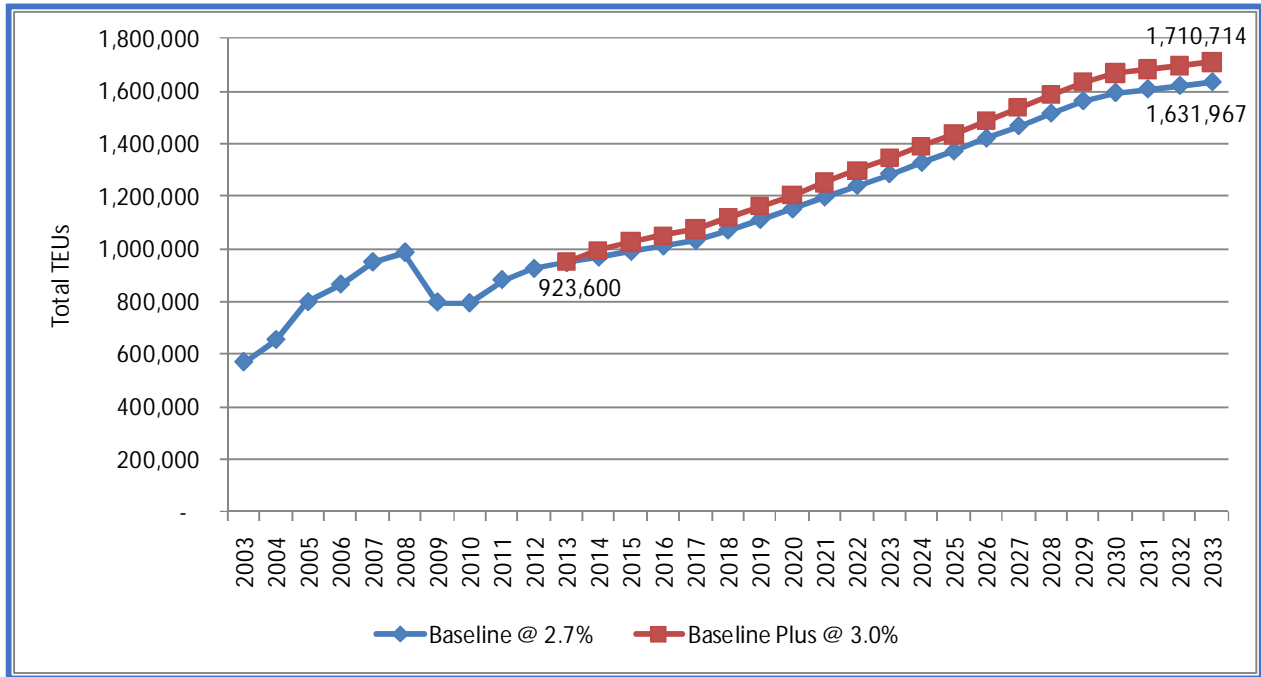
**Table 2.5-6
BASELINE-PLUS FORECAST, CONTAINER TRAFFIC**

