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CFDA Description:

Funding Opportunity Number: 693JF7-19-BAA-0002

Funding Opportunity Description: Port Infrastructure Development Grants

Agency Name: Maritime Administration

Application Name of this Submission: PortMiami Cargo Yard Resiliency Improvements and Fumigation and Cold Chain Processing Center Project

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PORT/MIAMI

CARGO YARD RESILIENCY, IMPROVEMENTS + FUMIGATION & COLD CHAIN PROCESSING CENTER

U.S. DEPARTMENT OF TRANSPORTATION'S
PORT INFRASTRUCTURE DEVELOPMENT PROGRAM

PROJECT NARRATIVE — SEPTEMBER 16TH, 2019

2019 Port Infrastructure Development Program (PIDP) Project Information Form

Field Name	Response
Applicant Name	Miami-Dade County/PortMiami
Project Name	Cargo Yard Resiliency Improvements and Fumigation & Cold Chain Processing Center
Project Description	<p>This application is seeking federal support through the Port Infrastructure Development Program Project that will allow the increase of international trade to PortMiami, which acts as the principal United States trade gateway to Central and South America and the Caribbean. The Project is composed of two primary components mentioned below and described in greater detail to follow. The two components demonstrate a connection by providing improved services along two parts of a sequence of services tailored specifically for perishable cargo entering PortMiami.</p> <p>The first component of this application is the Cargo Yard Resiliency Improvements and will supplement and bring to reality PortMiami infrastructure improvements to upgrade drainage and resiliency methods, along with the reorganization of cargo containers, which allow for the installation of additional refrigerated racks and an overall more efficient yard. These improvements will yield a higher capacity cargo yard, where land is currently at a premium.</p> <p>The second component of this application is for the construction of a Fumigation and Cold Chain Processing Center, on an off PortMiami site, to support the safe flow of agricultural and food products free of pests and diseases, domestically and internationally and further the treatment requirements of 7 CFR 305.5-305.8. The project proposes the construction of a state-of-the-art fumigation and cold chain processing facility within ten (10) miles of PortMiami on County-owned land. The new facility will serve to allow an alternative to offload perishables at PortMiami that are presently diverted to Northeast US ports and truck back to South Florida.</p>
Project Outcomes	The Fumigation & Cold Chain Processing Center and Cargo Yard Resiliency Improvements will improve the safety, efficiency, reliability, and strengthen key points of service along the sequence of cargo processing that is vital to the continued growth for Florida and the nation. It will also improve the port's economic competitiveness by providing additional capacity for cargo phytosanitary treatment, cold chain processing, and value-added services.
Project Zip Code	33152-6624
Opportunity Zone	Yes
Does this project include purchase of any fully automated cargo handling equipment?	No
Anticipated Environmental Reviews (NEPA Status)	No NEPA environmental reviews are required.

Project previously Submitted?	No	
Project previously received BUILD/TIGER/FASTLANE/INFRA funding?	No previous funding received	
PIDP Grant Amount Requested	\$	43,928,393.00
Future Eligible Project costs		
Total Project Cost (Two Components)	\$	78,758,229.00
Total Federal Funding	\$	43,928,393.00
Total Non-Federal Funding	\$	34,829,836.00
Will RRIF or TIFIA funds be used as part of the project financing?	No	

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1. PROJECT DESCRIPTION

This application is seeking federal support through the Port Infrastructure Development Program Project that will allow the increase of international trade to and from PortMiami, a major seaport located in Miami-Dade County. The Port acts as the principal United States trade gateway to Central and South America and the Caribbean. The Project is composed of two primary components mentioned below and described in greater detail to follow. The two components demonstrate a connection by providing improved services along two parts of a sequence of services tailored specifically for perishable cargo entering PortMiami.

1.1 Grant Recipient Information - PortMiami

PortMiami (the Port), as the lead/primary point of contact and award recipient, presents this application for the Cargo Yard Resiliency Improvements and Fumigation and Cold Chain Processing Center.

PortMiami is one of the top 15 coastal ports that handled the greatest number of loaded foreign and domestic twenty-foot equivalent units of containerized cargo in 2016, as identified by the U.S. Army Corps of Engineers.

PortMiami is a designated Department of Miami-Dade County government (Miami-Dade Seaport Department), and is owned by, and operated as an 'enterprise fund' of the County. An enterprise fund is used to account for activity in which the cost of providing goods and services is primarily recovered through the fees charged to the users. The Port is among the top 11 container ports in the United States. The Port is an island port and occupies approximately 520 acres of land. With an operating budget of nearly \$73.2M and 410 employees, the POM has the resources and history of managing and controlling large grant awards for construction and other port investments.

PortMiami is a vital economic engine contributing \$43 billion annual with 334,000 direct and indirect jobs.

The Port has achieved all previous performance goals and outcomes on federally funded initiatives; successfully designed, implemented and completed numerous capital projects, on time, and within budget; and has a professional support staff to implement and complete all aspects of supervision and contractual obligations of the Cargo Yard Resiliency Improvements and the Fumigation and Cold Chain Processing Center.

In the past, the Port has US\$22,767,000 from the U.S. Department of Transportation for the Port of Miami Intermodal and Rail Reconnection project. Also, the Port was awarded INFRA Grants in 2017 for the PortMiami Truck Gate Expansion and Automation Project for US\$7,000,000 and in 2019 for the PortMiami Bulkhead Rehabilitation and Capacity Expansion Project for US\$8,046,741.

1.2 Cargo Yard Resiliency Improvements

Located in PortMiami the Cargo Yard Resiliency Improvements component of this Project will provide for investments to supplement and bring to reality PortMiami infrastructure improvements. It will upgrade paving, drainage and resiliency methods, along with the reorganization of cargo containers, which allow for the installation of additional refrigerated racks and an overall more efficient yard. These improvements will yield a higher capacity cargo yard, where land is currently at a premium.

1.3 Fumigation and Cold Chain Processing Center

The second component of this application is for the construction of a Fumigation and Cold Chain Processing Center, to support the safe flow of agricultural and food products free of pests and diseases, domestically and internationally and further the treatment requirements of 7 CFR 305.5-305.8. The project proposes the construction of a state-of-the-art fumigation and cold chain

processing center within ten (10) miles of PortMiami on County-owned land. The new facility will serve to allow an alternative to offload perishables at PortMiami that are presently diverted to Northeast US ports and trucked back to South Florida.

Together, the components of this Project will improve the safety, efficiency and reliability of the movement of goods into, and out of the Port, as well as the unloading, loading, and refrigerated capacity of cargo at port facilities that are currently at risk to weather-related flooding and sea-level rise. In addition, for the increase in containers that arrive at the Port, this Project will allow the Port to reorganize to a more efficient yard and improve the Port's economic competitiveness by providing additional capacity for cargo phytosanitary treatment, cold processing to help capture a portion of the perishable markets and bring them to a pivotal region that serves the southeast U.S., the Caribbean, and Latin America.

1.4 **Project Challenges**

The following port infrastructure, port-related transportation, and safe flow of agricultural product challenges addressed by the Project's individual components are:

1.4.1 **Cargo Yard Resiliency Improvements**

- **Improve PortMiami's Capacity to Handle the Increasing Demand for Containerized Cargo** - through infrastructure improvements to the present container yards;
- **Reduce Dwell and Comb Times** - That are the result of inefficiencies related to capacity issues;
- **Reduce Truck Vehicle Miles Traveled (VMT)** - By providing greater refrigerated capacity at PortMiami container yard thus reducing the need to go to off-port storage areas;
- **Provide Resiliency to Cargo Yard Operations** - Through the investment in the surface infrastructure of the cargo yard, improving drainage, raising the level of the aprons to respond to sea level rise;
- **Provide The Cargo Yard Surface Improvements** - To allow for the installation of refrigerated container racks to meet the increasing demand for refrigerated container traffic.

1.4.2 **Fumigation and Cold Chain Processing Center**

- **Support the Safe Flow of Agricultural and Perishable Products** - by providing a fumigation and cold chain processing center to meet the increasing demand for processing of perishable and other commodities in Miami-Dade County and South Florida and in order to further phytosanitary treatment as required under 7 CFR 302.5-305.8:
 - **Construct a consolidated phytosanitary treatment facility** that meets all the requirements of 7 CFR 305.05-305.08;
 - **Build Resiliency to Natural Disasters** by responding to new building code standards for an inland coastal port and provide a state of the art facility in South Florida that can serve as a processing center in response natural or man made disasters affecting other US east coast facilities;
 - **Reduce Truck Vehicle Miles Traveled (VMT)** on Interstate Roads that are the result of the absence of a state-of-the-art consolidated Fumigation and Cold Chain Processing Center in Miami-Dade County
 - **Offer an Alternative To Offload Perishables In PortMiami** to serve the needs of

South Florida residents and visitors;

- **Expand Shelf Life of Agricultural Products** by having a facility that will reduce land based and air borne travel time to South Florida market.
- **Handle Increased Demand for Phytosanitary Treatment of Agricultural Produce And Cold Chain Processing** to respond to cargo growth and new container cargo route development in PortMiami;
- **Reduce Transportation Costs and Emissions** associated with cargo diverted from the Northeast U.S.

1.5 Projects of Independent Utility

Each of the components that comprise the Project while linked, have independent utility. The Cargo Yard Resiliency Improvements are investments to the cargo yard to address drainage and sea level rise issues and provide for refrigerated container racks (“reefer racks”) to expand PortMiami’s capacity to offload, store and ship refrigerated containers. Refrigerated container traffic at PortMiami is increasing at an unprecedented rate with the opening of new refrigerated container traffic service to various Central and South American destinations.

The new refrigerated container racks at PortMiami’s cargo yard will provide additional “reefer” capacity to receive Cold Chain Processing containers to further support the Fumigation & Cold Chain Processing Center. The two components demonstrate a connection by providing improved services along two parts of a sequence of services tailored specifically for perishable cargo. Each component supports one another, but will function independently. As such they have independent utility.

1.5.1 Preferred Project Priority

Both of the proposed project components are considered of equal priority to PortMiami.

1.6 Project Partnerships

The Port presents the following partnerships established for the development of this project should grant funds be awarded for the execution. The partnerships for each of the project components are described in further detail below:

1.6.1 Cargo Yard Resiliency Improvements

There are no project partnerships to note for this component of the project.

1.6.2 PortMiami Fumigation and Cold Chain Processing Center

1.6.2.1 PortMiami and Miami-Dade County

PortMiami is seeking funding assistance to construct a building shell to contain a new phytosanitary treatment facility on **Miami-Dade County (MDC)**-owned land. The grant funds will update an existing cargo yard facility to accommodate the growing demand of containerized cargo, and more specifically that which requires cold processing and fumigation within Miami-Dade County.

1.6.2.2 PortMiami and To Be Determined Third-Party Operator

Port Miami will release a Request for Proposals (RFP) for submissions to operate a state-of-the-art Fumigation and Cold Chain Processing Center within the facility to be constructed by the Port on MDC-owned property. Proposers will be responsible for the purchase of all necessary equipment and furnishings required to operate, and for the operation of the facility.

In preparation of the release of this RFP, PortMiami hosted an Industry Workshop on Friday, August 30th, 2019¹. The meeting was well-attended by local stakeholders, property-owners, and other representatives of the fumigation and cold chain processing industry of South Florida. Discussions included valuable insight regarding operations demands and facility requirements that would best situate this project component and gauge the temperature for responses to the future RFP. As a result of the meeting, PortMiami received a number of support letters from private industry.²

1.6.2.3 PortMiami and Florida Department of Transportation

The Florida Department of Transportation has committed \$200,000.00 in non-federal funds towards the construction of the Fumigation and Cold Chain Processing Center component of the project.³

1.7 Detailed Project Components

The expansion of the Panama Canal, which was completed in June 2016, provides the capacity of the Canal's lock chambers to handle container ships up to about 14,000 TEUs, or post-Panamax ships. Prior to the expansion, the maximum size vessels that could transit the locks was about 4,500 TEUs. The impact of the larger Panama Canal is already impacting the size of the vessels moving through the Canal. Due to this shift in the cargo industry, the demand for U.S. ports to house the incoming cargo has been increasing at an remarkable rate. PortMiami ("Port"), handled about 1,084,000 Twenty-foot Equivalency Units (TEUs) of containerized cargo in 2018. According to the Port's 2035 Master Plan, the demand for containerized cargo handling is projected to be nearly 2.7 million TEUs in international trade by the year 2035⁴.

However, PortMiami is an island port and the present lack of space to increase capacity will impact the Port's ability to meet the growing demand. Using the current configuration of the Port, significant densification of TEUs/acre is required to provide the additional operating capacity needed. Achieving such an improved level of operational efficiency requires investments in infrastructure improvements. A major challenge is PortMiami's lack of space for expansion and the need to improve the Port's capacity to handle the increasing demand for containerized cargo.

The ocean total trade (exports and imports) of refrigerated goods products in South Florida has increased by 7.1% from 2014 to 2018⁵. PortMiami recorded a growth of 21.2% for this same period, which is explained by a significant increase in imports (26.9%) to reach 53,000 TEUs of refrigerated containers in 2018.

PortMiami is the closest US port to the regions that concentrate most of their perishable exports to South Florida. Central America and the west coast of South America together account for more than 80% of perishable imports to PortMiami. Seaboard Marine has been operating an express routes from Peru and Ecuador to Miami that in 2018 resulted in a 300% increase in Peruvian cargo and an 88% increase in cargo from Ecuador. In 2019, Seaboard has started an express route to Colombia and plans a new route to Chile in the next 6 months. This new service will provide increased international trade for perishables and other commodities. As time progresses the traffic of perishables will increase including significant growth in the transport of flowers via sea, as other ocean carriers like CMA-CGM are currently developing new routes linking Colombia to Miami.

International Flower Market From Air to Sea - One of the trends in the shipment of perishables is the change in mode of flower transport, from air to sea. The international flower market has historically transported flowers from the South American and Central America market by air. Since 2017, there has been an exponential growth towards maritime transport. While in 2017 only 50,000 stems (approximately 1/3 of a 40 ft. container) was transported by ocean, in 2018

1 See Appendix K-2019-08-30 Industry Meeting Sign-In Sheet
 2 See Appendix E-Stakeholder Support Letters
 3 See Appendix C-PortMiami Commitment Letters
 4 See Appendix H-PortMiami 2035 Master Plan Executive Summary
 5 Source: PortMiami

almost 27 million stems (approximately 400 TEUs) were transported. This represents an increase of 54,000%. This figure has increased further, up to 50 million stems (approximately 740 TEUs) have already been received⁶. Predominantly, these arrive from Colombia, Guatemala, Ecuador and Costa Rica, where the new routes by Seaboard Marine and Maersk have been initiated. The seaboard routes are relatively new routes. As time progresses the traffic of perishables will increase including significant growth in the transport of flowers via sea.

1.7.1 PortMiami Cargo Yard Resiliency Improvements

The improvements to the cargo yard will greatly improve PortMiami's ability to respond to the growing demand for cargo containers entering the U.S. from Central and South America, especially those that require fumigation and cold chain processing. Given the Port's limited area to accommodate said demand, it becomes imperative that the available space is efficiently used and maintains the ability to accommodate any specific requirements for the cargo, such as temperature and the containment of pests within some perishables products entering the Port. Any interruption that hinders the Port's ability to accommodate this cargo, for instance, any flood event, where the Cargo Yard cannot be utilized to its fullest extent is a severe detriment to not only the businesses, but also trickles all the way down to the consumer's wallets. The Cargo Yard Resiliency Improvements are necessary due to the following circumstances:

Improvements And Expansion Of Reefer Racks

Part of the Cargo Yard Resiliency Improvements component is to improve the Reefer Racks at within the cargo yard to address the growing traffic of refrigerated fruits, produce and fish handled by PortMiami. As mentioned, the reefer market has increased at Port Miami to 53,000 TEUs in 2018.

The investment created by the Cargo Yard Resiliency Improvements component will provide the needed infrastructure improvements to expand the number of reefer racks within the yard. Reefers can be stacked like regular containers at a dedicated area where electric plugs are available. Power outlets (poles) are provided for each row and up to 4 stacked reefers can be plugged. Stacking will be done with the available front loaders. This will allow the yard operator to more efficiently handle the increased traffic in perishable commodities that move through PortMiami. To expand the reefer racks improvements to the electrical system will be required.

Climate Change and Sea-Level Rise

Regionally, sea levels are expected to be 14 to 26 inches higher than 1992 levels by 2060. The County relies upon the Unified Sea Level Rise Projection for Southeast Florida created by the Southeast Florida Regional Climate Change Compact. The County's Internal Services Department created a 3D sea level rise viewer so planners and residents can view the impact of sea level rise. A Sea Level Rise Task Force provided direction for the County's sea level rise adaptation efforts, resulting in guidance.

In 2014, per Resolution No. R-451-14, Miami-Dade County requires that all capital projects consider the impacts of sea level rise. Since then, the County has assessed the vulnerability of its facilities including utilities, surface water management, and other infrastructures in the Capital Project Overview, the Rapid Action Plan and the County's sustainability plan, GreenPrint. These documents have been developed to integrate with existing County plans, such as the Comprehensive Development Master Plan (CDMP), to ensure that any capital planning process incorporates changing flood risks due to sea level rise and heightened storm surge and evaluate their criticality to departmental operations.

⁶ Source: PortMiami

Port in the Eye of Major Storms and Hurricanes

South Florida is experiencing an increasing number of storms and hurricanes in recent years. South Florida is in the path of major hurricanes. Every hurricane season, from June to November, brings the specter of numerous Atlantic Ocean storms and hurricanes. The constant following of their path becomes the news of the day and the concern of all. The disastrous hurricane of August 1992, Hurricane Andrew, brought devastation to South Miami Dade County and substantial damage to other areas of the Miami Metropolitan Area. Hurricane Andrew and its destruction was an awakening to the inadequacy of the construction and storm water management codes in force at the time.

