

Miami River Demand and Market Assessment Waterfront Industrial Parcels – PIERS Findings Supplement

I. Introduction

Lambert Advisory (Lambert) has completed its assessment and analysis of a database of international cargo which was shipped through the terminals in the Miami River (River) between 2002 and 2007. The database was provided by PIERS. PIERS maintains the most comprehensive database of timely, accurate, import and export information on the cargoes moving through terminals in the U.S. PIERS collects data from over 25,000 bills of lading daily.

As it relates to the River, the database supplied to Lambert by PIERS contained information on approximately 223,100 export and 71,600 import shipments between January 2002 and December 2007. While the database does not account for 100 percent of all shipments in the River given that it was based upon information associated with shipments made by five large lines/shippers¹, the database captured just under 70 percent (69.35%) of all shipments based upon weight and when compared to the universe of total cargo shipped through the River as detailed in the U.S. Army Corps of Engineers' Waterborne Commerce of the United States, 2003-2007. Given the fact that the data analyzed captures a preponderance of the total cargo shipped through the River, and the conclusions which can be drawn from the data share many of the same traits as conclusions within prior reports regarding cargo movement on the River, we believe that the data is generally representative of the universe of cargo movement in the Miami River.

II. Land Requirements for Cargo in River

There are several factors which define the amount of land required to support a certain level of cargo throughput in a terminal facility. The first is "dwell time" or the amount of time a shipment sits in a terminal before it is loaded onto a vessel or clears customs and is picked up for delivery. Typically, terminals such as those in the Miami River which are export facilities rather than import facilities to a large extent can reduce and manage their dwell time to a much greater degree given that there is no

¹ American-Caribbean (CADI & CALN), Antillean Lines (ANTL), Betty K (DORN), Pioneer (PION), and Haiti Shipping Lines (HSPL & HTSG)

imposition of customs on exports. Another factor includes the layout of the property and net acres available for cargo operations. Finally, is the amount and “shape” of cargo. Without knowing the “shape” or packaging of a cargo shipment, it is very difficult to determine how much land will be required. Fortunately most cargo today is shipped in containers and there is a standard measure, the TEU, which provides an indication for the length of container. Therefore there is a good metric for land planning purposes associated with cargo facilities. For cargo facilities such as those on the Miami River where there is a substantial difference between the amounts of cargo exported outside of the United States in comparison to cargo imported, it is also important to account for empty containers to determine how much land may be required to support various throughput levels of cargo. For purposes of this analysis we count each empty container as one (1) TEU.

While not all cargo on the River is shipped in containers, the following table indicates that the majority certainly is. Between 2002 and 2007, well over 90 percent of total cargo in the PIERS database was shipped in containers.

**Miami River - Containerized Cargo as a Percent of Total Cargo Shipped
2002 to 2007**

Year	Percent of Shipments Containerized	
	<u>Import</u>	<u>Export</u>
2002	88%	95%
2003	94%	94%
2004	99%	93%
2005	98%	93%
2006	95%	90%
2007	94%	90%

Source: PIERS data; Lambert Advisory

The following table shows the number of TEU in the database both exported and imported as well as the number of empty containers.

**Miami River PIERS Database
2002 to 2007 TEU Trends**

Year	Import	Export	Empties	Total
2002	10,551	32,823	5,774	49,148
2003	15,828	29,817	6,924	52,569
2004	22,168	33,464	4,578	60,210
2005	22,670	33,858	5,629	62,157
2006	18,482	35,965	10,689	65,136
2007	12,850	34,668	13,193	60,711

Source: PIERS Database; Lambert Advisory

Given the fact that the average TEU throughput per year over the past six years has been approximately 60,000 TEU as captured within the PIERS database and this represents 69.35% of all cargo shipped in containers on the River, total container traffic today can be calculated to approximate plus or minus 86,500 TEU.