	ICTF Volumes (TEUs)			PEV Volumes (TEUs)				
	Domestic Trailers	Current PEV Rail Users	New PEV Rail Users	Rail-Attracted New Business	GAX New Business	Baseline Forecast	Baseline Plus Forecast	Rail Share
2003						569,743		
2004						653,628		
2005						797,238		
2006						864,030		
2007						948,680		
2008						985,095		
2009						796,160		
2010						793,227		
2011						880,999		
2012	56,520	56,639				923,600	923,600	
2013	59,346	58,275			5,000	945,283	950,283	6.1%
2014	66,467	61,015	26,438	13,219	15,000	966,737	994,956	8.8%
2015	73,115	62,921	45,438	22,719	15,329	987,967	1,026,015	10.6%
2016	75,309	64,429	51,948	25,974	15,655	1,008,974	1,050,603	11.1%
2017	77,568	65,951	59,371	29,685	15,978	1,029,760	1,075,423	11.7%
2018	79,894	68,662	66,013	33,006	16,603	1,070,040	1,119,649	12.0%
2019	82,291	71,263	69,842	34,921	17,221	1,109,910	1,162,052	12.1%
2020	84,760	73,841	73,774	36,887	17,834	1,149,375	1,204,096	12.3%
2021	87,302	76,772	78,193	39,097	18,530	1,194,271	1,251,898	12.4%
2022	89,921	79,629	81,103	40,552	19,220	1,238,714	1,298,486	12.4%
2023	92,619	82,457	83,984	41,992	19,903	1,282,710	1,344,604	12.4%
2024	95,398	85,257	86,835	43,418	20,578	1,326,263	1,390,259	12.4%
2025	98,260	88,029	89,658	44,829	21,247	1,369,377	1,435,454	12.4%
2026	101,207	91,139	92,826	46,413	21,998	1,417,766	1,486,177	12.4%
2027	104,244	94,219	95,963	47,981	22,742	1,465,671	1,536,394	12.4%
2028	107,371	97,267	99,068	49,534	23,477	1,513,098	1,586,109	12.4%
2029	110,592	100,286	102,142	51,071	24,206	1,560,052	1,635,329	12.4%
2030	113,910	102,300	104,193	52,097	24,692	1,591,381	1,668,170	12.4%
2031	117,327	103,179	105,089	52,544	24,904	1,605,058	1,682,507	12.4%
2032	120,847	104,049	105,975	52,987	25,114	1,618,586	1,696,688	12.4%
2033	124,472	104,909	106,851	53,425	25,322	1,631,967	1,710,714	12.4%
	3.0%					2.7%	3.0%	

As previously noted, half of the new rail users are assumed to be new to the Port, and represent new over-the-wharf traffic. This traffic, plus the GAX service traffic, is added to the Baseline forecast to produce the Baseline-Plus forecast shown in Figure 2.5-4. Like the Baseline forecast, it assumes flat growth during major construction activities between FY 2013 and FY

2016, with significant growth resuming in FY 2017. The Baseline Plus forecast calls for 1,711,337 TEUs in 2033, equivalent to an average compound annual growth rate of 3.0 percent.

**Figure 2.5-4
BASELINE-PLUS FORECAST, CONTAINER TRAFFIC**



2.5.5 High Forecast

One of the major opportunities for all South Atlantic ports is additional all-water trade with Asia. It is likely that Asia trade will be handled by some mix of transshipment services (smaller feeder vessels in hub-and-spoke services) and larger vessels transiting the Suez and the Panama canals and calling directly at U.S. ports.

While it is impossible to predict the exact mix between direct and transshipped volumes, or to predict exactly which South Atlantic ports will receive which direct calls, carrier discussions suggest that, in the near future, South Florida could see two weekly all-water Asia direct calls -- probably via the Panama Canal with 5,500+ TEU vessels, and possibly via the Suez Canal as well with 8,500+ TEU vessels, according to carrier discussions. (The Panama Canal will also accommodate 8,500 TEU vessels, should carriers deploy them.)

The High forecast scenario anticipates that Port Everglades is successful in capturing one of these weekly all-water Asia calls, starting with 100,000 containers per year (175,000 TEUs) in FY 2017 (see Table 2.5-7).