Since 1975, 146 tropical storms and hurricanes have hit Florida; of those, 47 have included fatalities. In 2005, Hurricane Wilma hit South Florida and caused significant damage to the Port. In this figure however, does not consider the true cost of the hurricane damage which includes the lost time and income for everyone from the individual dock worker, to those working for shipping companies, to the consumer who was unable to get the desired goods on time and/or was forced to pay more for the items because of the long delay moving goods through the Port while the reconstruction was taking place.

In addition to the storm water damage, Hurricane Wilma caused damage within the cargo yards. The cargo terminals closed for two full days following the storm and power was out for several days. One hundred empty containers were heavily damaged by the high winds, and more than a dozen fully stocked containers were knocked down. Inundation, flooding, was extensive and many of the sheds and smaller structures on the terminal were damaged. All this damage caused ships to be rerouted to other ports, which increased the cost for shippers and ultimately increased the cost of goods for the consumer.

Outdated Storm Water Management System

The current storm water management system was built in the early 1990s. At the time the system was built, prior to the changes to the storm-water code in the mid 1990's, the cargo yard was constructed to withstand a five-year storm. The present Storm Water Management Code requires that the cargo yard withstands a twenty-five-year storm.

PortMiami Cargo Yard Resiliency Improvements Project seeks to mitigate the damage such storms will cause by upgrading the storm water system. Potential damage due to storms and hurricanes is a critical issue facing the PortMiami. Sea level rise and climate change are making these improvements a more urgent necessity. The proposed Cargo Yard Resiliency Improvement Project will upgrade the storm water management system to withstand a twenty-five-year storm. This brings the drainage system on the terminal up to current standards.

Upgrading this storm-water system will mitigate the number of repairs needed following the next significant storm, thus, reducing the potential downtime. Furthermore, the current drainage system will be brought into full compliance with updated local codes set to mitigate storm water drainage issues. The storm water upgrades will include pavement re-grading, the addition of drainage structures amongst other improvements to utilities.

This component shall be designed and constructed in accordance with expected sea level rise (SLR) projections during its anticipated useful life, using regionally consistent unified sea level rise projections.

Component Detail

The overall cost estimate for the Cargo Yard Resiliency Improvements is approximately \$21,725,819, of which the Seaport Department is seeking \$10,428,393, or a 48% match of federal funds.

1.7.2 Fumigation and Cold Chain Processing Center

The second of the major components included in this application is the construction of an approximately 100,000 square foot building to house a third-party operated, state-of-the-art fumigation and cold chain processing center able to further the phytosanitary treatment requirements of 7 CFR 305.5-305.8. Given the lack of land area at PortMiami, the facility will be built on a 14-acre Miami-Dade County-owned site and completed in a single phase.

The US imported US\$15.2 billion worth non-frozen of fruit in 2018, equal to a 32.4% increase from the value of America's imported fruits during 2014 and a 3.7% increase from 2017-2018⁷. Our appetite for fruits year-round and the differing growing and harvesting seasons of the north and south hemisphere has created a huge fruit import market from central and south America. Our winter grapes come from Chile, our asparagus comes from Peru. Once a net exporter of fruits, we are now a major importer of tropical fruits and other perishables.

Over the course of the next 10 years, the value of imports is anticipated to rise dramatically, with the highest growth commodity expected to be horticultural products, at almost 4% per year, largely composed of the sales of fresh fruit and vegetables. The U.S. Department of Agriculture Economic Research Service reports that fresh produce imports will rise 45% from 2016 to 2027, which implies that in the next decade over 3/4 of our fruits and half our veggies will be imported from outside of the U.S.⁸

The Fumigation and Cold Chain Processing Center is necessary due to the following circumstances:

South Florida Market

Florida is one of the most populated states in the Nation. With a population of 21.6 million and an annual growth rate of 1.6% and over 127 million visitors a year, the Florida market for fruits, vegetables, flowers and other perishables is substantial. South Florida, comprised of Miami-Dade County, Broward County and Palm Beach County represent a population of over 6.7 million and a healthy growth rate of approximately 1%. Miami-Dade County has a population of 2.7 million add 16.5 million annual visitors, 6.7 million day-trippers and cruise passengers and there is a substantial annual population to consume fruits and vegetables.

Limited Industrial Land

This growth and population demand have also translated to the industrial/warehouse real estate market. Vacancy rates for industrial and warehouse space is between 3.8 and 4.0% which indicates a healthy real estate market for this type of use. Growth is constrained by the scarcity of industrial lands, and the supply of available sites are costly and limited. The availability of a Miami-Dade County owned site to include a Fumigation and Cold Chain Processing Center is a unique opportunity to create a multimodal hub that will service the local community.

Addressing All Potential Pest Threats

The phytosanitary treatments regulations in 7 CFR part 305 set out general requirements for certifying or approving treatment facilities and for performing treatments listed in the Plant Protection and Quarantine (PPQ) Treatment Manual [1] for fruits, vegetables, and other articles to prevent the introduction or dissemination of plant pests or noxious weeds into or through the United States. Regulations vary over time and by country of origin, and they are enforced by different agencies. Fruit and vegetable imports are regulated by the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) for pest risk. The United States Department of Agriculture (USDA) and the Animal Plant Health Inspection Services (APHIS) oversee protecting our citrus and other fruit producers from the arrival of pests. Most notably

⁷ See <http://www.worldstopexports.com/top-imported-fruits-most-loved-by-americans/>

⁸ See <https://www.nytimes.com/2018/03/13/dining/fruit-vegetables-imports.html>

tropical fruit flies. Department of Homeland Security (DHS) absorbed the inspection duties of APHIS in 2003, CBP has performed all inspections of fruits and vegetables for pests.

Fumigation

Phytosanitary inspections address all potential pest threats, including hitchhiking pests, misidentified goods, and contamination. Emphasis is paid to systemic pest threats known to commonly occur in the pathway. APHIS determines whether a pest is actionable, indicating that it poses a risk to U.S. agriculture, economy, or environment, and is neither established nor controlled within the United States. If the pest is actionable, the shipment is prohibited entry unless the risk is mitigated with an approved treatment. The two methods of approved treatment for perishables are fumigation (Methyl Bromide fumigant) and heat treatment.

AQI Treatment Fee

Until 2015, the USDA did not require any "treatment fee" for fresh agricultural products imported into the United States that after inspection were deemed as subject to possible treatment or mandatory treatment. In 2015, the USDA adjusted all fees and established the AQI Fee to reimburse treatment program costs. This fee was set at \$47 per treatment and escalated every year for the next five-years, ultimately reaching \$237 per treatment, effective December 28, 2019. However, the decision to adopt a fee "per treatment" has placed PortMiami at a disadvantage due to the fact that the commercial nature of enclosures varies drastically. In the Southeast (Florida), an "enclosure" is one 40-foot trailer that holds up to 20 pallets of commodity for fumigation (a treatment). On the contrary, an "enclosure" in the Northeast can be considered a warehouse that can hold up to 2,400 pallets at a time for fumigation (treatment). The discrepancy between these two figures represents a dramatic cost advantage to the Northeast U.S. Ports, which can ultimately be marketed and passed down as savings that cannot be done in the Southeast⁹.

U.S. Industry Cost for Fumigation

The two largest agricultural commodities being imported into U.S. requiring fumigation as a condition of entry: Chilean fresh grapes and Peruvian fresh asparagus. In 2017, the Southeast (SE) represented only 24% of the Northeast (NE) volume requiring fumigation, but paid substantially more, even though SE volumes are less. Thus in 2018, the SE will pay over \$778,586 more in AQI fees. In other words for 2018, if both import volumes were equal the SE would pay \$3.27 Million compared to the NE paying only \$21,868 for the same imported volume. Clearly this fee structure is inherently unfair and places a burden on trade.¹⁰

History of Cold Treatment North of The 39 Degree Latitude

In order to protect the U.S. mainland from the importation of fruit flies, the USDA's phytosanitary regulations used to limit finishing of cold treatment to facilities operated only in areas north of the 39 degree latitude and east of 104 degree longitude. In the past, fruits and vegetables were imported to the U.S. during winter months, because the areas north of 39th parallel have cold and snow, where the fruit flies and their larvae could not survive and become established.

Changing Method of Transport - Reefer Ships

When import of fruits from South America began, fruits were carried in the cargo hold of refrigerated ships as bulk cargo. This method of transport could not control the escape of pests from the ship during offloading. The process of unloading the fruit and the dangers of the propagation of devastating tropical fruit fly plagues required that the winter fruits be off loaded in cold areas where the cold weather would naturally kill the pests and their larvae. The location restrictions served as an additional safeguard against the possibility that fruit flies could escape from imported

⁹ See Appendix F- The AQI Treatment Fee

¹⁰ See Appendix F- The AQI Treatment Fee

articles prior to treatment and become established in the United States. In the case of Florida this has resulted in additional costs to consumers and truck vehicle- miles-traveled (VMT) to bring the fruit from the Northeast ports.

New Method of Fruit Transport - Reefer Containers

Today most fruit moves on refrigerated containers, “reefers”, that are airtight and sealed. The potential for escape of fruit flies or other pest is no longer a major risk. These refrigerated containers provide cold treatment en-route to meet the minimum 14-day cold treatment requirement. While cold treatment begins at the boarding port in the reefer containers, the travel time may not be enough to meet the 14-day requirement. Offloaded from the ship, the refrigerated container continues cold treatment in an APHIS approved facility, or within the refrigerated container. Other situations such as malfunction of the reefer container may require the treatment to be recommenced from zero. If not possible restarting cold treatment is not possible, then the perishables must be exported from the US or destroyed at an approved USDA/APHIS facility. Today, there is USDA regulations forcing the processing of the perishables north of the 39th Parallel. Products can be brought to market directly without having to double back and traverse the East Coast to reach the Florida market. This will result in time saving, product freshness, reducing truck vehicle traveled miles, roadway congestion and safety.

Federal Government Recognition- Approval Of Southern And Western States

The Federal Government has recognized this condition that creates additional truck VMT and costs to the consumer and has approved cold treatment facilities to be In Southern and Western States under the “Federal Register 5871 Vol. 83, No. 29 Monday, February 12, 2018 DEPARTMENT OF AGRICULTURE Animal and Plant Health Inspection Service 7 CFR Part 305 [Docket No. APHIS–2013–0081] RIN 0579–AD90 Standardizing Phytosanitary Treatment Regulations: Approval of Cold Treatment and Irradiation Facilities; Cold Treatment Schedules; Establishment of Fumigation and Cold Treatment Compliance Agreements, A Rule by the Animal and Plant Health Inspection Service on 02/12/2018”. The Docket states:

“Although the regulations initially did not allow cold treatment facilities to be in Southern and Western States, APHIS periodically received requests for exemptions. In response to these requests, APHIS conducted site-specific evaluations for these locations and determined that regulated articles can be safely transported to, handled in, and treated by specific cold treatment facilities outside of the areas established by the regulations under special conditions to mitigate the possible escape of pests of concern. Over the years, APHIS has amended its regulations to allow cold treatment facilities to be located at the maritime ports of Wilmington, NC; Seattle, WA; Corpus Christi, TX; and Gulfport, MS; Seattle-Tacoma International Airport, Seattle, WA; Hartsfield-Atlanta International Airport, Atlanta, GA; and, most recently, MidAmerica St. Louis Airport, Mascoutah, IL. In addition to those requests, certain importers of fruits and vegetables have shown considerable interest in locating cold treatment facilities in places that are not currently allowed under the regulations (e.g., Miami and Port Everglades, FL, and Savannah, GA)”.

PortMiami Approval

Prior to 2019, cold treatment perishables could not enter ports south of the 39th latitude unless they have finished 15 days of cold treatment at 33 degree F. outside of the US (see USDA regulations (7 CFR 319.56-2d). For this reason, a wide array of fruit grown in Latin America and bound for Florida was shipped to out of state Northeastern ports like Philadelphia, PA and Wilmington, DE, thus a very significant number of containers arrive in Florida ports from the NE, expanding the carbon footprint associated with their transport and adding to the cost for consumers. Earlier this year, USDA updated their regulations regarding cold treatment to allow all southern US ports to request authorization by APHIS/USDA to bring in completed cold treatment produce as well as to continue cold treatment at the port of entry.

The USDA has determined that the cold treatment pilot in the Southeast was a complete success and based on scientific risk analysis, they have determined that they will allow the finish the cold treatment of fruits either on and or near port, using scientific protocols developed by USDA/ APHIS that focus on safety. Business and consumer interests in Florida can benefit by allowing cold treatment to finish in a safe and secure fashion in Florida, rather than the Northeast.

Perishables, such as fruits, vegetables, and flowers degrade over a given period, or if exposed to extreme temperatures, humidity, or other environmental stressors such as fruit flies or other pests. Thus, it is critical to handle (including processes, such as fumigation), store and refrigerate these commodities properly through the entire logistics and value chain, from harvest to retail shelf. To minimize product deterioration and value loss, perishables must be efficiently delivered to the consumer without delay to maintain the highest quality possible in support of the safe flow of agricultural and food products, free of pests and disease, domestically and internationally. Importing via PortMiami provides Florida grocers and consumers with days more shelf-life, in which to sell and/or consume this fresh produce.

The key target perishable import markets for the Cold Chain Processing and Fumigation Center consists of perishable products originating in South and Central America, as well as Mexico and the Caribbean. This market includes dates, figs, blueberries, apples, mangoes, pears, seafood, pineapples, avocados, melons, papayas, grapes, and citrus fruit. Bananas are not included in the target market since the major importers such as Dole and Chiquita have established proprietary facilities at several seaports, and tend to use third party cold storage processing centers to a lesser extent than the above noted commodities. In addition to these commodities, fresh flowers also represent a key target market, particularly for air cargo. Exports include Florida citrus, Florida seafood, and U.S. agricultural products such as frozen beef, pork, poultry, and soy.

The perishable import market consisting of the commodities identified above move into the Southeastern U.S. through a select number of ports, as shown in Exhibit 1. This market is dominated by the Delaware River ports of Philadelphia (PA), Wilmington (DE), Chester (PA), and Gloucester City (NJ).

Key Ports Handling Perishable Cargo from South America and Central America

Ports	TEUS
Philadelphia/Delaware River	137,137
Port Everglades	43,965
Miami	12,195
Savannah	4,439

Source: Piers, 2018

Table 1— Key Ports Handling Perishable Cargo from South America and Central America

The benefits of the development of the Cold Chain Processing and Fumigation Center is to capture the perishable cargo that now moves into Florida via non-Florida ports by truck, resulting in increased environmental, safety, infrastructure costs to the nation, as well as increasing the cost of perishable foods to the Florida consumers while reducing shelf life. Using Piers data, Martin Associates estimated the share of imports from the West Coast of South America and Central America that are consumed in Florida and moving through various Atlantic Coast ports as well as the Florida ports. As shown in (Table 2), 40% of the Florida consumed imports from the West Coast of South America and Central America use ports other than Florida ports. As noted, the majority of these West Coast South American and Central American imports are perishable commodities, most likely moving into Florida from the Delaware River ports, as well as from

Savannah. In addition, in the recent months, the Port of Wilmington, NC has entered into the perishable goods import market, and is also likely to serve certain Florida Markets in the near future.

Imports from West Coast South America and Central America Consumed in Florida by Port of Import

Ports	TEUS	Share
Non-Florida Ports	136,408	40.1%
Port Everglades	83,666	24.6%
Tampa/Manatee	84,739	24.9%
Miami	34,052	10.0%
Jacksonville	1,609	0.5%
Total	340,473	100.0%

Source: Piers, 2018

Table 2— Imports from West Coast South America and Central America Consumed in Florida by Port of Import

It is important to emphasize that the TEUs identified in (Table 2) underestimate the volume of perishables that move into Florida from out of state ports, since the Piers data only identifies cargo that moves from the port of entry to a final destination under an international bill of lading and clears customs at the point of destination. A large share of the imported perishables clear customs at the port of entry, and then move to near-port cold processing centers, where they are re-loaded (transloaded) into domestic refrigerated trucks for the move to final consumption. Therefore, the Piers data does not include these international shipments that are transloaded at the port of entry, for the further trip to final consumption. As a result, the Piers data regarding final consumption point, such as the state of Florida, underestimates the actual flow of perishable cargo that is discharged at the Delaware River ports and the other South Atlantic ports and ultimately consumed in Florida¹¹.

To develop a more comprehensive estimate of the volume of perishables that move from the port of import into the state of Florida, IHS Transearch data was used. This data base identifies the perishable cargo that is trucked from each import port BEA (Business Economic Area) into each BEA in the state of Florida. Focus was on the volume of domestic trucked perishable cargo (consisting of the commodities identified above) that was moved from each non-Florida port BEA into each Florida BEA for consumption. (Table 3) shows the domestic tonnage that was trucked from each non-Florida port BEA into each Florida BEA.

Domestic Perishable Cargo Trucked Between non-Florida Port BEA and Florida BEA (Tons)

Port BEA	Florida BEA							Total	
	Fort Myers, FL	Jacksonville, FL	Miami, FL	Orlando, FL	Pensacola, FL	Sarasota, FL	Tallahassee, FL		
Philadelphia, PA	7,540	12,554	90,178	41,415	2,850	7,953	2,781	15,822	181,093
Savannah, GA	4,769	11,533	37,314	42,874	5,040	5,812	3,007	13,095	123,443
Wilmington, NC	3,658	5,120	21,718	11,052	967	3,347	1,036	7,070	53,968
Total	15,967	29,206	149,210	95,341	8,858	17,112	6,823	35,987	358,504

Source: HIS Transearch 2017 (most recent year data is available)

Table 3— Domestic Perishable Cargo Trucked Between non-Florida Port BEA and Florida BEA (Tons)

This 358,504 tons (18,000 full truckload equivalents) of domestic cargo trucked into Florida is used as a proxy for the transloaded international perishable cargoes, and also as a proxy for the

¹¹ In addition to not capturing the transloaded perishable cargo moving into Florida from out of state ports, the Piers data also under reports the final geographic destination of imports by state since a large percentage of imports do not indicate a final consignee, and its location, since the cargo is moved by freight forwarders, that don't reflect the actual point of consumption; or in some cases the headquarters location of an importer is reported on the shipping bill of lading rather than the ultimate geographic destination.

ultimate destinations for perishables imported through non-Florida ports that are consumed in Florida. This is in addition to the TEUs trucked directly from each of the non-Florida ports into Florida.