Typically, most U.S. terminals operate between 2,000 (least efficient) to 6,000 (most efficient) TEU per gross acre per year. Applying this broad range to the estimated 86,500 TEU handled by terminals in the Miami River each year, there is a requirement for between 14.50 and 43.25 gross acres to handle the current throughput levels. Where the Miami River terminals fall along this range is difficult to determine; while export driven facilities (like those on the Miami River) should be able to manage their dwell times at the terminals to a much greater extent than import driven facilities given the limited imposition of customs on exports, the Miami River properties by their nature are not as efficient as a single owner managed port given the redundancies in facilities and limited ability to reorganize the properties as needed. On the other hand, facilities like those on the River which primarily serve a local market have longer dwell times than large rail driven ports because trucks are more difficult to manage than rail, but smaller ships, like those shipping into the river, require smaller container yards than large ships at large facilities. We therefore provide a range of potential cargo throughput densities within the analysis.

The following table indicates the number of gross acres which would be required starting at 2,000 TEU/gross acre per year at 1,000 of TEU per gross acre per year increments. The table shows the required gross acres for 2006, 2029, and 2059 based upon projections of growth in Miami River cargo throughput by the U.S. Army Corps of Engineers (USACE). While the USACE provided projections in short tons and not TEU, the TEU estimates are based upon applying the relative USACE short ton growth rates over the 2006 base year.

**TEU per Gross Acre per Year
Miami River: 2006 and projected 2029 and 2059**

TEU per gross acre/year	Year 2006 (86,500 TEU)	Year 2029 (115,800 TEU)	Year 2059 (165,300 TEU)
2,000	43.25 acres	57.90 acres	82.65 acres
3,000	28.80 acres	38.60 acres	55.10 acres
4,000	21.60 acres	29.00 acres	41.30 acres
5,000	17.30 acres	23.20 acres	33.00 acres
6,000	14.40 acres	19.30 acres	27.60 acres

Source: PIERS Data Analysis, USACE Supplement to Miami River Dredged Material Management Plan, Lambert Advisory

The most notable aspect of the table above is that with the exception of the least efficient scenario (2,000 TEU per gross acre/year), even by 2059, all containerized cargo in the River should be able to be accommodated on riverfront parcels along unincorporated Miami Dade County’s portion of the River. Given that there are 72.97 gross acres in parcels adjacent to the River in the unincorporated area, all Miami River cargo through Year 2059 based upon the growth projections developed by the USACE should be able to be accommodated within the acreage in unincorporated Miami Dade County except under the very least efficient scenario. It should be noted, that even under the most least efficient standard of 2,000 TEU per gross acre/year, there is no need for additional land beyond the unincorporated areas of the County to accommodate River cargo traffic for well over 25 to 30 years from today. Further support for this finding is that the USACE estimated that there is space for 3,450 TEU at any point in time in *existing* terminals in the unincorporated area of Miami Dade County. Based upon this estimate, at 86,500 TEU, this would indicate that the average dwell time of a shipment would

have to exceed 15 days before these facilities would be at capacity. At 165,300 TEU (as projected for Year 2057) the average dwell time would have to exceed eight (8) days before the terminals are at capacity. For benchmark purposes, eight (8) day average dwell times are at the far outer edge for almost any U.S. facility that is managing its operations efficiently.

While this analysis should not be construed to indicate that cargo will eventually cease to be shipped to the three or four active terminal facilities located in the City of Miami along the Miami River over the long term, it does provide an indication that there is unlikely to be any effective new land absorbed by cargo terminal operators in the City should the USACE projections prove to be accurate.

III. Other Notable Findings

There are several other notable findings from the PIERS data analysis. These include:

- Trade on the River continues to be dominated by Haiti, the Dominican Republic, and the Bahamas. These three countries account for over 95% of total trade in database with the Dominican Republic representing the majority of cargo traffic each year.
- Antillean Marine, Pioneer and Betty K carries the majority of traffic on the River. For the most part, and with the exception of the River Terminal at 22nd Street, these carriers are located in unincorporated Miami Dade County.
- There are few trends which can be discerned from the data except that it appears that the favored trade status of Haiti under the Haitian Hemispheric Opportunity through Partnership Encouragement ("HOPE I") Act of 2006 with regard to textiles and sewn products had an immediate impact in 2006 and into 2007 as it relates to expanded trade with Haiti. This highlights the importance of tariff agreements as it relates to growth or contraction of certain products and volumes along the River.