**Table 2.5-7
HIGH FORECAST, CONTAINER TRAFFIC**

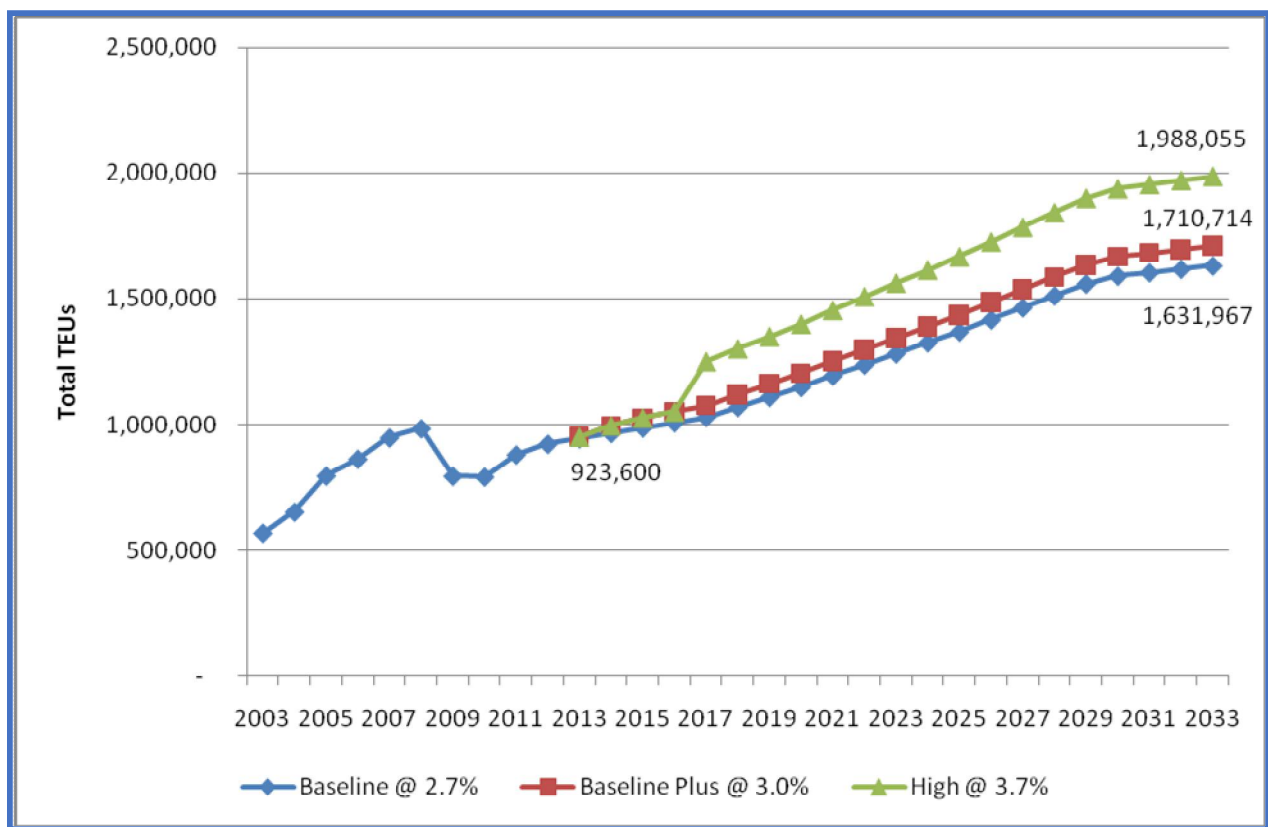
	ICTF Volumes (TEUs)			PEV Volumes (TEUs)			
	Domestic Trailers	Current PEV Rail Users	New PEV Rail Users	Asia New Business	Baseline Plus Forecast	High Forecast	Rail Share
2003							
2004							
2005							
2006							
2007							
2008							
2009							
2010							
2011							
2012	56,520	56,639			923,600	923,600	
2013	59,346	58,275			950,283	950,283	6.1%
2014	66,467	61,015			994,956	994,956	6.1%
2015	73,115	62,921	45,438		1,026,015	1,026,015	10.6%
2016	75,309	64,429	51,948		1,050,603	1,050,603	11.1%
2017	77,568	65,951	81,033	175,000	1,075,423	1,250,423	11.8%
2018	79,894	68,662	88,522	181,845	1,119,649	1,301,494	12.1%
2019	82,291	71,263	93,191	188,621	1,162,052	1,350,673	12.2%
2020	84,760	73,841	97,953	195,328	1,204,096	1,399,423	12.3%
2021	87,302	76,772	103,316	202,957	1,251,898	1,454,855	12.4%
2022	89,921	79,629	107,161	210,510	1,298,486	1,508,996	12.4%
2023	92,619	82,457	110,967	217,987	1,344,604	1,562,591	12.4%
2024	95,398	85,257	114,735	225,388	1,390,259	1,615,647	12.4%
2025	98,260	88,029	118,465	232,715	1,435,454	1,668,169	12.4%
2026	101,207	91,139	122,651	240,939	1,486,177	1,727,116	12.4%
2027	104,244	94,219	126,795	249,080	1,536,394	1,785,474	12.4%
2028	107,371	97,267	130,898	257,140	1,586,109	1,843,249	12.4%
2029	110,592	100,286	134,960	265,119	1,635,329	1,900,448	12.4%
2030	113,910	102,300	137,670	270,443	1,668,170	1,938,613	12.4%
2031	117,327	103,179	138,853	272,768	1,682,507	1,955,274	12.4%
2032	120,847	104,049	140,024	275,067	1,696,688	1,971,754	12.4%
2033	124,472	104,909	141,181	277,341	1,710,714	1,988,055	12.4%
					3.0%	3.7%	