The mileage cost savings of serving each Florida BEA through the proposed Fumigation and Cold Chain Processing Center (and using PortMiami) rather than using the current non-Florida ports were estimated by non-Florida port and Florida BEA of consumption. (Table 4) shows the mileage between each non-Florida port to each Florida BEA as well as the mileage to each Florida BEA should PortMiami and the Fumigation and Cold Chain Processing Center be used. A weighted mileage cost savings by using PortMiami was then computed (weights being perishables now consumed, by Florida BEA)

Port BEA Now Used To Serve Florida Markets	Wilmington, NC	Savannah	Philadelphia	Wtd Avg Current Mileage	Mileage Via PortMIAMI	Mileage Savings Provided by PortMIAMI	Share Out of State Perishables Consumed from Out-of-State Ports	Wtd Mileage Savings	
							%		
Share by Port into Florida	15.05%	34.43%	50.51%	Miles	Miles	Miles	%	Miles	
BEAs	<i>Miles</i>	<i>Miles</i>	<i>Miles</i>						
Miami	755	458	1174	864	57	807	41.6%	336	
Orlando	610	309	1028	717	226	492	26.6%	131	
Tampa	632	424	1050	772	281	491	10.0%	49	
Jacksonville	436	139	855	545	354	191	8.1%	16	
Fort Myers	756	434	1175	857	155	702	4.5%	31	
Sarasota	684	408	1103	801	231	570	4.8%	27	
Tallahassee	597	299	1016	706	484	222	1.9%	4	
Pensacola	737	493	1111	842	678	164	2.5%	4	
Wtd Average Miles Saved Using Port Miami									598

Table 4— Mileage Savings to Florida Consumers due to Fumigation and Cold Chain Processing Centers

As shown in (Table 4), the use of the Fumigation and Cold Chain Processing Center would result in a savings of 598 truck miles over the current without project situation in which the Florida perishable market is served by out of state ports, most notable the Delaware River ports, and to a lesser extent Savannah and Wilmington, NC.

This weighted average truck mileage savings will be critical in driving the savings in Vehicle Miles Traveled (VMT) and the resulting environmental, safety, infrastructure and economic competitiveness benefits of the Fumigation and Cold Chain Processing Center and the Cargo Yard Resiliency Improvement components.

The proposed Fumigation and Cold Chain Processing Center will have 80 truck bays. Assuming about 2 trucks serviced per bay per day (based on interviews with current operators of similar Fumigation and Cold Chain Processing Centers), and 360 days of operation annually. It is further assumed that 40% of the facility utilization will be accounted for by perishables that under the without project case are moved into Florida consumption markets from out of state ports, as indicated previously in (Table 2). Under the without project case it is also assumed that the trucks now serving the Florida consumption markets will return to the out of state port regions.

As shown in (Table 5), the center will handle 23,040 trucks per year. This equates to 46,080 round-trip truck trips per year at full facility utilization that will be saved as the result of the opening of the new Fumigation and Cold Chain Processing Center. These containers will move through PortMiami and will utilize the additional processing capacity generated by the Cargo Yard Resiliency Improvements component. Assuming 1.7 TEUs per truck load, the 23,040 trucks per year equate to 39,168 TEUs at full facility utilization. This equates to approximately 23% of the about 167,008 TEUs of the perishable cargo now moving into Florida from non Florida ports.¹²

Truck Trips per Year Saved	
Truck Trip Assumptions	
Number of Truck Bays	80
Truck Turns per Day per Bay	2
Days of Operation	360
Total Annual Throughput in Terms of Truck Trips	57,600
Share from Out of State Ports	40%
Trucks per Year from Out of State Ports (Containers)	23,040
Round Trip Truck Trips Saved Annually at Full Utilization	46,080

Table 5— Truck Trips per Year Saved

The reduced truck round trips multiplied by the average miles saved, 598 miles as shown in (Table 4), results in Vehicle Miles Traveled (VMT) savings due to the Fumigation and Cold Chain Processing Center and the Cargo Yard Resiliency Improvements projects. The VMT savings are the key drivers of the benefits that are quantified as the result of the Fumigation and Cold Chain Processing Center and the Cargo Yard Resiliency Improvements. It is further assumed that the project becomes operational in 2021, with a 75% facility utilization rate, growing to a 100% utilization rate in the year 2026. Based on these utilization assumptions, the VMT savings are estimated 20,682,513 VMT in 2021, growing to 27,576,683 VMT by 2026, and remaining at that level throughout the 30 year projection period.

Component Detail

The overall cost estimate for the PortMiami Fumigation and Cold Chain Processing Center is approximately \$57,032,410 of which the Seaport Department is seeking \$33,500,000, or a 58% match of federal funds.

2. PROJECT LOCATION

2.1 Location Description

Miami-Dade County is home to 2.751 million residents and hosts 15.7 million overnight visitors each year. It is a paradise of oceanfront cities, urban hubs, and charming villages, however most significant, it is widely considered the North American gateway to serve Latin and South America. There is no other place in the world that can offer such a strategic geographic location, extensive infrastructure of airports and seaports, and the trade expertise to reach these markets.

PortMiami is a major seaport located in Biscayne Bay in Miami-Dade County, Florida. Today PortMiami is situated on Dodge Island with a land mass of 520-acres in central Biscayne Bay and

¹² It is estimated that 136,408 TEUs of perishables from West Coast South America and Central America moved directly into Florida from non-Florida ports (Table 2), while another 30,472 TEUs of perishables (358,504 tons of trucked cargo divided by about 11.8 tons per TEU) moved into Florida after transloaded at the non-Florida port of entry, for a total 167,008 TEUs currently moving from out of state ports into Florida.

is under operational management of Miami-Dade County. It is bounded to the north by the Main Channel adjacent to MacArthur Causeway (I-395), to the west by Downtown Miami, to the east by Miami Beach/Fisher Island, and to the south by Fisherman's Channel and Biscayne Bay.

Miami International Airport is situated on approximately 3,230 acres of land near downtown Miami that is operated by the Miami-Dade Aviation Department on property controlled by Miami-Dade County. The Airport is bound to the north by NW 36th Street, to the west by NW 72nd Avenue, State Road 836 to the south and NW 42nd Avenue to the east.

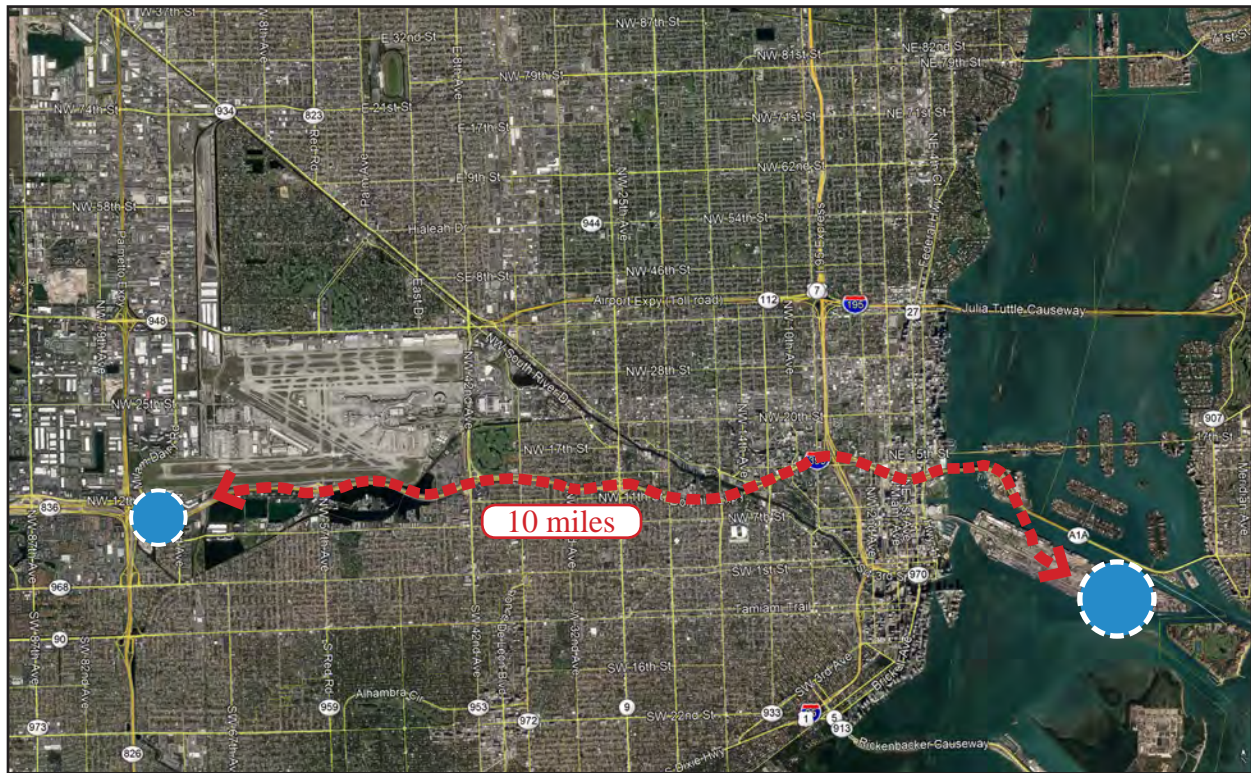


Figure 1— Access and Connectivity

2.1.1 Connections to Existing Transportation

PortMiami and the Fumigation and Cold Chain Processing Site (Figure 1) are within a ten-mile radius of each other. Miami's two main economic engines are linked multimodally by the SR 836 Dolphin Expressway that connects to the state and national expressway system, in addition to rail connectivity. By providing a more direct access to the national highway system, the tunnel allows for truck traffic to bypass downtown streets, relieving unnecessary congestion and truck travel through the urban core street grid. With direct access from I-395 to I-95, truck and cargo travel maintains direct and convenient access to the airport via State Road 836 on the south side.

The primary roadway connection for cargo truck traffic originating at the Port passes through the Port of Miami Tunnel to SR 836 where it is facilitated via an exit at Milam Dairy Road from State Road 836 at NW 11th Street, approximately 1/4 mile to the south east.

There is an existing rail line located on the northern boundary of the Fumigation and Cold Chain Processing Center site. This rail access to the site establishes an additional means of convenient multimodal connection to both PortMiami and the national rail system. Access via rail is conveniently located from PortMiami to the Hialeah Intermodal Rail Yard, directly northwest of Miami International Airport. Partnering with the Florida East Coast Railway (FEC), the U.S. Department of Transportation and the State, PortMiami invested \$50 million to re-introduce on-

port rail service and restore the tracks linking the Port and the rail yard, providing direct cargo access to the national rail system. This service re-connects the Port with national rail systems (CSX and Norfolk Southern) and further expedites the movement of goods throughout Florida and the continental U.S.

Detailed proposed project sites can be generally referred to as the Cargo Yard Resiliency Improvements Site, and the Fumigation and Cold Chain Processing Site depicted and described below:

2.2 Detailed Project Location: Cargo Yard Resiliency Improvements Site

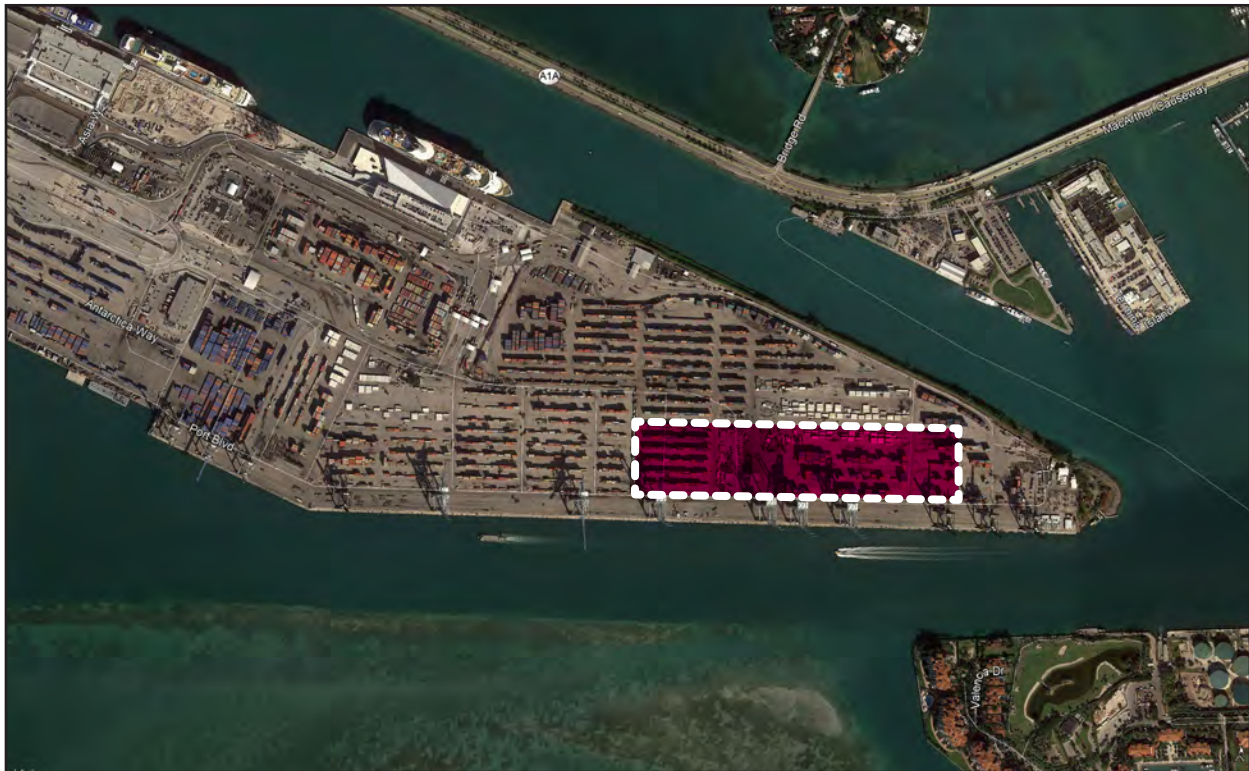


Figure 2— Cargo Yard Resiliency Improvements Site Location Description

The Cargo Yard Resiliency Improvements Site (Figure 2), home to the Cargo Yard Resiliency Improvements component, is located within the State of Florida, City of Miami and Miami-Dade County. It is represented by Florida's 27th Congressional District. The location of the Cargo Yard Resiliency Improvements is adjacent to PortMiami's Truck Gate Innovation project that was awarded the Department of Transportation's Nationally Significant Freight and Highway (INFRA) Grant in 2018. Cargo is transported inland from the Port either by rail, or by truck. The Cargo Yard Resiliency Improvements compliments the Truck Gate Innovation Project and serves to continue infrastructure improvements necessary for the Port to capture and efficiently handle the expected future increase in cargo that requires cold processing and fumigation

Geospatial Data

The geographical coordinates are 25.7745° N 80.1709° W.

2.3 Detailed Project Location: Fumigation and Cold Chain Processing Site



Figure 3— Fumigation and Cold Chain Processing Site Location Description

The Fumigation and Cold Chain Processing Site (Figure 3) is located within the State of Florida, City of Miami and Miami-Dade County jurisdiction. It is represented by the Florida’s 25th Congressional District. Specifically, the Fumigation and Cold Chain Processing Site is located on the southwestern edge of Miami International Airport. The Fumigation and Cold Chain Processing Site occupies roughly 16 acres of land on the north east corner of the intersection at NW 12th Street and NW 72nd Avenue (Milam Dairy Road)

Geospatial Data

The geographical coordinates are 25.782950° N 80.317596° W.

2.4 Qualified Opportunity Zones

The term “Qualified Opportunity Zone (QOZ)” means a population census tract that is a low-income community that is designated pursuant to 26 U.S.C. 1400Z–1.

The Fumigation and Cold Chain Processing Site is located within a QOZ Tract 12086009100. The site is Designated QOZ (Yes) and New Markets Tax Credit NMTC Qualified (Yes).

The Cargo Yard Resiliency Improvements Site is not located within a QOZ. The site is Designated QOZ (No) and New Markets Tax Credit NMTC Qualified (Yes).

3. GRANT FUNDS, SOURCES AND USES OF ALL PROJECT FUNDING

3.1 Cargo Yard Resiliency Improvements

The overall cost estimate for the Cargo Yard Resiliency Improvements is approximately \$21,725,819, of which PortMiami is seeking \$10,428,393.60, or a 48% match of federal funds.

Cargo Yard Resiliency Improvements			
Project Investments Contributions			
Funding Source		Amount	% of Total
PortMiami Contribution	Non-Federal*	\$ 11,297,426.00	52%
Port Infrastructure Development Grant	Federal	\$ 10,428,393.00	48%
Total Project Cost:		\$ 21,725,819.00	100%

* Documentation for funding commitments are referenced in Appendix C

Table 6— Project Investments Contributions (Cargo Yard Resiliency Improvements)

Cargo Yard Resiliency Improvements		
Budget		
Major Construction Activity	Amount	% of Total
Non-Federal Funds		
Civil/Site Improvements	\$ 11,297,426.00	52%
Subtotal:	\$ 11,297,426.00	52%
Ports Program Funds		
Civil/Site Improvements	\$ 10,428,393.00	48%
Subtotal:	\$ 10,428,393.00	48%
Other Federal Funds		
None		
Total Project Cost:	\$ 21,725,819.00	100%

Table 7— Budget (Cargo Yard Resiliency Improvements)

3.2 Fumigation & Cold Chain Processing Center

The overall cost estimate for the PortMiami Fumigation & Cold Chain Processing Center is approximately \$57,032,410 of which PortMiami is seeking \$33,500,000, or a 59% match of federal funds.