Carriers are generally skeptical that a significant share of Asian cargo would want to move to U.S. inland markets via Port Everglades. Port Everglades is further from most major inland markets than any of its competitors, other than PortMiami; and it is generally less expensive to move these containers as far as possible by ship, offloading them to rail at ports that are physically closer to inland markets. There are cases, however, where offloading to rail at Port

Everglades makes sense: for time-sensitive boxes, where a first-in vessel offloading to rail can provide faster service; and in cases where rail offloading allows the carrier to reduce the number of port calls and vessels in a service string (thereby reducing its overall operating cost per TEU). On balance, it is reasonable to assume that the FEC’s SIB loan estimate of rail share – 12.4 percent -- would likely apply to any new all-water Asia traffic.

Under the High forecast, shown in Figure 2.5-5, total Port Everglades container traffic would reach 1,988,055 TEUs in 2033, reflecting an average compound annual growth rate of 3.7 percent. The Port’s rail share would remain at 12.4 percent, but, because total Port volumes are higher, ICTF traffic would increase to 370,562 TEUs in 2033.

**Figure 2.5-5
HIGH FORECAST, CONTAINER TRAFFIC**



2.5.6 Container Forecast Sensitivity Analyses

The three forecast scenarios fill different analytical needs. The Baseline forecast serves as a conservative floor on expectations. The Baseline-Plus forecast includes additional traffic that is very likely to be realized. The High forecast is the quantification of an aspirational goal, the attraction of an all-water Asia service.

Achieving any of these forecasts depends, of course, on the provision of suitable facilities, equipment, and capacity. A major focus of Phase II of this 2014 Plan is matching the demand

forecasts to current capacity, and identifying future investments and tradeoffs to strategically allocate capacity.

Additionally, numerous variables could potentially affect the volume and/or the timing of the demand forecasts, as well as the composition of the vessel fleet calling at Port Everglades. The consultant team considered the sensitivity of forecast results to the following variables.

- **Maintaining the 48-foot authorized channel at 49 feet vs. 50 feet.** Because navigation channels can gradually shoal, fill, and lose depth over time, they are generally maintained to slightly deeper dimensions. The extra effective depth is called overdepth by the USACE. Overdepth is useful in dealing with heavily laden vessels with unbalanced loads (resulting in part of the ship's riding lower) and vessel "squat" (the propensity of a ship's stern to drop lower into the water when under power). Depending on the choice of maintenance program, the Port could provide effective depths of either 49 feet or 50 feet with an authorized 48-foot channel.

Carriers and terminal operators do not, however, see a significant difference between the two maintenance levels with respect to their choice of vessels, operations, markets, or volumes. They believe the difference could be important to vessels in the 13,000-TEU class, which are not anticipated to call at Port Everglades, but not for vessels in the 5,000- to 8,500- TEU class which are expected to be the largest container vessels handled at the Port.

- **Crane restrictions.** As discussed in Element I, due to the Port's proximity to the Fort Lauderdale-Hollywood International Airport, crane heights at berths in Southport are restricted. As of this writing, the Port is working with crane companies to develop a design that meets the height restriction while also providing full clearance above deck and necessary outreach across large vessels.

Carriers and operators suggest that, while unrestricted cranes would be ideal, the imposition of some restrictions – whether height above deck or ability to use the outermost row of container stacks – would not alter their choice of vessels or operations. Restrictions would, however, affect how they load and unload their vessels. Special load planning would be needed at prior ports, and more crane time would probably be needed at Port Everglades because boxes would be more spread throughout the vessel. This effect might discourage discretionary cargo from offloading and loading at Port Everglades versus competing ports, but the effect, if any, will depend on the particular crane restrictions and types of vessels.

- **Carrier alliances and vessel routings.** Alliances between carriers allow them to use assets more efficiently, developing services that consolidate traffic on fewer vessels, larger vessels (with greater economies of scale), and (generally) fewer ports. At Port Everglades, Hapag Lloyd is a member of the G6 Alliance (with APL, Hyundai Merchant Marine, MOL, NYK, and OOCL), while Mediterranean Shipping Company (MSC) has proposed to join the new P3 Alliance (with Maersk and CMA/CGM). These alliances represent both threats (alliances may decide to reposition traffic to other ports) and

opportunities (by offering attractive facilities, Port Everglades could attract additional alliance traffic).

Carrier alliances do not make routing decisions in the public eye, but generally the decisions aim to optimize three factors: end-to-end cost (by using larger vessels, fewer vessels, fewer empty slots, less fuel, less expensive terminals, less expensive landside connections); reliability (by providing multiple routing options through multiple ports, as a hedge against disruptions due to weather, terminal-operating disruptions, or other factors); and speed (which can be an attractive selling point to some customers, although it is not nearly as important as cost and reliability). Cargo safety and security, along with in-transit visibility and route control, are more or less a given requirement under all conditions. Understanding these factors, Port Everglades can aim to improve its facilities and services in ways that improve carrier cost, reliability, and speed, making it an attractive destination for alliances to load-center their traffic. This will be especially important to attract an all-water Asia service, as envisioned under the High forecast scenario; but it is also important in maintaining current vessel services and markets.

Table 2.5-8 shows the respective shares of global container traffic controlled by the key alliances in 2013.

Table 2.5-8
SHARE OF GLOBAL CONTAINER TRAFFIC CONTROLLED BY KEY ALLIANCES
FY 2013

Operator	TEU	Share	
APM-Maersk	2,614,001	15.0%	P3
Mediterranean Shg Co	2,379,283	13.6%	
CMA CGM Group	1,492,058	8.5%	
Evergreen Line	794,641	4.5%	CKYH
COSCO Container L.	766,324	4.4%	
Hapag-Lloyd	712,380	4.1%	G6
APL	637,209	3.6%	
Hanjin Shipping	635,509	3.6%	
CSCCL	601,797	3.4%	
MOL	545,669	3.1%	
OOCL	461,714	2.6%	
Hamburg Süd Group	444,073	2.5%	
NYK Line	440,926	2.5%	
Yang Ming Marine Transport Corp.	385,863	2.2%	
PIL (Pacific Int. Line)	367,962	2.1%	
K Line	355,681	2.0%	
Zim	345,270	2.0%	
Hyundai M.M.	326,953	1.9%	

Transloading and Inland Ports. Transloading is the act of opening a container, unpacking its contents, and then repacking the contents into another container or other transportation equipment, and vice-versa. Between unpacking and repacking, there may be short-term or long-term storage, or value-added processing (chemical treatment, assembly or customization, packaging, etc.). Transloading capability is especially important for ICTF operations, because many customers prefer to reload from international ocean containers with a maximum length of 45 feet to domestic containers with a maximum length of 53 feet; by using larger containers, they need fewer containers, and the rail rate savings more than pays for the reloading costs. With ports handling imported food products, there are other opportunities – fumigation, consolidation of mixed shipments for different inland destinations, etc.