Fumigation & Cold Chain Processing Center			
Project Investments Contributions			
Funding Source		Amount	% of Total
PortMiami Contribution	Non-Federal*	\$ 10,032,410.00	17%
Private Partner and FDOT Contribution	Non-Federal	\$ 13,500,000.00	24%
Port Infrastructure Development Grant	Federal	\$ 33,500,000.00	59%
Total Project Cost:		\$ 57,032,410.00	100%

* Documentation for funding commitments are referenced in Appendix C

Table 8— Project Investments Contributions (Fumigation & Cold Chain Processing Center)

Fumigation & Cold Chain Processing Center		
Budget		
Major Construction Activity	Amount	% of Total
Non-Federal Funds		
General Site Conditions	\$2,479,670.00	4.35%
Permitting/Approvals/NEPA	\$2,000,000.00	3.51%
Fumigation and Cold Chain Equ.	\$13,500,000.00	23.67%
Fumigation Gas Recovery System	\$3,500,000.00	6.14%
Contingency	\$2,052,740.00	3.60%
Subtotal:	\$23,532,410.00	41%
Ports Program Funds		
Building Shell	\$23,400,000.00	41.03%
Concrete Truck Bay Area	\$788,400.00	1.38%
Landscape (Xeriscape)	\$515,000.00	0.90%
Civil/Site Improvements	\$5,755,000.00	10.09%
Contingency	\$3,041,600.00	5.33%
Subtotal:	\$33,500,000.00	59%
Other Federal Funds		
None		
Total Project Cost:	\$ 57,032,410.00	100%

Table 9— Budget (Fumigation & Cold Chain Processing Facility)

4. LEVERAGING OF FEDERAL FUNDS

4.1 Cargo Yard Resiliency Improvements

4.1.1 Maximization of Non-Federal Share & Private Funding

PortMiami will provide the private share of investment for the required cargo yard improvements.

4.1.2 Fiscal Constraints

As described in Section (4.1.3) Non-Federal Investment for Related Projects, PortMiami has embarked on a substantial investment track for port and port transportation related improvements. The improvements required for the Cargo Yard Resiliency Improvements were not anticipated and as such are out of the investment stream of the project. Federal assistance will expedite the implementation of the improvements that will otherwise require a number of years for funds to be available.

4.1.3 Non-Federal Investment for Related Projects

In addition to the PortMiami Cargo Yard Resiliency Improvements, PortMiami has responded to growth demands by working to improve infrastructures that serve its cargo business. The Port completed the deepening of the Miami Harbor to a controlling depth of minus 50 feet to accommodate the increased size of the post-Panamax ships by the advancing the federal funds. The Port connected to the nation's highway system via a \$1 billion tunnel and restored a direct freight rail connection that eliminates unnecessary truck traffic traveling through downtown Miami. These projects assisted PortMiami in mitigating inevitable transportation congestion following record cargo of over 1 million TEUs for the past consecutive four years. During fiscal year 2019 – second quarter, the Port increased its cargo business by 9%; Accommodating the continuing cargo growth challenges the efficiencies in the Port's cargo yards and surrounding areas.

In 2009, PortMiami contributed over \$400 million to construct a tunnel joining the I-395 and Port. The construction of the tunnel has allowed for cargo trucks to avoid downtown streets when commuting to the Port. The location of the PortMiami Cargo Yard Resiliency Improvements is adjacent to PortMiami's Truck Gate Innovation project, that was awarded the Department of Transportation's Nationally Significant Freight and Highway (INFRA) grant in 2018 (Figure 4).

With the assistance of the 2017 INFRA grant award (\$7,000,000), PortMiami is undertaking a Truck Gate Innovation Project that will employ innovative and intelligent transportation systems, such as placing Radio- frequency Identification (RFID) readers at critical ingress/egress points. RFID readers will provide advance notification of truck and cargo arrivals. Utilization of real-time gate data and advance notification systems for planned cargo moves will make the process more seamless, reduce unnecessary cargo movements, increase throughput, promote environmental sustainability, and lower shipping costs. This project improves efficiencies and complements the Cargo Yard Resiliency Improvements by reducing the average truck gate processing time from approximately two hours to under one hour. Despite these on-going investments, there is more growth to come at PortMiami. Since the Port is located on an island in Biscayne Bay there are no opportunities to expand the physical site of the Port without excessive environmental impacts. Additional infrastructure improvements, such the PortMiami Cargo Yard Resiliency Improvements, are needed to remain competitive, and mitigate growth strains in an island port during such an unprecedented time in South Florida's cargo industry.

The location of the Cargo Yard Resiliency Improvements is adjacent to PortMiami's Truck Gate Innovation project, that was awarded the Department of Transportation's Nationally Significant Freight and Highway (INFRA) grant in 2018. Cargo is transported inland from the Port either through rail or by trucks. The Cargo Yard Resiliency Improvements compliments the Truck Gate Innovation Project and serves to continue infrastructure improvements necessary for the Port to

capture and efficiently handle the expected increase in cargo.

4.2 Fumigation & Cold Chain Processing Center

4.2.1 Maximization of Non-Federal Share & Private Funding

The Fumigation & Cold Chain Processing Center represents the collaboration of the two major economic engines of South Florida, the PortMiami and Miami-Dade County. The County will contribute the land for the construction of the facility. PortMiami will provide the 20% of additional leverage funds necessary to construct the facility to supplement the grant request.

A third-party private operator for the facility will be procured. This will represent an additional investment of private funds to provide the fumigation equipment system; the required equipment for the cold chain processing at the facility; and the operations and management.

4.2.2 Fiscal Constraints

PortMiami has planned for \$1.5 billion in port projects programmed through 2024 which limits the port's funding capabilities. The land is being made available by Miami-Dade County to the seaport now. As such, PortMiami cannot address the opportunity to expand this service until 2024 without the Federal assistance. The total combined investment for the component is \$57,032,410. PortMiami (\$10,032,410) and a Private Partner (\$13,500,000) will contribute the non-federal share for the center. Given the magnitude of the investment, the POM is not in a position to invest the required total combined investment to develop the facility at the MDC external site. Without Federal assistance the project would be delayed indefinitely. The availability of Federal funding will accelerate making the project reality.

4.2.3 Non-Federal Investment for Related Projects

Please reference Section (4.1.3) for a details regarding the Non-Federal investment of projects related to this component.

5. PROJECT COSTS AND BENEFITS

5.1 Cargo Yard Resiliency Improvements & Fumigation and Cold Chain Processing Center

5.1.1 Safety Benefits

Safety benefits are defined in terms of reduced accidents and associated injuries as the result of the reduced vehicle truck miles traveled due to the Fumigation and Cold Chain Processing Center and Cargo Yard Resiliency Improvements. Accidents per 100 million vehicle miles traveled were developed from Surface Transportation, *A Comparison of the Costs of Road, Rail and Waterways*

Freight Shipments that are not Passed on to Consumers, GAO, Report to the Subcommittee on Select Revenue Measures, Committee on Ways and Means House of Representatives, January 2011. The value of an accident, a fatality, injury, or property damage only (PDO) was collected from *BTS Motor Vehicle Safety Data*, 2015 National Transportation Statistics, 2015. The values were inflated from 2015 values to 2018 values based on the consumer price index published by the U.S. Bureau of Labor Statistics, May 2018.

	Accident Probability/ 100 million VMT	Value per Accident, 2018\$
Fatal Accident Cost (K)	1.13369	\$10,011,917
Severe Injury Accident Cost (A)	78.92426	\$214,318
PDO Accident Cost (no injury)	203.40039	\$3,337

Sources: *Surface Transportation, A Comparison of the Costs of Road, Rail and Waterways Freight Shipments that are not Passed on to Consumers*, GAO, Report to the Subcommittee on Select Revenue Measures, Committee on Ways and Means House of Representatives, January 2011.

Table 10— Accidents per 100 Million VMT

The accident rates per 100 million VMT by type of accident were multiplied by the 100 million vehicle miles traveled savings to estimate the number of accidents by type (due to the reduced VMT). The estimated number of accidents by type were then multiplied by the value accidents (by type) to estimate the total annual value of accidents that would be avoided under the Fumigation and Cold Chain Processing Center and Cargo Yard Resiliency Improvements due to savings in VMT. These safety savings were estimated through 2049, and then discounted under a 3% and 7% discount rate. The present value of the savings benefits of the Fumigation and Cold Chain Processing Center and Cargo Yard Resiliency Improvements are (Table 11):

NPV of Safety @3%	\$142,945,073.50
NPV of Safety@7%	\$86,544,142.08

Table 11— Net Present Value of Safety

5.1.2 Environmental Benefits

Environmental benefits are generated due to the reduced vehicle miles traveled with the Fumigation and Cold Chain Processing Center and Cargo Yard Resiliency Improvements. Emissions of air pollutants are generated per VMT, and the metrics used to estimate the volume of emissions per truck VMT are shown in (Table 12). These emission rates are measured in terms of short tons emitted per million VMT.

Short Tons of Emissions per Million VMT	
Emissions	TONS EMITTED PER MILLION VMT
Nitrogen Oxides (Nox)	3.0193
Volatile Organic Compounds (VOC)	0.11
Fine Particulate (PM)	0.1191
Sulfur Dioxide (SO2)	0.0055

Source: *Surface Transportation, A Comparison of the Costs of Road, Rail and Waterways Freight Shipments that are not Passed on to Consumers*, GAO, Report to the Subcommittee on Select Revenue Measures, Committee on Ways and Means House of Representatives, January 2011

Table 12— Short Tons of Emissions per Million VMT

The cost per short ton of the emissions by type of emission were developed from NHTSA, Final Regulatory Impact Analysis, CAFE for MY 2012-MY 2016 Passenger Cars and Light Trucks, March 2010. The cost of carbon dioxide has historically been based on the social costs of carbon and their costs per metric ton (converted to short ton) are prepared for future years by the IWGSCC, Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866, February 2011. As of June 2018, the cost of carbon dioxide emissions is no longer considered in the evaluation of emissions. These costs were updated using the May 2018 CPI and are shown in (Table 13).

Value per Short Ton of Emissions	
Cost metrics	Cost/Short Ton Emitted
Nitrogen Oxides (Nox)	\$7,693.53
Volatile Organic Compounds (VOC)	\$1,952.32
Fine Particulate (PM)	\$351,938.69
Sulfur Dioxide (SO2)	\$45,470.79

Source: *Final Regulatory Impact Analysis, CAFE for MY 2012-MY 2016 Passenger Cars and Light Trucks*, March 2010. And *IWGSCC, Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866*, February 2011.

Table 13— Value per Short Ton of Emissions

The net present value of the environmental cost savings of the Fumigation and Cold Chain Processing Center and Cargo Yard Resiliency Improvements project are (Table 14):

NPV of Emissions @3% with out co2	\$35,607,649.77
NPV of Emissions @7% without co2	\$21,558,165.14

Table 14— Net Present Value of Emissions

5.1.3 External Truck Cost Savings Benefits

External truck cost savings consist of reduced costs of highway/pavement repair, highway congestion, and noise pollution, due to reduced truck vehicle miles traveled resulting for the Fumigation and Cold Chain Processing Center and Cargo Yard Resiliency Improvements. Metrics that measure highway/pavement degradation costs per truck mile, noise pollution costs per truck mile and highway congestion per ton mile are published by the *1997 Federal Highway Cost Allocation Study*, Final Report, USDOT, Federal Highway Administration, May 2000, Table 13. These cost metrics are shown in (Table 15) and updated to 2018 dollars using the CPI for May 2018. These metrics are applied to the vehicle miles traveled saved under the Fumigation and Cold Chain Processing Center and Cargo Yard Resiliency Improvements project. With the I-95 corridor at or above capacity in many segments between Philadelphia and Miami, the removal of thousands of trucks from this corridor will provide relief in an order of National significance.

External Truck Cost Savings	
Combination Truck 4 Axel	Cost/VMT
Congestion	\$0.4730
Noise	\$0.0232
Pavement (Urban Interstate)	\$0.2623

Source: *1997 Federal Highway Cost Allocation Study*, Final Report, USDOT, Federal Highway Administration, May 2000

Table 15— External Truck Cost Savings

The present value of the External Truck Cost benefits is (Table 16):

NPV of External Truck Cost Savings @3%	\$374,613,226.19
NPV of External Truck Cost Savings @7%	\$226,804,460.48

Table 16— Net Present Value of External Truck Cost Savings

5.1.4 Economic Competitiveness Benefits

The economic competitiveness benefits resulting from the Fumigation and Cold Chain Processing Center and Processing Facility and Cargo Yard Resiliency Improvements consists of the transportation cost savings to the nation's importers as the result of lower truck costs due to the savings in miles traveled to the key consumption destinations in Florida. After the project is completed, additional container volumes will move through PortMIAMI to the consumption markets at lower transportation costs. To estimate the transportation cost savings, the hourly trucking cost was estimated from interviews with key trucking companies engaged in port drainage,

as well as information provided by American Transportation Research Institute (ATRI), An Analysis of the Operational Costs of Trucking, 2018. Based on these sources, it is estimated that the daily trucking costs are \$950. Using the 11 hours of daily service that are capped under the current hours of service regulation and enforced through the electronic logging devices (ELD), the current hourly operating cost per truck is estimated at \$86.36. The cost savings per container is presented in (Table 17).

Savings in Hours of Truck Driving Time by Using PortMiami Over Use of Out of State Ports to Serve Florida Perishable	Miles Saved	Hours Saved	Cost Savings per Container
	598	14.96	\$1,292.11
Cost Savings per Container			\$1,292.11

Table 17—Transportation Cost Savings per Container

The cost savings per truck trip multiplied by the number of containers utilizing the new Fumigation and Cold Chain Processing Center and the densified container yard was used to estimate the transportation cost savings to beneficial cargo owners that will be able to use PortMIAMI and the new Fumigation and Cold Chain Processing Center and the Cargo Yard Resiliency Improvements. It is to be emphasized that it is further assumed that the cost savings is applied to the number of containers that will be moved through PortMIAMI with the completed project. Under the without project, these containers would be moved into Florida from out of state ports. The present value of the transportation cost savings benefits of the Fumigation and Cold Chain Processing Center and Cargo Yard Resiliency Improvements, or the Economic Competitiveness Benefits are (Table 18):

NPV of Economic Competitiveness @3%	\$533,150,866.75
NPV of Economic Competitiveness @7%	\$322,788,909.30

Table 18—Net Present Value of Economic Competitiveness

5.2 Summary of Benefits

The total benefits projected to occur due to the Fumigation and Cold Chain Processing Center and Cargo Yard Resiliency Improvements are shown in (Table 19). Using a 3% discount rate over the period 2019 through 2049, the present value of the total benefits of the Fumigation and Cold Chain Processing Center and Cargo Yard Resiliency Improvements is \$1.1 billion. Under a 7% discount rate, the total present value of the benefits of the project are \$657.7 million. The annual benefits calculations over the 30-year period are presented in the attached benefit-cost Excel Workbook.¹³

BENEFIT CATEGORIES	3% DISCOUNT	7% DISCOUNT
EMISSIONS	\$35,607,649.77	\$21,558,165.14
SAFETY	\$142,945,073.50	\$86,544,142.08
EXTERNAL TRUCK	\$374,613,226.19	\$226,804,460.48
ECONOMIC COMPETITIVENESS	\$533,150,866.75	\$322,788,909.30
TOTAL BENEFITS	\$1,086,316,816.20	\$657,695,677.00

Table 19—Summary of Benefits

13 See Appendix B-Benefit Cost Analysis Workbook

5.3 Costs

The total cost of the project is estimated at \$78,758,229. The federal grant request is \$43,928,393.

5.4 Benefit-Cost Calculation

The Fumigation and Cold Chain Processing Center and Cargo Yard Resiliency Improvements has a very significant benefit-cost ratio, reflecting the strong merits of the project due the reduction in truck traffic on the nation's highways, in turn resulting in significant environmental benefits, safety benefits, external truck benefits, and economic competitive benefits.

Using a 3% discount rate over the 30-year time horizon, the project has a benefit-cost ratio of 13.79, and with a 7% discount rate the benefit-cost ratio is 8.35. The annual benefits and costs are presented in the attached excel spreadsheet file.

Total Present Value of Benefits @ 3% over 30 Years	\$1,086,316,816.20
Total Present Value of Benefits @ 7% over 30 Years	\$657,695,677.00
Total Cost	\$78,758,229.00
Benefit Cost Ratio with 3% Discount Rate	13.79
Benefit Cost Ratio with 7% Discount Rate	8.35

Table 20— Benefit Cost Ratio

6. PROJECT OUTCOMES

6.1 Cargo Yard Resiliency Improvements

The Cargo Yard Resiliency Improvements most directly advances two of the five overall project outcomes described in Section A of the Notice of Funding Opportunity. The following outcomes are:

- (2) Bring facilities to a state of good repair and improve resiliency by addressing current or projected vulnerabilities in the condition of port transportation facilities.

The project outcomes are addressed in greater detail to below:

6.1.1 Efficiency Improvements

Cargo Capacity Increases

By improving the surface and subsurface infrastructure in the cargo yard the project provides an opportunity to reorganize and make the yard more efficient. These investments in infrastructure will help meet the goal of shorter storage time and lower transportation costs. Additionally, the Cargo Yard Resiliency Improvements will allow for the installation of reefer racks to increase capacity to handle refrigerated containers to meet this increasing demand.

6.1.2 State of Good Repair - Improve Resiliency, Address Projected Vulnerabilities

Improving the resiliency of the cargo yard will require a significant amount of rehabilitation to the current storm water management system that is in dire need of repair as well as raising the above-sea-level elevation of the present yard.

State of Good Repair

The current storm water management system is outdated and obsolete, it was built in the early 1990s. At the time the system was built it was constructed to withstand a five-year storm. The present drainage system does not meet the requirements of present Miami Dade County Code.

Improve Resiliency

South Florida is experiencing an increasing number of storms and hurricanes in recent years. The PortMiami Cargo Yard Resiliency Improvements seeks to mitigate the damage such storms will cause by upgrading the storm water system. Potential damage due to storms and hurricanes is a critical issue facing the PortMiami. Since 1975, 146 tropical storms and hurricanes have hit Florida; of those, 47 have included fatalities. In 2005, Hurricane Wilma hit South Florida and caused significant damage to the Port. One hundred empty containers were heavily damaged by the high winds, and more than a dozen fully stocked containers were knocked down. Many of the sheds and smaller structures on the terminal were damaged. All this damage caused ships to be rerouted to other ports, which increased the cost for shippers and ultimately increased the cost of goods for the consumer. As a result, PortMiami spent more than \$1.2 million in 2014 dollars to redevelop forty-seven deep injection storm water wells and clear over 15,000 linear feet of storm water inlets and pipes.