Around the state of Florida, there has been much recent discussion of “inland ports.” These inland ports are basically envisioned as large transload centers, served by truck and rail, handling a mix of international port and domestic traffic, where cargo moves from one mode to another with value-added processing in-between. Transload operations at inland ports can benefit all of Florida’s deepwater seaports; however, transload operations at a seaport primarily benefit that seaport.

Operating and design plans for the ICTF should, at a minimum, accommodate simple “stuffing and stripping” (moving between domestic and international boxes) and the potential for other value-added services (fruit handling, etc.) should be explored, as FEC plans become clearer. These functions might not add volume over and above Port and ICTF forecasts, but they will make the forecasts more likely to be achieved.

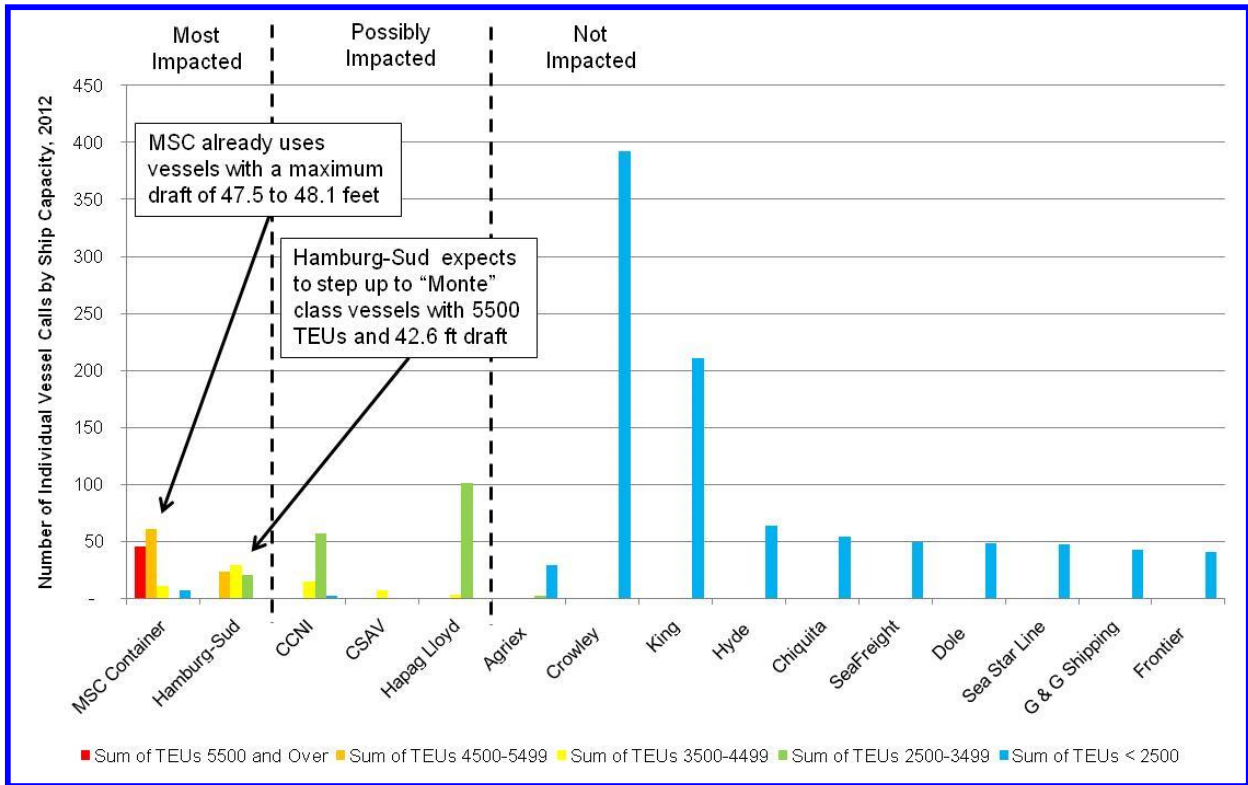
- **Inland market access.** As shown in the Baseline-Plus forecast, improved inland rail access should support increased port volumes; but it is not viewed as a “game changer” – with a forecast rail share of 12.4 percent, most of Port Everglades traffic will be truck-dependent, and much of that will remain linked to South Florida markets. Improved rail access does, however, support specialized long-distance logistics chains. Expansion of the existing “thread express” service to Charlotte (thread comes to the Port for export, and finished garments are imported and returned) is one opportunity; consolidated fruit shipment to Midwest markets may be another.
- **Seasonality.** Port Everglades’ container traffic is highly seasonal, peaking in December through April. This means the Port must build its capacity for peak periods, and is effectively over-built for off-peak periods. The solution is to increase the Port’s share of container imports from Northeast Asia, which peak in May through October – almost precisely opposite the current Port Everglades seasonal peak. This strategy, as envisioned under the High forecast, would help balance traffic more evenly throughout the year, and make more efficient overall use of Port assets and infrastructure.
- **Transshipment.** As larger ships utilize the expanded Panama Canal, continued limitations at South Atlantic ports could increase transshipment via Caribbean or Panamanian ports and the use of feeder ships to reach constrained US ports. As previously noted, the consultant team envisions a balance of transshipment and direct

calls associated with Asia trade. If, however, the balance shifts strongly in favor of transshipment, it could preclude the possibility of capturing an all-water Asia direct service, preventing the High forecast from being realized, although at least some of that traffic might arrive at Port Everglades via feeder vessel.

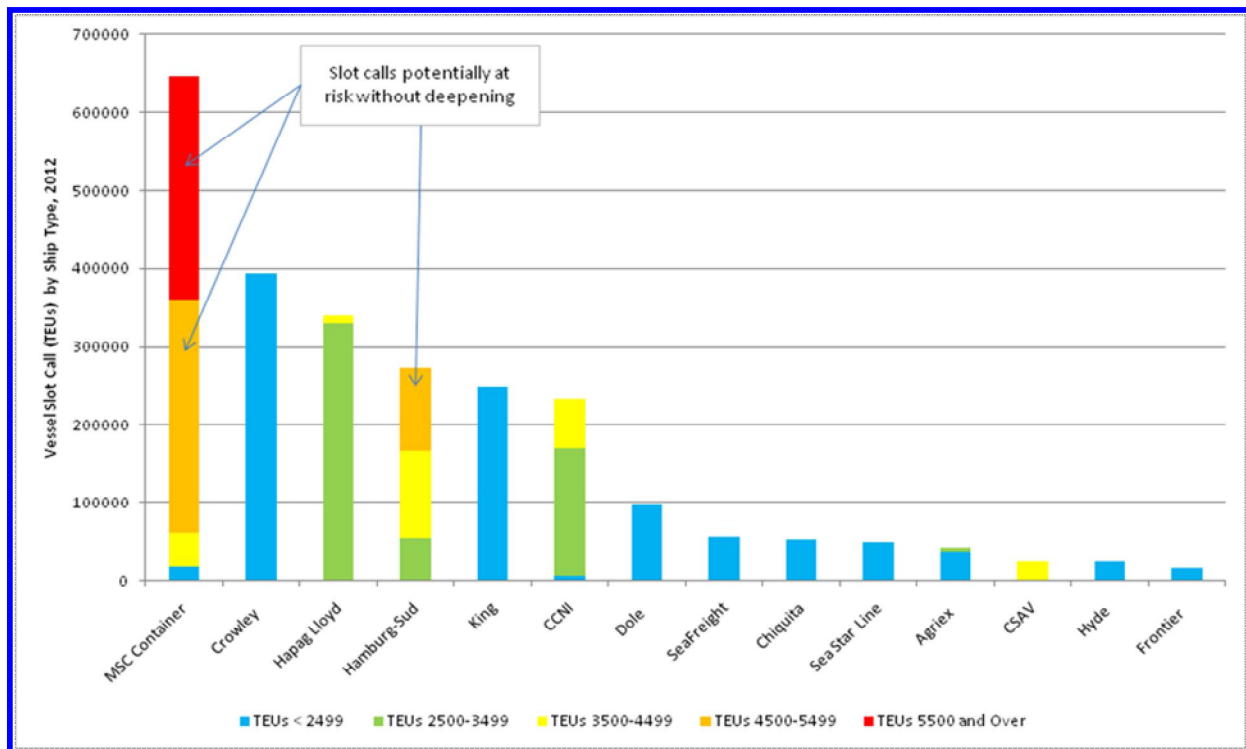
- **Failure to improve and deepen at other South Atlantic ports.** On first examination, this seems like a strong market opportunity for Port Everglades: if Port Everglades reaches 48 feet, and other ports experience delays in deepening, then Port Everglades might be positioned to pick up larger ship calls that would otherwise be at the Port of Savannah or the Port of Jacksonville. That could well be the case. But, on the other hand, it is also possible that constraints at other South Atlantic ports could trigger a greater emphasis on transshipment strategies, and larger ship calls might be de-emphasized. Elimination of constraints at multiple South Atlantic ports would, on the other hand, encourage carriers to utilize all-water Asia services with large vessels, allowing Port Everglades and others to compete for the business.
- **Failure to improve and deepen at Port Everglades.** If Port Everglades fails to deepen to 48 feet and its competitors also fail to deepen, there would be little change in competitive balance. If, however, competitors do succeed in deepening, then a certain amount of Port Everglades traffic could be at risk – cargo might be shifted to other vessels calling at other ports or, in the worst case scenario, vessel services might be pulled out and moved to other ports. This would depend, of course, on capabilities at other ports – Charleston, Savannah, Jacksonville, and Miami – and on carrier alliance decisions.