This figure however, does not consider the true cost of the hurricane damage which includes the lost time and income for everyone from the individual dock worker, to those working for shipping companies, to the consumer who was unable to get the desired goods on time and/or was forced to pay more for the items because of the long delay moving goods through the Port while the reconstruction was taking place.

Address Projected Vulnerabilities

The proposed project will upgrade the storm water management system to withstand a twenty-five-year storm. This brings the drainage system on the terminal up to current standards. Upgrading this storm-water system will mitigate the number of repairs needed following the next significant storm, thus, reducing the potential downtime. Furthermore, the current drainage system will be brought into full compliance with updated local codes set to mitigate storm water drainage issues. The storm water upgrades will include pavement re-grading.

6.2 Fumigation & Cold Chain Processing Center

The Fumigation & Cold Chain Processing Center advances one of the five overall project outcomes described in Section A of the Notice of Funding Opportunity. This project outcome is:

- (5) For only the top 15 coastal ports, support the safe flow of agricultural and food products, free of pests and disease, domestically and internationally.

The project outcomes are addressed in greater detail to below:

6.2.1 Support Safe Flow of Agricultural and Food Products

The proposed Fumigation and Cold Chain Processing Center will support the safe flow of agricultural and food products safe of pests and disease by addressing and providing

Consolidated Phytosanitary Facility - that will house a state-of-the-art fumigation facility and cold chain processing center. At present the existing fumigation facilities are scattered in areas west of Miami International Airport. A new facility can consolidate the fumigation and cold chain processing in a single location providing for more modern and controlled phytosanitary processing.

Build Resiliency to Natural Disasters - by providing an alternative to off-load cold treatment perishables in Miami and not be totally dependent on ports of the Northeast. An adequately constructed Cold Chain Processing Center will provide for an alternate off-loading port in case a natural or man-made disaster affects the existing facilities in the Northeast.

Reduce Truck Vehicle Miles Traveled (Truck VMT) - by offloading cold treatment perishables at PortMiami thus reducing the need to truck the perishables from Northeast ports to South Florida. As indicated in the BCA this will reduce the Truck VMT. An additional benefit will be the expansion of shelf life of agricultural products as they will reach the consumer market in less time.

Handle Increased Demand for Required Phytosanitary Treatment and Cold Chain Processing - that is a result of the increase in refrigerated container traffic at POM; the increase in perishables including flowers; and the future authorization for Cold Chain Processing Center at PortMiami.

7. DEMONSTRATE PROJECT READINESS

7.1 Cargo Yard Resiliency Improvements

7.1.1 Technical Feasibility

There is a detailed statement of work breakdown. The scope of work proposed would meet the objectives discussed earlier in the application. Cargo Yard Densification Program – Phase 1 is currently underway and scheduled to be complete by January 2021. Final engineering drawings, drainage design, geotechnical engineering, survey, pavement design, equipment requirements and specifications, utility and electrical designs are underway for Cargo Yard Resiliency Improvements. This design is expected to be completed the first quarter 2020. Immediately upon a grant agreement being executed between the U.S. DOT and Miami-Dade County, the construction project will begin. The construction is expected to take up to 18 months.

7.1.2 Project Schedule

The Cargo Yard Resiliency Improvements component planning and design has begun and is expected to be completed in first quarter 2020. The construction is expected to take up to 18 months, and will be completed in advance of September, 2023.¹⁴

7.1.3 Project Approvals

The following are the anticipated approvals for the successful completion of the project:

NEPA Status and Other Environmental Permits - There are no adverse impacts on minority populations. All construction and operations will occur within existing rights of way. There are no impacts on the endangered species, biological resources or the social environment from noise or contamination resources. The project will result in significant emissions reductions improving air quality within the Miami air-shed, which is an attainment area under the Clean Air Act.

Since the funding of this project through the grant program will be considered a federal action, a preliminary National Environmental Policy Act (NEPA) draft of the programmatic categorical exclusion will be provided.

7.1.4 Project Risk

There are no significant risks associated with this project. There is a clearly defined scope, schedule and cost estimate. PortMiami is highly confident that this project will proceed according

¹⁴ See Appendix G-Project Gantt Charts

to schedule and estimated costs. Additionally, Phase I is currently under construction and lessons learned are being applied to this component. If funding overruns are identified later in the project, local matches will be used to make up the difference if needed. However, funding overruns are not anticipated as evidenced by PortMiami experience in managing federal grants, and the fact that there has never been any audit findings in this area, which demonstrates the Port's ability to effectively administer a federal grant.

7.2 Fumigation & Cold Chain Processing Center

7.2.1 Technical Feasibility

There are numerous precedents for the design of the Fumigation and Cold Chain Processing Center. The two components that make up the facility, Fumigation and Cold Chain Processing, will require different sectors of the facility to carry out the specific process required.

Fumigation will be of containers and of palletized perishable cargo within the building. Fumigation will require the recovery and processing of the methyl bromide gas used. Although in the same structure, the fumigation area will be separate from the Cold Chain processing to insure safety. Special ventilated spaces will separate the two uses and still allow for the safe transfer of perishables to the cold chain areas when required.

The building structure will be of conventional construction for this type of facility, either a tilt-up concrete structure or a combination of tilt-up construction and insulated metal panel walls structure. The type of construction will be decided once a third-party operator has been selected and their preferences incorporated in the design of the facility. The building will have to meet the highest standards of sustainability and energy efficiency.

7.2.2 Project Schedule

The Fumigation and Cold Chain Processing Center can be under construction by January of 2023. Upon Award of the Grant for the construction of the Fumigation and Cold Chain Processing Center an RFP for the procurement of a private partner to operate and manage the proposed facility will be issued. The private partner will be required to provide financial contributions of the fumigation and cold chain processing equipment. This procurement process will be done within an eleven-month time-line.

The preparation of Design Documents will begin once an operator has been selected and his preferences are incorporated into the design process. The Port estimates a nine-month process for the preparation of design documents. Permitting will commence early and will be concluded by march of 2022. Bidding and negotiations with the selection of a contractor will be concluded by November of 2022. Construction of the facility will begin on December of 2022 which is in keeping with the Grant requirement of construction to begin before Sept 20, 2023. The time-line for construction is expected to take 18 months. The center will be completed by June 2024.¹⁵

7.2.3 Project Approvals

The following are the anticipated approvals for the successful completion of the project:

NEPA Status and Other Environmental Permits - There are no adverse impacts on minority populations. All construction and operations will occur within existing property. There are no impacts on the endangered species, biological resources or the social environment from noise or contamination resources. The project will result in significant emissions reductions improving air quality within the Miami air-shed, which is an attainment area under the Clean Air Act.

Since the funding of this project through the grant program will be considered a federal action, a preliminary National Environmental Policy Act (NEPA) draft of the programmatic categorical

15 See Appendix G-Project Gantt Charts

exclusion will be provided.

Permitting - Due to the location of the proposed fumigation facility, several airspace and runway safety areas need to be evaluated for penetrations. The proposed location may impact operations of Runway 9; therefore, a full airspace analysis should be performed before final design is completed. A penetration to the Part 77 surface may be permissible as long as the object or structure is properly marked and lit.

Given that it is a previously developed urban site there is existing water and sewer infrastructure as well as electrical and telecommunications access. Both the land use and the site zoning are commercial/industrial. All required Health Department permits including storm water management permits will need to be obtained as well as a building permit. We do not anticipate any major risks in obtaining permits for the construction of the facility.

7.2.4 Project Risk

The following are the identified risks to successful completion of the project:

Environmental Risks - The site was previously occupied by a department store warehouse and is presently vacant. A Phase I Environmental Assessment as required by Miami-Dade County will have to be carried out. We do not foresee any major environmental issues with construction of the facility on site.

Applicant's Capacity to Manage Project - As previously mentioned in Section (1.1) PortMiami has managed numerous successful projects and grant awards. PortMiami has the capacity to manage the grant funds allocation, the construction of the facility and subsequent management of the property. There is no anticipated issues with the delivery of the project given the availability of financing.

8. DOMESTIC PREFERENCE

Materials to be used in the construction of the Cargo Yard Resiliency Improvement Project and the building of the Fumigation and Cold Chain Processing Center will abide by the Buy American Act and as the Act indicates: "As expressed in Executive Order 13788 of April 18, 2017 (Buy American and Hire American), and in Executive Order 13858 of January 31, 2019 (Strengthening Buy American Preferences for Infrastructure Projects), it is the policy of the United States to buy American and to maximize, consistent with law, the use of goods, products, and materials produced in the United States."

The Act further states: "In Executive Order 10582 of December 17, 1954 (Prescribing Uniform Procedures for Certain Determinations Under the Buy-American Act), President Eisenhower established that materials shall be, for purposes of the Buy American Act, considered of foreign origin if the cost of the foreign products used in such materials constitutes 50 percent or more of the cost of all the products used in such materials." In particular the Act indicates that: "The policies described in section 1(b) of this order were adopted by the Federal Acquisition Regulatory Council (FAR Council) in the Federal Acquisition Regulation (FAR), title 48, Code of Federal Regulations." The FAR proposes rules that require:

"(A) for iron and steel end products, the cost of foreign iron and steel used in such iron and steel end products constitutes 5 percent or more of the cost of all the products used in such iron and steel end products; or

(B) for all other end products, the cost of the foreign products used in such end products constitutes 45 percent or more of the cost of all the products used in such end products; ..."

PortMiami will ensure that contractors carrying out the work under the auspices of the US Department

of Transportation 's Port Infrastructure Development Program will meet the requirements of the Buy American Act.

8.1 Cargo Yard Resiliency Improvements

All anticipated grant monies received will be used for infrastructure improvements to the Cargo Yard Resiliency Improvements component presented herein. The construction materials required for this component will meet the requirements under the Buy American Act to be produced and manufactured domestically.

At this time, it is not anticipated that any of the materials or manufactured products that compose this project component will require an exception or waiver of the Buy American provisions described in F.2 of the Notice of Funding Opportunity (NOFO).

8.2 Fumigation & Cold Chain Processing Center

All anticipated grant monies received will be used for the construction of the building shell to accommodate the third-party fumigation and cold chain processing center component presented herein. The construction materials required for this component will meet the requirements under the Buy American Act to be produced and manufactured domestically.

At this time, it is not anticipated that any of the materials or manufactured products that compose this project component will require an exception or waiver of the Buy American provisions described in F.2 of the NOFO.

List of Appendices	
A	Benefit Cost Analysis
B	Benefit Cost Analysis Workbook
C	PortMiami Commitment Letters
D	PortMiami Tenant Support Letters
E	Stakeholder Support Letters
F	The AQI Treatment Fee
G	Project Gantt Chart
H	PortMiami 2035 Master Plan Executive Summary
I	2018-19 Perishables Update
J	2017 Local & Regional Economic Impacts of PortMiami
K	2019-08-30 Industry Meeting Sign-In Sheet

**Project: Cold Storage
Fumigation and Processing
Facility and Container Yard
Densification**

**BENEFIT-COST SPREADSHEET
MODEL FOR PORTMIAMI COLD
CHAIN PROCESSING AND
FUMIGATION CENTER AND
CARGO YARD RESILIENCY
IMPROVEMENTS**

Prepared for:

PortMiami

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September 11, 2019

Model Parameters

General

Discount Rate		3%			CPI	Annual Average CPI
Base Year		2018				
Conversion Factors					2000	173.6
Metric Ton to Grams	<i>grams / metric ton</i>	1,000,000			2005	197.4
Long UK Ton to Metric Ton	<i>long UK ton / metric ton</i>	0.98420			2010	218.6
Short US Ton to Metric Ton	<i>short US ton / metric ton</i>	1.10231			2011	226.3
Pounds to Metric Ton	<i>pounds / metric ton</i>	2,204.62			2012	230.3
Miles to Kilometer	<i>kilometers / mile</i>	1.60934			2013	233.5
Miles to Feet	<i>feet / mile</i>	5,280			2014	237.1
Short Ton to Grams	<i>grams / short ton</i>	1,000,000			2015	237.8
long ton to Metric Ton	<i>metric Ton / long ton</i>	1.01605			2016	241.2
					2017	246.2
					2018	251.6

US Bureau of Labor Statistics

Value of Time

Vehicle Operators		2015 dollars	2018 dollars	Adjusted	
Truck Drivers	<i>\$2015 per person-hour</i>	\$27.2	\$28.8	2018	Benefit-Cost Analysis (BCA) Resource Guide (November 2016), Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis, Revision 2 Corrected
Bus Drivers	<i>\$2015 per person-hour</i>	\$28.3	\$29.9	2018	
Locomotive engineers	<i>\$2015 per person-hour</i>	\$41.6	\$44.0	2018	
Airline pilots and engineers	<i>\$2015 per person-hour</i>	\$86.7	\$91.7	2018	
Average Vehicle Occupancy Rate					
Truck	<i>persons per vehicle</i>	1.00		2018	Martin Assumption
Locomotives	<i>engineers per train</i>	2.00		2018	Martin assumption

Operating Costs

Not Used					
Auto Maintenance Cost (Med/Lg Automobile)					
Oil Price - Auto	<i>\$ per quart</i>	\$9.8		2012	HERS Technical Report, 2002, Updated from 1997\$ to 2012\$ using BLS Series CUUR0000SS47021
Truck Maintenance Costs (Avg. 4-5 Axle Combo)					
Oil Price - Truck	<i>per quart</i>	\$3.9		2012	HERS Technical Report, 2002, Updated from 1997\$ to 2012\$ using BLS Series CUUR0000SS47021

Safety

Fatalities					
Trucking	<i>fatalities per billion ton-miles</i>	2.54		2011	Surface Transportation, A Comparison of the Costs of Road, Rail and Waterways Freight Shipments that are not Passed on to Consumers, GAO, Report to the Subcommittee on Select Revenue Measures, Committee on Ways and Means House of Representatives, January 2011
Railroad	<i>fatalities per billion ton-miles</i>	0.39		2011	
Waterways	<i>fatalities per billion ton-miles</i>	0.01		2011	
All Non-Fatal Injuries					
Trucking	<i>injuries per billion ton-miles</i>	55.98		2011	
Railroad	<i>injuries per billion ton-miles</i>	3.32		2011	
Waterways	<i>injuries per billion ton-miles</i>	0.05		2011	
Accident Cost		2016 \$	2018 \$	Accident Probability/100 million VMT	
Fatal accident cost (K)	<i>\$ per accident</i>	\$9,600,000	\$10,011,917	1.13369	2018
Severe Injury Accident Cost (A)	<i>\$ per accident</i>	\$459,100	\$478,799	78.92426	2018
Moderate Injury Accident Cost (B)	<i>\$ per accident</i>	\$125,000	\$130,364		2018
Minor Injury Accident Cost (C)	<i>\$ per accident</i>	\$63,900	\$66,642		2018
Pers. Inj. Accident cost - (No KABCO data) - Severity Unknown	<i>\$ per accident</i>	\$174,000	\$181,466		2018

Traffic accident incident per 100 million miles from BTS Motor Vehicle Safety Data, 2015 National Transportation Statistics, 2015

PDO accident cost (no injury)	\$ per accident	\$3,200	\$3,337	203.40039	2018
Annual increase in value of life	percent per year	1.07%			
Average Cost of non death injury	avg per non death injury accident	\$205,500	\$214,318		

Emissions

Particulate Matter		TONS EMITTED BY MODE PER TON MILE OR VMT			
Trucking	tons per million ton-miles	0.1191		2011	Surface Transportation, A Comparison of the Costs of Road, Rail and Waterways Freight Shipments that are not Passed on to Consumers, GAO, Report to the Subcommittee on Select Revenue Measures, Committee on Ways and Means House of Representatives, January 2011
Railroad	tons per million ton-miles	0.0179		2011	
Waterways	tons per million ton-miles	0.0116		2011	
Nitrogen Oxides (NOx)					
Trucking	tons per million ton-miles	3.0193		2011	Surface Transportation, A Comparison of the Costs of Road, Rail and Waterways Freight Shipments that are not Passed on to Consumers, GAO, Report to the Subcommittee on Select Revenue Measures, Committee on Ways and Means House of Representatives, January 2011
Railroad	tons per million ton-miles	0.6747		2011	
Waterways	tons per million ton-miles	0.4691		2011	
VOC					
Trucking	tons per million ton-miles	0.11			
Carbon Dioxide (CO2) Equivalents					
Trucking	tons per million ton-miles	229.8		2011	Surface Transportation, A Comparison of the Costs of Road, Rail and Waterways Freight Shipments that are not Passed on to Consumers, GAO, Report to the Subcommittee on Select Revenue Measures, Committee on Ways and Means House of Representatives, January 2011
Railroad	tons per million ton-miles	28.96		2011	
Waterways	tons per million ton-miles	17.48		2011	
Sulfur Dioxide (SO2) Truck Only					
	tons per million ton-miles	0.0055			
Emission Costs			2017	2018 \$	
Nitrogen Oxides (Nox)	\$/short ton	\$8,300	\$8,300	\$8,482.92	2017
Volatile Organic Compounds (VOC)	\$/short ton	\$2,000	\$2,000	\$2,044.08	2017
Fine Particulate (PM)	\$/short ton	\$377,800	\$377,800	\$386,126.05	2017
Sulfur Dioxide (SO2)	\$/short ton	\$48,900	\$48,900	\$49,977.67	2017
Carbon Monoxide (CO)	\$/short ton	\$1	\$1	\$1.04	2017
Carbon Dioxide (CO2) - Discount Rate	percent	3.0%	Not Used		2017

External Cost of Additional Truck Use

Single Unit Truck Use		2000 \$	2018 \$		
Congestion	\$ per VMT	\$0.1201	Not Used		2012
Accidents	\$ per VMT	\$0.0170	Not Used		2012
Noise	\$ per VMT	\$0.0092	Not Used		2012
Combination Truck 4 axel					
Congestion	\$ per VMT	\$0.3264	\$0.47		2018
Accidents	\$ per VMT	\$0.0236	Not Used		2018
Noise	\$ per VMT	\$0.0160	\$0.02		2018
Pavement (Urban Interstate)	\$ per VMT	\$0.18	\$0.26		2018

Freight Vehicles Capacity

Average Train Capacity					
Number of carloads per unit-train	carloads per train	100.00			HDR Assumption, based on US Industry Standards
Average carload size, all commodities	tons per carload	110.00	100	125	Based on U.S. Government Accountability Office (GAO)'s analysis of data from US DOT, EPA and the Texas Transportation Institute
Average length of a Train	feet	7,000			HDR Assumption, based on US Industry Standards
Average Truck Load					
Cargo weight, all commodities	tons per truck	22.7	17.0	25.0	HDR average estimate based on freight truck capacities and legal weight limits on public roads (LOW); Texas Transportation Institute, A Modal Comparison of Domestic Freight Transportation Effects on the General Public, 2009 (HIGH); U.S. Government Accountability Office (MID)

Truck Trips per TEU

Trucks Container Move

1.0

Martin Associates based on one container per truck each way

Short tons per loaded TEU

Tons per container

14.0

2018 assumes 1 full and 50% empty return

Truck Cost Savings

Trucking costs

950 per 11 hours

2018 cost/hour

\$86.36

2018 Martin Associates Interviews with Trucking companines \$950/day, average 40/MPH over the road, 30 mph local; American Transportation Research Institute (ATRI), An Analysis of the Operational Costs of Trucking, 2017.