The traffic most at risk would be associated with MSC (which already operates large vessels at Port Everglades) and Hamburg-Sud (which may shift its traffic to a larger vessel class). The Port's traffic is highly diversified across other carriers and vessel classes; note in Figure 2.5-6 and 2.5-7 especially the high number of vessel calls and slots associated with Crowley, which uses vessels having fewer than 2,500 TEUs. While MSC and Hamburg-Sud traffic does not represent a large number of the Port's vessel calls, it does, however, represent a significant share of its slot capacity, and together MSC and Hamburg-Sud account for 19 percent of the Port's container volumes, as shown in Table 2.5-9. Harbor and channel deepening ensures that Port Everglades remains competitive for large vessel traffic and reduces risk and uncertainty that carriers could elect to reposition large-vessel traffic away from the Port in the future.

**Figure 2.5-6
CONTAINER VESSEL CALLS BY CARRIER AND CAPACITY
FY 2012**



**Figure 2.5-7
CONTAINER SLOT CALLS BY CARRIER AND CAPACITY**



FY 2012

**Table 2.5-9
MSC AND HAMBURG-SUD CONTAINER TRAFFIC
(Loaded TEUS)
FY 2012**

	Portwide	MSC	Hamburg Sud
Loaded import TEUs	270,160	48,933	8,118
Loaded export TEUs	390,558	45,387	22,314
Loaded total TEUs	660,718	94,321	30,432
Large vessel carrier share		14.3%	4.6%