Miles/hour within 50 miles

30

Miles/hour greater than 50 miles

40

Port BEA Now Used To Serve Florida Markets	Wilmington, NC	Savannah	Philadelphia	Wtd Avg Current Mileage	Mileage Via PortMIAMI	Mileage Savings Provided by PortMIAMI	Share Out of State Perishables Consumed from Out-of-State Ports	Wtd Mileage Savings	
Share by Port into Florida	15.05%	34.43%	50.51%	Miles	Miles	Miles	%	Miles	
BEAs	Miles	Miles	Miles						
Miami	755	458	1174	864	57	807	41.6%	336	
Orlando	610	309	1028	717	226	492	26.6%	131	
Tampa	632	424	1050	772	281	491	10.0%	49	
Jacksonville	436	139	855	545	354	191	8.1%	16	
Fort Myers	756	434	1175	857	155	702	4.5%	31	
Sarasota	684	408	1103	801	231	570	4.8%	27	
Tallahassee	597	299	1016	706	484	222	1.9%	4	
Pensacola	737	493	1111	842	678	164	2.5%	4	
Wtd Average Miles Saved Using Port Miami									598

Truck Trip Assumptions	
Number of Truck Bays	80
Truck Turns per Day per Bay	2
Days of Operation	360
Total Annual Throughput in Terms of Truck Trips	57,600
Share from Out of State Ports	40%
Trucks per Year from Out of State Ports (Containers)	23,040
Round Trip Truck Trips Saved Annually at Full Utilization	46,080

39,168 TEUS equivalent of the 23,040 truck moves
 167,008 Total TEUS into Florida from non Florida ports
 23.45% Share of out of state perishable market (from non-Florida Ports)

PROJECTED TRUCK TRIPS SAVED BASED ON FACILITY UTILIZATION ASASUMPTIONS

PROJECTED TON MILE OR VEHICLE MILES TRAVELED SAVINGS

Port BEA Now Used To Serve Florida Markets	Wilmington, NC	Savannah	Philadelphia	Wtd Avg Current Mileage	Mileage Via PortMIAMI	Mileage Savings Provided by PortMIAMI	Share Out of State Perishables Consumed from Out-of-State Ports	Wtd Mileage Savings	
Share by Port into Florida	15.05%	34.43%	50.51%	Miles	Miles	Miles	%	Miles	
BEAs	Miles	Miles	Miles						
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Pensacola	737	493	1111	842	678	164	2.5%	4	
Wtd Average Miles Saved Using Port Miami									598

ENVIRONMENTAL SAVINGS

Emissions	TONS EMITTED PER MILLION VMT
Nitrogen Oxides (Nox)	3.0193
Volatile Organic Compounds (VOC)	0.11
Fine Particulate (PM)	0.1191
Sulfur Dioxide (SO2)	0.0055
Carbon Dioxide	229.8

Not Included as of July 2018

Cost metrics	Cost/Short Ton Emitted Truck
Nitrogen Oxides (Nox)	\$8,482.92
Volatile Organic Compounds (VOC)	\$2,044.08
Fine Particulate (PM)	\$386,126.05
Sulfur Dioxide (SO2)	\$49,977.67
CO2	\$1.00

mt/st conversion 1.10231136
Discount at 3%

NPV @3% +80:83less co2
NPV @7% less co2
NPV Of CO2 @3%
NPV of Emissions @3% with o
NPV of Emissions @7% withou

SAFETY

		Accident Probability/ 100 million VMT	Value per Accident, 2018\$
Fatal Accident Cost (K)	\$ per accident	1.13369	\$10,011,917
Severe Injury Accident Cost (A)	\$ per accident	78.92426	\$214,318
PDO Accident Cost (no injury)	\$ per accident	203.40039	\$3,337

NPV of Safety @3%
NPV of Safety@7%

EXTERNAL TRUCK COST SAVINGS

Combination Truck 4 Axel	Cost/VMT
Congestion	\$0.4730

Noise	\$0.0232
Pavement (Urban Interstate)	\$0.2623

NPV of External Truck Cost Sav
 NPV of External Truck Cost Sav

TRANSPORTATION COST SAVINGS - ECONOMIC COMPETITIVENESS

Savings in Hours of Truck Driving Time by Using PortMiami Over Use of Out of State Ports to Serve Florida Perishable Markets	Miles Saved	Hours Saved	Cost Savings per Container
	598	14.96	\$1,292.11
Cost Savings per Container			\$1,292.11
Assumption: Truck Cost Per Hour	\$86.36		
Assumption: Average Truck Speed in Miles Per Hour	40		

NPV of Economic Competitiveness
 NPV of Economic Competitiveness

TOTAL NET BENEFITS

- BENEFIT CATEGORIES**
- EMISSIONS
 - SAFETY
 - EXTERNAL TRUCK
 - ECONOMIC COMPETITIVENESS
 - TOTAL BENEFITS

- NPV AT 7%**
- EMISSIONS
 - SAFETY
 - EXTERNAL TRUCK
 - ECONOMIC COMPETITIVENESS
 - TOTAL BENEFITS

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Facility Utilization	0	0	0.75	0.8	0.85	0.9	0.95	0.95	1	1	1	1
Out of State Truck Trips Saved By Cold Storage F	0	0	34,560	36,864	39,168	41,472	43,776	43,776	46,080	46,080	46,080	46,080
Truck Vehicle Miles Saved	0	0	20,682,513	22,061,347	23,440,181	24,819,015	26,197,849	26,197,849	27,576,683	27,576,683	27,576,683	27,576,683
Total Vehicle Miles Traveled Saved	0	0	20,682,513	22,061,347	23,440,181	24,819,015	26,197,849	26,197,849	27,576,683	27,576,683	27,576,683	27,576,683

Short Tons Emitted Savings	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Particulate	0.00	0.00	2.46	2.63	2.79	2.96	3.12	3.12	3.28	3.28	3.28	3.28
Nitrogen Oxides (NOx)	0.00	0.00	62.45	66.61	70.77	74.94	79.10	79.10	83.26	83.26	83.26	83.26
Sulfur Dioxide (SO2)	0.00	0.00	0.11	0.12	0.13	0.14	0.14	0.14	0.15	0.15	0.15	0.15
Carbon Dioxide CO2	0.00	0.00	4,752.84	5,069.70	5,386.55	5,703.41	6,020.27	6,020.27	6,337.12	6,337.12	6,337.12	6,337.12
VOC	0.00	0.00	2.28	2.43	2.58	2.73	2.88	2.88	3.03	3.03	3.03	3.03

Value of Emission Tons Savings due to Truck

Particulate	\$0.00	\$0.00	\$951,139.37	\$1,014,548.66	\$1,077,957.95	\$1,141,367.24	\$1,204,776.53	\$1,204,776.53	\$1,268,185.82	\$1,268,185.82	\$1,268,185.82	\$1,268,185.82
Nitrogen Oxides (NOx)	\$0.00	\$0.00	\$529,730.28	\$565,045.64	\$600,360.99	\$635,676.34	\$670,991.69	\$670,991.69	\$706,307.05	\$706,307.05	\$706,307.05	\$706,307.05
Sulfur Dioxide (SO2)	\$0.00	\$0.00	\$5,685.15	\$6,064.16	\$6,443.17	\$6,822.18	\$7,201.19	\$7,201.19	\$7,580.20	\$7,580.20	\$7,580.20	\$7,580.20
CO2 Value/short ton	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Carbon Dioxide (CO2) Equivalentents	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
VOC	\$0.00	\$0.00	\$4,650.43	\$4,960.46	\$5,270.49	\$5,580.52	\$5,890.54	\$5,890.54	\$6,200.57	\$6,200.57	\$6,200.57	\$6,200.57
Total Emission savings less CO2	\$0.00	\$0.00	\$1,491,205.23	\$1,590,618.92	\$1,690,032.60	\$1,789,446.28	\$1,888,859.96	\$1,888,859.96	\$1,988,273.64	\$1,988,273.64	\$1,988,273.64	\$1,988,273.64

\$35,607,649.77
 \$21,558,165.14
 \$0.00

\$35,607,649.77
\$21,558,165.14

100,000,000 vehicle miles	0	0	0.206825125	0.220613467	0.234401809	0.24819015	0.261978492	0.261978492	0.275766834	0.275766834	0.275766834	0.275766834
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	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Fatal accident cost (K)	\$0.00	\$0.00	\$2,347,554.13	\$2,504,057.74	\$2,660,561.34	\$2,817,064.95	\$2,973,568.56	\$2,973,568.56	\$3,130,072.17	\$3,130,072.17	\$3,130,072.17	\$3,130,072.17
Injury Cost	\$0.00	\$0.00	\$3,498,417.56	\$3,731,645.40	\$3,964,873.24	\$4,198,101.07	\$4,431,328.91	\$4,431,328.91	\$4,664,556.75	\$4,664,556.75	\$4,664,556.75	\$4,664,556.75
PDO accident cost (no injury)	\$0.00	\$0.00	\$140,394.81	\$149,754.46	\$159,114.12	\$168,473.77	\$177,833.42	\$177,833.42	\$187,193.08	\$187,193.08	\$187,193.08	\$187,193.08

Total Safety Cost	\$0.00	\$0.00	\$5,986,366.50	\$6,385,457.60	\$6,784,548.70	\$7,183,639.80	\$7,582,730.90	\$7,582,730.90	\$7,981,822.00	\$7,981,822.00	\$7,981,822.00	\$7,981,822.00
			\$142,945,073.50									
			\$86,544,142.08									

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Vehicle miles	0	0	20,682,513	22,061,347	23,440,181	24,819,015	26,197,849	26,197,849	27,576,683	27,576,683	27,576,683	27,576,683
Congestion	\$0.0000	\$0.0000	\$9,783,486.4480	\$10,435,718.8778	\$11,087,951.3077	\$11,740,183.7376	\$12,392,416.1674	\$12,392,416.1674	\$13,044,648.5973	\$13,044,648.5973	\$13,044,648.5973	\$13,044,648.5973

Noise	\$0.0000	\$0.0000	\$479,582.6690	\$511,554.8470	\$543,527.0249	\$575,499.2028	\$607,471.3808	\$607,471.3808	\$639,443.5587	\$639,443.5587	\$639,443.5587	\$639,443.5587
Pavement	\$0.0000	\$0.0000	\$5,425,278.9433	\$5,786,964.2062	\$6,148,649.4690	\$6,510,334.7319	\$6,872,019.9948	\$6,872,019.9948	\$7,233,705.2577	\$7,233,705.2577	\$7,233,705.2577	\$7,233,705.2577
Total External Truck cost savings	\$0.0000	\$0.0000	\$15,688,348.0603	\$16,734,237.9310	\$17,780,127.8016	\$18,826,017.6723	\$19,871,907.5430	\$19,871,907.5430	\$20,917,797.4137	\$20,917,797.4137	\$20,917,797.4137	\$20,917,797.4137
			14787772.7	15314198.27	15797413.26	16239488.22	16642409.72	16157679.34	16512702.44	16031749.94	15564805.77	15111461.91
		0										
		374613226.2										



	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Containerized Truck Trip Savngs Assuming	0	0	17,280	18,432	19,584	20,736	21,888	21,888	23,040	23,040	23,040	23,040
Total Truck Savings to BCOs	\$0	\$0	\$22,327,712	\$23,816,227	\$25,304,741	\$26,793,255	\$28,281,769	\$28,281,769	\$29,770,283	\$29,770,283	\$29,770,283	\$29,770,283

\$533,150,866.75
\$322,788,909.30

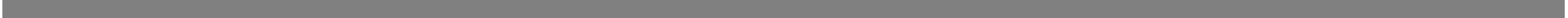
3% DISCOUNT	7% DISCOUNT
\$35,607,649.77	\$21,558,165.14
\$142,945,073.50	\$86,544,142.08
\$374,613,226.19	\$226,804,460.48
\$533,150,866.75	\$322,788,909.30
\$1,086,316,816.20	\$657,695,677.00

BENEFITS
\$21,558,165.14
\$86,544,142.08
\$226,804,460.48
\$322,788,909.30
\$657,695,677.00

\$639,443.5587	\$639,443.5587	\$639,443.5587	\$639,443.5587	\$639,443.5587	\$639,443.5587	\$639,443.5587	\$639,443.5587	\$639,443.5587	\$639,443.5587	\$639,443.5587	\$639,443.5587	\$639,443.5587
\$7,233,705.2577	\$7,233,705.2577	\$7,233,705.2577	\$7,233,705.2577	\$7,233,705.2577	\$7,233,705.2577	\$7,233,705.2577	\$7,233,705.2577	\$7,233,705.2577	\$7,233,705.2577	\$7,233,705.2577	\$7,233,705.2577	\$7,233,705.2577
\$20,917,797.4137	\$20,917,797.4137	\$20,917,797.4137	\$20,917,797.4137	\$20,917,797.4137	\$20,917,797.4137	\$20,917,797.4137	\$20,917,797.4137	\$20,917,797.4137	\$20,917,797.4137	\$20,917,797.4137	\$20,917,797.4137	\$20,917,797.4137
14671322.24	14244002.18	13829128.33	13426338.18	13035279.79	12655611.45	12287001.4	11929127.58	11581677.26	11244346.85	10916841.61	10598875.34	10290170.24



2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
23,040	23,040	23,040	23,040	23,040	23,040	23,040	23,040	23,040	23,040	23,040	23,040	23,040
\$29,770,283	\$29,770,283	\$29,770,283	\$29,770,283	\$29,770,283	\$29,770,283	\$29,770,283	\$29,770,283	\$29,770,283	\$29,770,283	\$29,770,283	\$29,770,283	\$29,770,283





1	1	1	1	1	1
2044	2045	2046	2047	2048	2049
46,080	46,080	46,080	46,080	46,080	46,080



2044	2045	2046	2047	2048	2049
27,576,683	27,576,683	27,576,683	27,576,683	27,576,683	27,576,683

27,576,683	27,576,683	27,576,683	27,576,683	27,576,683	27,576,683
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Fumigation & Cold Chain Processing Center - Opinion of Probable Construction Cost				
Description	Units	Area	Unit Cost	Subtotal
General Site Conditions (5%)				\$2,479,670
Contingency (10%)				\$4,959,340
Building Shell	SF	104,000	\$225	\$23,400,000
Permitting/Approvals/NEPA	LS		\$2,000,000	\$2,000,000
Concrete truck bay area	SF	65,700	\$12	\$788,400
Fumigation & Cold Chain Equip.	LS		\$15,000,000	\$13,500,000
Fumigation Gas Recovery System	LS		\$3,500,000	\$3,500,000
Landscape (Xeriscape)	SF	51,500	\$10	\$515,000
Civil/Site Improvements	LS		\$4,390,000	\$5,890,000
Cost of Fumigation & Cold Chain Processing Center				\$57,032,410
Cargo Yard Resiliency Improvements - Opinion of Probable Construction Cost				
Description	Units	Area	Unit Cost	Subtotal
Civil/Site Improvements	LS	75 acres	\$289,678	\$21,725,819
Cost of Cargo Yard Resiliency				\$21,725,819
Total Cost of Project				\$ 78,758,229

Total Present Value of Benefits @ 3% over 30 Years	\$1,086,316,816.20
Total Present Value of Benefits @ 7% over 30 Years	\$657,695,677.00
Total Cost	\$78,758,229.00
Benefit Cost Ratio with 3% Discount Rate	13.79
Benefit Cost Ratio with 7% Discount Rate	8.35

**PORTMIAMI COLD CHAIN PROCESSING AND FUMIGATION
CENTER AND CARGO YARD RESILIENCY IMPROVEMENTS -
BENEFIT-COST ANALYSIS APPENDIX**



Prepared for:
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SEPTEMBER 11, 2019

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I. PROJECT DESCRIPTION

PortMIAMI is entering an application to apply for the DOT Port Infrastructure Development Program and is seeking funding assistance in constructing a Cold Chain Processing and Fumigation Center and investing in Cargo Yard Resiliency Improvements. PortMIAMI is the lead and primary point of contact and award recipient. The two components together will improve the safety, efficiency, and reliability of the movement of goods into, out of, around, and within the port, as well as the unloading, loading, and processing capacity of cargo at the port. It will also improve the port's economic competitiveness by providing more capacity for cargo phytosanitary treatment, cold processing, and processing to help capture a large portion of the perishable markets in a pivotal region that serves the southeast, Caribbean, and Latin American regions.

The PortMIAMI Fumigation and Cold Chain Processing Center will be built on a 14-acre site. The facility will be completed in one phase, building a 104,000 SF facility. The proposed building and installed fumigation treatment and cold processing equipment will provide advance technology-supported safety and design efficiency improvements by providing several services into one facility with the latest technology and spatial programming to optimize space. The proposed Fumigation and Cold Chain Processing Center will improve resiliency by reducing roadway depletion via roadway transport. It will adapt to sea level rise by designing and constructing a facility in accordance with expected sea level rise projections during its anticipated useful life, using regionally consistent unified sea level rise projections.

The Fumigation and Cold Chain Processing and Fumigation Center will provide for South Florida's need to handle exports of manufacturing, agriculture, and other goods by creating higher capacity and current technology to treat, store, and process perishables near the port. This will result in vehicle miles traveled savings by sourcing the growing treatment and processing needs locally. The multipurpose center's proposed size, advance technology, and innovative flexible layout will improve Miami's position as a key point of treatment at the US Port closest to the growing regions of Latin America and the Caribbean, thus saving on transportation length and cost, storing, and/or processing goods. PortMiami's position as a nexus of both N-S and E-W trade will also provide a transshipment point for perishables that are currently transshipped via nearby foreign ports in the Caribbean and S. America to support the safe flow of agricultural and food products, free of pests and disease, domestically and internationally.

The overall cost estimate for the PortMIAMI Cold Chain Processing and Fumigation Center is approximately \$57,032,410 of which the Seaport Department is seeking \$33,500,000, or a 58% match of federal funds.

PortMIAMI's Cargo Yard Resiliency Improvements – will provide for investments to supplement and bring to reality PortMiami infrastructure improvements to upgrade paving and drainage, and resiliency methods, along with the reorganization of cargo containers, which allow for the installation of additional refrigerated racks and an overall more efficient yard. These improvements will yield a higher capacity cargo yard, where land is currently at a premium. The increased cargo capacity is required to support the additional container traffic at PortMIAMI that will be generated by the new Cold Chain Processing and Fumigation Center

The overall cost estimate for the PortMIAMI Cargo Yard Resiliency Improvements is approximately \$21,725,820, of which the Seaport Department is seeking \$10,428,393, or a 48% match of federal funds.

Strict guidelines for measuring the merits of projects applying for the grants are outlined in The Notice of Funding Opportunity for the Department of Transportation's **National Infrastructure Investments Under the Consolidated Appropriations Act, 2018**. Furthermore, the benefit-cost guide lines to be applied to the project are set forth in the "Benefit-cost Analysis Guidance for Discretionary Grant Programs, U.S." Department of Transportation, December 2018. Martin Associates has followed these guidelines to assess the benefits of the

container yard expansion. These benefits are then combined with the costs of the project, as developed by PortMIAMI to estimate the benefit-cost ratio under a 3% and 7% discount rate.

The benefit criteria applied to the project are:

1. ***Determination of the Safety Benefits*** which result from the reduction in the truck travel distance and resulting vehicle miles traveled to serve the perishable products consumption markets in Florida, by attracting perishables that are currently moved into Florida from non-Florida ports. These new imports will be handled at PortMIAMI, which will require the additional yard storage capacity that will be provided under the Cargo Yard Resiliency Improvements.
2. ***Determination of Environmental Benefits*** by reducing the truck distance and corresponding vehicle miles traveled to serve the perishable products consumption markets in Florida, by attracting perishables that are currently moved into Florida from non-Florida ports. These new imports will be handled at PortMIAMI, which will require the additional yard storage capacity that will be provided under the Cargo Yard Resiliency Improvements.
3. ***Determination of External Trucking and National Infrastructure Benefits*** by reducing the truck distance and corresponding vehicle miles traveled to serve the perishable products consumption markets in Florida, by attracting perishables that are currently moved into Florida from non-Florida ports. These new imports will be handled at PortMIAMI, which will require the additional yard storage capacity that will be provided under the Cargo Yard Resiliency Improvements.
4. ***Determination of Economic Competitiveness Benefits*** to the perishable products consumers in Florida, by reducing the truck distance, and hence transportation costs over the without project case whereby these imports are moved via non-Florida ports.

These benefits are quantified over a 30-year period (2019 through 2049). It is assumed that the Projects will start with the award of the grant and will be completed by 2021, when the facility will begin handling perishables. The 30 year period is chosen as the useful life of the project. The detailed calculations are included in the attached Excel spreadsheet benefit-cost model.

II. KEY ASSUMPTIONS

The key target perishable import markets for the Cold Chain Processing and Fumigation Center consists of perishable products originating in Chile and Peru, as well as Central America. This market includes dates, figs, blueberries, apples, mangos, pears, seafood, pineapples, avocados, melons, papayas, grapes, and citrus fruit. Bananas are not included in the target market since the major importers such as Dole and Chiquita have established proprietary facilities at several seaports, and tend to use third party cold storage facilities to a lesser extent than the above noted commodities. In addition to these commodities, fresh flowers also represent a key target market, particularly for air cargo. Exports include Florida citrus, Florida seafood, and U.S. agricultural products such as beef, pork, poultry, soy and non-GMO wheat and corn.

The perishable import market consisting of the commodities identified above move into the Southeastern U.S. through a select number of ports, as shown in Exhibit 1. This market is dominated by the Delaware River ports of Philadelphia (PA), Wilmington (DE), Chester (PA), and Gloucester City (NJ).

Exhibit 1
Key Ports Handling Perishable Cargo from South America and Central America

Ports	TEUS
Philadelphia/Delaware River	137,137
Port Everglades	43,965
Miami	12,195
Savannah	4,439

Source: Piers, 2018

The benefits of the development of the Cold Chain Processing and Fumigation Center is to capture the perishable cargo that now moves into Florida via non-Florida ports by truck, resulting in increased environmental, safety, infrastructure costs to the nation, as well as increasing the cost of perishable foods to the Florida consumers while reducing shelf life. Using Piers data, Martin Associates estimated the share of imports from the West Coast of South America and Central America that are consumed in Florida and moving through various Atlantic Coast ports as well as the Florida ports. As shown in Exhibit 2, 40% of the Florida consumed imports from the West Coast of South America and Central America use ports other than Florida ports. As noted, the majority of these West Coast South American and Central American imports are perishable commodities, most likely moving into Florida from the Delaware River ports, as well as from Savannah. In addition, in the recent months, the Port of Wilmington, NC has entered into the perishable goods import market, and is also likely to serve certain Florida Markets in the near future.

Exhibit 2
Imports from West Coast South America and Central America Consumed in Florida by Port of Import

Ports	TEUS	Share
Non-Florida Ports	136,408	40.1%
Port Everglades	83,666	24.6%
Tampa/Manatee	84,739	24.9%
Miami	34,052	10.0%
Jacksonville	<u>1,609</u>	<u>0.5%</u>
Total	340,473	100.0%

Source: Piers, 2018

It is important to emphasize that the TEUs identified in Exhibit 2 underestimate the volume of perishables that move into Florida from out of state ports, since the Piers data only identifies cargo that moves from the port of entry to a final destination under an international bill of lading and clears customs at the point of destination. A large share of the imported perishables clear customs at the port of entry, and then move to near-port cold storage warehouses where they are re-loaded (transloaded) into domestic refrigerated trucks for the move to final consumption. Therefore, the Piers data does not include these international shipments that are transloaded at the port of entry, for the further trip to final consumption. As a result, the Piers data regarding

final consumption point, such as the state of Florida, underestimates the actual flow of perishable cargo that is discharged at the Delaware River ports and the other South Atlantic ports and ultimately consumed in Florida.¹

To develop a more comprehensive estimate of the volume of perishables that move from the port of import into the state of Florida, IHS Transearch data was used. This data base identifies the perishable cargo that is trucked from each import port BEA (Business Economic Area) into each BEA in the state of Florida. Focus was on the volume of domestic trucked perishable cargo (consisting of the commodities identified above) that was moved from each non-Florida port BEA into each Florida BEA for consumption. Exhibit 3 shows the domestic tonnage that was trucked from each non-Florida port BEA into each Florida BEA.

Exhibit 3
Domestic Perishable Cargo Trucked Between non-Florida Port BEA and Florida BEA (Tons)

Port BEA	Florida BEA								Total
	Fort Myers, FL	Jacksonville, FL	Miami, FL	Orlando, FL	Pensacola, FL	Sarasota, FL	Tallahassee, FL	Tampa, FL	
Philadelphia, PA	7,540	12,554	90,178	41,415	2,850	7,953	2,781	15,822	181,093
Savannah, GA	4,769	11,533	37,314	42,874	5,040	5,812	3,007	13,095	123,443
Wilmington, NC	3,658	5,120	21,718	11,052	967	3,347	1,036	7,070	53,968
Total	15,967	29,206	149,210	95,341	8,858	17,112	6,823	35,987	358,504

Source: HIS Transearch 2017 (most recent year data is available)

This 358,504 tons (18,000 full truckload equivalents) of domestic cargo trucked into Florida is used as a proxy for the transloaded international perishable cargoes, and also as a proxy for the ultimate destinations for perishables imported through non-Florida ports that are consumed in Florida. This is in addition to the TEUs trucked directly from each of the non-Florida ports into Florida.

The mileage cost savings of serving each Florida BEA through the proposed Cold Chain Processing and Fumigation Center (and using PortMIAMI) rather than using the current non-Florida ports were estimated by non-Florida port and Florida BEA of consumption. Exhibit 4 shows the mileage between each non-Florida port to each Florida BEA as well as the mileage to each Florida BEA should PortMIAMI and the Cold Chain Processing and Fumigation Center be used. A weighted mileage cost savings by using PortMIAMI was then computed (weights being perishables now consumed, by Florida BEA)

¹ In addition to not capturing the transloaded perishable cargo moving into Florida from out of state ports, the Piers data also under reports the final geographic destination of imports by state since a large percentage of imports do not indicate a final consignee, and its location, since the cargo is moved by freight forwarders, that don't reflect the actual point of consumption; or in some cases the headquarters location of an importer is reported on the shipping bill of lading rather than the ultimate geographic destination.

Exhibit 4
Mileage Savings to Florida Consumers due to Cold Chain Processing and Fumigation Center

Port BEA Now Used To Serve Florida Markets	Wilmington, NC Savannah Philadelphia			Wtd Avg Current Mileage	Mileage Via PortMIAMI	Mileage Savings Provided by PortMIAMI	Share Out of State Perishables Consumed from Out-of-State Ports	Wtd Mileage Savings
	15.05%	34.43%	50.51%	Miles	Miles	Miles	%	Miles
BEAs	Miles	Miles	Miles					
Miami	755	458	1174	864	57	807	41.6%	336
Orlando	610	309	1028	717	226	492	26.6%	131
Tampa	632	424	1050	772	281	491	10.0%	49
Jacksonville	436	139	855	545	354	191	8.1%	16
Fort Myers	756	434	1175	857	155	702	4.5%	31
Sarasota	684	408	1103	801	231	570	4.8%	27
Tallahassee	597	299	1016	706	484	222	1.9%	4
Pensacola	737	493	1111	842	678	164	2.5%	4
Wtd Average Miles Saved Using Port Miami								598

As shown in Exhibit 4, the use of the Cold Chain Processing and Fumigation would result in a savings of 598 truck miles over the current without project situation in which the Florida perishable market is served by out of state ports, most notable the Delaware River ports, and to a lesser extent Savannah and Wilmington, NC.

This weighted average truck mileage savings will be critical in driving the savings in Vehicle Miles Traveled (VMT) and the resulting environmental, safety, infrastructure and economic competitiveness benefits of the Cold Chain Processing and Fumigation Center and the Cargo Yard Resiliency Improvements.

The proposed Cold Chain Processing and Fumigation Center will have 80 truck bays. Assuming about 2 trucks serviced per bay per day (based on interviews with current operators of similar Cold Chain Processing and Fumigation Facilities), and 360 days of operation annually. It is further assumed that 40% of the facility utilization will be accounted for by perishables that under the without project case are moved into Florida consumption markets from out of state ports, as indicated previously in Exhibit 2. Under the without project case it is also assumed that the trucks now serving the Florida consumption markets will return to the out of state port regions.

Exhibit 5 shows that that the facility will handle 23,040 trucks per year. This equates to 46,080 roundtrip truck trips per year at full facility utilization that will be saved as the result of the opening of the new Cold Chain Processing and Fumigation Center. These containers will move through PortMIAMI, and will utilize the additional storage capacity generated by the Cargo Yard Resiliency Improvements project. Assuming 1.7 TEUs per truck load, the 23,040 trucks per year equate to 39,168 TEUs at full facility utilization. This is about 23% of the 167,008 TEUs of perishable cargo now moving into Florida from non-Florida ports.²

² It is estimated that 136,408 TEUs of perishables from West Coast South America and Central America moved directly into Florida from non-Florida ports (see Exhibit 2), while another 30,472 TEUs of perishables (358,504 tons of trucked cargo divided by about 11.8 tons per TEU) moved into Florida after transloaded at the non-Florida port of entry, for a total 167,008 TEUs currently moving from out of state ports into Florida.

Exhibit 5
Truck Trips per Year Saved

Truck Trip Assumptions	
Number of Truck Bays	80
Truck Turns per Day per Bay	2
Days of Operation	360
Total Annual Throughput in Terms of Truck Trips	57,600
Share from Out of State Ports	40%
Trucks per Year from Out of State Ports (Containers)	23,040
Round Trip Truck Trips Saved Annually at Full Utilization	46,080

The reduced truck round trips multiplied by the average miles saved, 598 miles as shown in Exhibit 4, results in Vehicle Miles Traveled (VMT) savings due to the Cold Chain Processing and Fumigation Center and the Cargo Yard Resiliency Improvements projects. The VMT savings are the key drivers of the benefits that are quantified as the result of the Cold Chain Processing and Fumigation Center and the Cargo Yard Resiliency Improvements. It is further assumed that the project becomes operational in 2021, with a 75% facility utilization rate, growing to a 100% utilization rate in the year 2026. Based on these utilization assumptions, the VMT savings are estimated 20,682,513 VMT in 2021, growing to 27,576,683 VMT by 2026, and remaining at that level throughout the 30 year projection period.

III. BENEFITS ANALYSIS

1. Safety Benefits

Safety benefits are defined in terms of reduced accidents and associated injuries as the result of the reduced vehicle truck miles traveled due to the Cold Chain Processing and Fumigation Center and Cargo Yard Resiliency Improvements. Accidents per 100 million vehicle miles traveled were developed from *Surface Transportation, A Comparison of the Costs of Road, Rail and Waterways Freight Shipments that are not Passed on to Consumers*, GAO, Report to the Subcommittee on Select Revenue Measures, Committee on Ways and Means House of Representatives, January 2011. The value of an accident, a fatality, injury, or property damage only (PDO) was collected from *BTS Motor Vehicle Safety Data*, 2015 National Transportation Statistics, 2015. The values were inflated from 2015 values to 2018 values based on the consumer price index published by the U.S. Bureau of Labor Statistics, May 2018.

Exhibit 6
Accidents per 100 Million VMT

	Accident Probability/ 100 million VMT	Value per Accident, 2018\$
Fatal Accident Cost (K)	1.13369	\$10,011,917
Severe Injury Accident Cost (A)	78.92426	\$214,318
PDO Accident Cost (no injury)	203.40039	\$3,337

Sources: *Surface Transportation, A Comparison of the Costs of Road, Rail and Waterways Freight Shipments that are not Passed on to Consumers*, GAO, Report to the Subcommittee on Select Revenue Measures, Committee on Ways and Means House of Representatives, January 2011.

BTS Motor Vehicle Safety Data, 2015 National Transportation Statistics, 2015

The accident rates per 100 million VMT by type of accident were multiplied by the 100 million vehicle miles traveled savings to estimate the number of accidents by type (due to the reduced VMT). The estimated number of accidents by type were then multiplied by the value accidents (by type) to estimate the total annual value of accidents that would be avoided under the Cold Chain Processing and Fumigation Center and Cargo Yard Resiliency Improvements due to savings in VMT. These safety savings were estimated through 2049, and then discounted under a 3% and 7% discount rate. The present value of the savings benefits of the Cold Chain Processing and Fumigation Center and Cargo Yard Resiliency Improvements are:

NPV of Safety @3%	\$142,945,073.50
NPV of Safety@7%	\$86,544,142.08

2. Environmental Benefits

Environmental benefits are generated due to the reduced vehicle miles traveled with the Cold Chain Processing and Fumigation Center and Cargo Yard Resiliency Improvements. Emissions of air pollutants are generated per VMT, and the metrics used to estimate the volume of emissions per truck VMT are shown in Exhibit 7. These emission rates are measured in terms of short tons emitted per million VMT.

Exhibit 7
Short Tons of Emissions per Million VMT

Emissions	TONS EMITTED PER MILLION VMT
Nitrogen Oxides (Nox)	3.0193
Volatile Organic Compounds (VOC)	0.11
Fine Particulate (PM)	0.1191
Sulfur Dioxide (SO2)	0.0055

Source: *Surface Transportation, A Comparison of the Costs of Road, Rail and Waterways Freight Shipments that are not Passed on to Consumers*, GAO, Report to the Subcommittee on Select Revenue Measures, Committee on Ways and Means House of Representatives, January 2011

The cost per short ton of the emissions by type of emission were developed from *NHTSA, Final Regulatory Impact Analysis, CAFE for MY 2012-MY 2016 Passenger Cars and Light Trucks*, March 2010. The cost of carbon

dioxide has historically been based on the social costs of carbon and their costs per metric ton (converted to short ton) are prepared for future years by the *IWGSCC, Social Cost of Carbon for Regulatory Impact Analysis* Under Executive Order 12866, February 2011. As of June 2018, the cost of carbon dioxide emissions is no longer considered in the evaluation of emissions. These costs were updated using the May 2018 CPI and are shown in Exhibit 8.

Exhibit 8
Value per Short Ton of Emissions

Cost metrics	Cost/Short Ton Emitted
Nitrogen Oxides (Nox)	\$7,693.53
Volatile Organic Compounds (VOC)	\$1,952.32
Fine Particulate (PM)	\$351,938.69
Sulfur Dioxide (SO2)	\$45,470.79

Source: *Final Regulatory Impact Analysis, CAFE for MY 2012-MY 2016 Passenger Cars and Light Trucks*, March 2010. And *IWGSCC, Social Cost of Carbon for Regulatory Impact Analysis* Under Executive Order 12866, February 2011.

The net present value of the environmental cost savings of the Cold Chain Processing and Fumigation Center and Cargo Yard Resiliency Improvements are:

NPV of Emissions @3% with out co2	\$35,607,649.77
NPV of Emissions @7% without co2	\$21,558,165.14

3. External Truck Cost Savings Benefits

External truck cost savings consist of reduced costs of highway/pavement repair, highway congestion, and noise pollution, due to reduced truck vehicle miles traveled resulting for the Cold Chain Processing and Fumigation Center and Cargo Yard Resiliency Improvements. Metrics that measure highway/pavement degradation costs per truck mile, noise pollution costs per truck mile and highway congestion per ton mile are published by the *1997 Federal Highway Cost Allocation Study*, Final Report, USDOT, Federal Highway Administration, May 2000, Table 13. These cost metrics are shown in Exhibit 9 and updated to 2018 dollars using the CPI for May 2018. These metrics are applied to the vehicle miles travelled saved under the Cold Chain Processing and Fumigation Center and Cargo Yard Resiliency Improvements project. With the I-95 corridor at or above capacity in many segments between Philadelphia and Miami, the removal of thousands of trucks from this corridor will provide relief in an order of National significance.

Exhibit 9
External Truck Cost Savings

Combination Truck 4 Axel	Cost/VMT
Congestion	\$0.4730
Noise	\$0.0232
Pavement (Urban Interstate)	\$0.2623

Source: *1997 Federal Highway Cost Allocation Study*, Final Report, USDOT, Federal Highway Administration, May 2000

The present value of the External Truck Cost Savings benefits is:

NPV of External Truck Cost Savings @3%	\$374,613,226.19
NPV of External Truck Cost Savings @7%	\$226,804,460.48

4. Economic Competitiveness Benefits

The economic competitiveness benefits resulting from the Cold Chain Processing and Fumigation Center and Processing Facility and Cargo Yard Resiliency Improvements consists of the transportation cost savings to the nation's importers as the result of lower truck costs due to the savings in miles traveled to the key consumption destinations in in Florida. After the project is completed, additional container volumes will move through PortMIAMI to the consumption markets at lower transportation costs. To estimate the transportation cost savings, the hourly trucking cost was estimated from interviews with key trucking companies engaged in port drayage, as well as information provided by American Transportation Research Institute (ATRI), *An Analysis of the Operational Costs of Trucking, 2018*. Based on these sources, it is estimated that the daily trucking costs are \$950. Using the 11 hours of daily service that are capped under the current hours of service regulation and enforced through the electronic logging devices (ELD), the current hourly operating cost per truck is estimated at \$86.36. The cost savings per container is presented in Exhibit 10.

Exhibit 10

Transportation Cost Savings Per Container Due to Cold Chain Processing and Fumigation Center and Cargo Yard Resiliency Improvements

Savings in Hours of Truck Driving Time by Using PortMiami Over Use of Out of State Ports to Serve Florida Perishable			Cost Savings
	Miles Saved	Hours Saved	per Container
	598	14.96	\$1,292.11
Cost Savings per Container			\$1,292.11

The cost savings per truck trip multiplied by the number of containers utilizing the new Cold Chain Processing and Fumigation Center and the densified container yard was used to estimate the transportation cost savings to beneficial cargo owners that will be able to use PortMIAMI and the new Cold Chain Processing and Fumigation Center and the Cargo Yard Resiliency Improvements. It is to be emphasized that it is further assumed that the cost savings is applied to the number of containers that will be moved through PortMIAMI with the completed project. Under the without project, these containers would be moved into Florida from out of state ports. The present value of the transportation cost savings benefits of the Cold Chain Processing and Fumigation Center and Cargo Yard Resiliency Improvements, or the Economic Competitiveness Benefits are:

NPV of Economic Competitiveness @3%	\$533,150,866.75
NPV of Economic Competitiveness @7%	\$322,788,909.30

5. Summary of the Benefits

The total benefits projected to occur due to the Cold Chain Processing and Fumigation Center and Cargo Yard Resiliency Improvements are shown in Exhibit 11. Using a 3% discount rate over the period 2019 through 2049, the present value of the total benefits of the Cold Chain Processing and Fumigation Center and Cargo Yard Resiliency Improvements is \$1.1 billion. Under a 7% discount rate, the total present value of the benefits of the project are \$657.7 million. The annual benefits calculations over the 30-year period are presented in the attached benefit-cost Excel Workbook.

Exhibit 11

Summary of Benefits of the PortMIAMI Cold Chain Processing and Fumigation Center and Cargo Yard Resiliency Improvements

BENEFIT CATEGORIES	3% DISCOUNT	7% DISCOUNT
EMISSIONS	\$35,607,649.77	\$21,558,165.14
SAFETY	\$142,945,073.50	\$86,544,142.08
EXTERNAL TRUCK	\$374,613,226.19	\$226,804,460.48
ECONOMIC COMPETITIVENESS	\$533,150,866.75	\$322,788,909.30
TOTAL BENEFITS	\$1,086,316,816.20	\$657,695,677.00

IV. COSTS

The cost of the project is estimated at \$78,758,229. The federal grant request is \$43,928,393. The project costs are summarized in Exhibit 12.

Exhibit 12

Cost Summary of Cold Chain Processing and Fumigation Center and Cargo Yard Resiliency Improvements

Fumigation & Cold Chain Processing Center - Opinion of Probable Construction				
Description	Units	Area	Unit Cost	Subtotal
General Site Conditions (5%)				\$2,479,670
Contingency (10%)				\$4,959,340
Building Shell	SF	104,000	\$225	\$23,400,000
Permitting/Approvals/NEPA	LS		\$2,000,000	\$2,000,000
Concrete truck bay area	SF	65,700	\$12	\$788,400
Fumigation & Cold Chain Equip.	LS		\$15,000,000	\$13,500,000
Fumigation Gas Recovery System	LS		\$3,500,000	\$3,500,000
Landscape (Xeriscape)	SF	51,500	\$10	\$515,000
Civil/Site Improvements	LS		\$4,390,000	\$5,890,000
Cost of Fumigation & Cold Chain Processing Center				\$57,032,410
Cargo Yard Resiliency Improvements - Opinion of Probable Construction Cost				
Description	Units	Area	Unit Cost	Subtotal
Civil/Site Improvements	LS	75 acres	\$289,678	\$21,725,819
Cost of Cargo Yard Resiliency				\$21,725,819
Total Cost of Project				\$ 78,758,229

The benefit-cost analysis in the next section is based on a \$78,758,229 total project cost.

V. BENEFIT-COST CALCULATION

The Cold Chain Processing and Fumigation Center and Cargo Yard Resiliency Improvements has a very significant benefit-cost ratio, reflecting the strong merits of the project due the reduction in truck traffic on the nation's highways, in turn resulting in significant environmental benefits, safety benefits, external truck benefits, and economic competitive benefits.

Using a 3% discount rate over the 30-year time horizon, the project has a benefit-cost ratio of 13.79, and with a 7% discount rate the benefit-cost ratio is 8.35. The annual benefits and costs are presented in the attached Excel spreadsheet file.

Total Present Value of Benefits @ 3% over 30 Years	\$1,086,316,816.20
Total Present Value of Benefits @ 7% over 30 Years	\$657,695,677.00
Total Cost	\$78,758,229.00
Benefit Cost Ratio with 3% Discount Rate	13.79
Benefit Cost Ratio with 7% Discount Rate	8.35



September 16, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

RE: 2019 US DOT Port Infrastructure Development Program
PortMiami Cargo Yard Resiliency Improvements and
Fumigation and Cold-Chain Processing Center

Dear Secretary Chao:

This instrument serves as evidence of assurance by PortMiami that the matching funds for the "*PortMiami Fumigation and Cold Chain Processing Center*" and the "*Cargo Yard Resiliency Improvements*" components under the 2019 U.S. Department of Transportation Infrastructure Development Program for the fiscal year 2019 funding are committed and will be provided.

The total costs for the projects, as submitted, are \$78,758,229 and we are committed to providing \$21,129,836 or 27% percent, as matching funds.

Sincerely,

Andrew C. Hecker,
Chief Financial Officer
Assistant Port Director Finance



Florida Department of Transportation

RON DESANTIS
GOVERNOR

1000 N.W. 111 Avenue
Miami, Florida 33172

KEVIN J. THIBAUT, P.E.
SECRETARY

September 12, 2019

Juan M. Kuryla, PPM
Port Director and CEO
PortMiami
1015 North America Way, 2nd Floor
Miami, Florida 33132

RE: Commitment Letter, U.S. Department of Transportation, Port Infrastructure Development Program, FY 2019 Appropriations Act

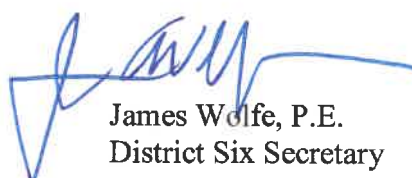
Dear Mr. Kuryla:

This letter serves to document the Florida Department of Transportation's investment in projects related to PortMiami's *Cargo Yard Resiliency Improvements* and *Fumigation and Cold Chain Processing Center* projects. Related projects have received the following Non-Federal funding investments from the State of Florida:

Financial #	Project	Previous Expenditures	Future Expenditures	Required Match	Expiration
431126-1	Ship to Shore Cranes	\$7,964,572	\$19,344,616	50%	06/30/2020
440616-1	Yard Densification & Truck Gates	\$2,725,204	\$10,724,795	50%	06/30/2022
440617-1	Cargo & Container Distribution Center	\$0.00	\$200,000.00	50%	06/30/2022

Once completed, these coastal seaport infrastructure projects will improve the safety, efficiency and reliability of the movement of goods and cargo at PortMiami.

Sincerely,



James Wolfe, P.E.
District Six Secretary



September 6, 2019

The Honorable Elaine Chao
Secretary, United States Department of Transportation
1200 New Jersey Ave, S.E.
Washington, DC 20590

RE: 2019 US DOT Port Infrastructure Development Program
PortMiami Cargo Yard Resiliency Improvements and
Fumigation and Cold-Chain Processing Center

Dear Secretary Chao:


The South Florida Container Terminal (SFCT), a terminal operating cargo company that leases land from PortMiami, is writing to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the "*PortMiami Cargo Yard Resiliency Improvements and Fumigation and Cold Chain Processing Center*" project.

The SFCT leased cargo yard is approximately 75 acres and there are no opportunities to expand the Terminal without significant environmental impacts involving physical expansion of the island port. The SFCT handles thirty-two percent of PortMiami's cargo and is a key contributor to PortMiami's job growth in South Florida and local economy.

The proposed infrastructure improvements include stormwater drainage upgrades, pavement improvements, barriers, milling and resurfacing, lighting, bypass lanes and roadways. The improvements will provide SFCT a much-needed opportunity to maximize the efficiency of cargo operations within the existing cargo yard. It will also bring SFCT's cargo yard to a state of good repair and increase resiliency, promote exports of manufacturing, agriculture, and other goods. These improvements will strengthen key points of service along the sequence of cargo processing that is vital to the continued growth for Florida and the nation.

The SFCT urges your support of PortMiami's grant application for this important infrastructure project.

Sincerely,



Mark J. Baker
President

September 10, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

As PortMiami's largest cargo tenant and a major employer in South Florida, we write to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the "*PortMiami Fumigation and Cold Chain Processing Center*" (Center) project.

The Center's attributes will improve the safety, efficiency and reliability of the movement of perishables as well as the processing capacity of temperature-controlled cargo at PortMiami. It will also improve the region's economic competitiveness by providing additional capacity for cargo phytosanitary treatment, cold chain processing, and value-added services. The innovative multipurpose layout will enhance Miami's position as a key point of treatment and processing of perishables, particularly from Latin America, and will support the safe flow of agricultural/food products, free of pests and diseases, both domestically and internationally.

PortMiami supports 334,000 jobs in Florida and contributes \$43 billion to the local economy and remains an indispensable partner in Seaboard Marine's efforts to support the creation of high-paying jobs and strengthened U.S. relations throughout the Americas. The market for fresh produce is growing in South Florida, and the proposed Center will create a needed synergy that is vital to continued economic growth for Florida and the nation.

We urge your support of PortMiami's grant application for this important infrastructure project.

Sincerely,



Bruce Brecheisen
Executive Vice President



August 22, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

As members of the South Florida trade and logistics community, we write to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the "*PortMiami Fumigation and Cold Processing Center*" (Center) project.

The components of the Center will improve the safety, efficiency and reliability of the movement of perishables as well as the processing capacity of temperature-controlled cargo at PortMiami. It will also improve the port's economic competitiveness by providing additional capacity for cargo phytosanitary treatment, cold chain processing, and value-added services.

The advance technology and innovative multipurpose layout will enhance Miami's position as a key point of treatment and processing of perishables and will support the safe flow of agricultural/food products, free of pests and diseases, both domestically and internationally. PortMiami supports 334,000 jobs in Florida and contributes \$43 billion to the local economy and remains an indispensable partner in our efforts to support the creation of high-paying jobs for our constituents, growth for businesses, and strengthened U.S. relations throughout the world. The market for fresh produce is growing in South Florida, and the proposed Center will create a needed synergy that is vital to continued economic growth for Florida and the nation.

We urge your support of PortMiami's grant application for this important infrastructure project.

Sincerely,

A handwritten signature in black ink, appearing to read "Alfred Sanchez", is written over a large, stylized, looping flourish that extends to the left and underlines the signature.

Alfred Sanchez
President & CEO

September 10, 2019

The Honorable Secretary Elaine L. Chao
US Department of Transportation
1200 New Jersey Ave, SE
Washington, DC 20590

**RE: U.S. Department of Transportation Maritime Administration
(MARAD) Port Infrastructure Development Program 2019 Grant
Application Support Letter for PortMiami Cargo Yard Resiliency
Improvements and Fumigation and Cold Chain Processing Center**

Dear Secretary Chao:

The Florida Ports Council is pleased to submit this letter of support for PortMiami's Cargo Yard Resiliency Improvements and Fumigation and Cold Chain Processing Center for the U.S. Department of Transportation Port Infrastructure Development Program 2019 Grant Application. The project will be divided into two interdependent components totaling \$78.7 million, with a public-private partner share contribution of \$13.5 million and PortMiami contributing \$21.3 million. The request for the Port Infrastructure Development Program 2019 Grant Application is \$43,928,393. This project will strengthen the infrastructure and capacity for the port, thus improving efficient freight flows for the State of Florida.

The Cargo Yard Resiliency Improvements and Fumigation and Cold Chain Processing Center Program will allow the increase of international trade to PortMiami, which acts as the principal United States trade gateway to Central and South America and the Caribbean. The two primary components of this program demonstrate a connection by providing improved services. The sequence of services will be tailored specifically for perishable cargo entering PortMiami. The Cargo Yard Resiliency Improvements are for infrastructure improvements to upgrade drainage and resiliency improvements for the reorganization of cargo containers; and the Fumigation and Cold Chain Processing Center consists of the construction of a state-of-the-art fumigation and cold chain processing facility.

It is critical that Florida's seaports are equipped to handle a growing volume of trade to meet consumer needs and to ensure our nation's surface transportation system is used most efficiently. PortMiami contributes more than \$41 billion annually to the South Florida economy, and provides direct and indirect employment to more than 324,000 jobs.

South Florida is the 8th largest metropolitan area in the U.S. with more than six million residents. In addition, Florida is the 3rd largest state with over 21 million residents, and we welcomed 126 million seasonal visitors in 2018. It is critical that Florida's seaports are positioned and equipped to handle a growing volume of trade to meet consumer needs and to ensure our nation's surface transportation system is used most efficiently.

I appreciate the opportunity to express the Florida Ports Council's support for this project and encourage the U.S. Department of Transportation to consider its regional benefits. Thank you for your leadership in addressing the critical transportation challenges we face.

Sincerely,

A handwritten signature in black ink, appearing to read 'Doug Wheeler', with a stylized flourish at the end.

Doug Wheeler
President & CEO
Florida Ports Council

Cc: Juan Kuryla, PortMiami, Port Director



PORT OF MIAMI CRANE MANAGEMENT, INC.

September 13, 2019

The Honorable Elaine Chao
 U.S. Secretary of Transportation
 U.S. Department of Transportation
 1200 New Jersey Ave. SE
 Washington, DC 20590

Re: Support for PortMiami Fumigation and Cold Chain Processing Center

Dear Secretary Chao:

As members of the South Florida trade and logistics community, we write to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the "*PortMiami Fumigation and Cold Chain Processing Center*" (Center) project.

The components of the Center will improve the safety, efficiency and reliability of the movement of perishables as well as the processing capacity of temperature-controlled cargo at PortMiami. It will also improve the port's economic competitiveness by providing additional capacity for cargo phytosanitary treatment, cold chain processing, and value-added services. The advance technology and innovative multipurpose layout will enhance Miami's position as a key point of treatment and processing of perishables and will support the safe flow of agricultural/food products, free of pests and diseases, both domestically and internationally.

PortMiami supports 334,000 jobs in Florida and contributes \$43 billion to the local economy and remains an indispensable partner in our efforts to support the creation of high-paying jobs for our constituents, growth for businesses, and strengthened U.S. relations throughout the world. The market for fresh produce is growing in South Florida, and the proposed Center will create a needed synergy that is vital to continued economic growth for Florida and the nation.

We at Port of Miami Crane Management, Inc., (PMCM) specifically value this project for our nation's economy which includes bringing more jobs to our company as we oversee the large gantry cranes that will unload the containers that would be processed thru this Center.

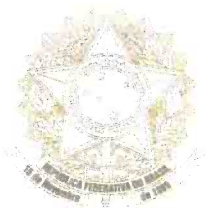
We urge your support of PortMiami's grant application for this important infrastructure project.

Sincerely,

Aguedo E. (Ed) Bello, PE
 Chief Executive Officer

CONSULATE GENERAL OF BRAZIL
MIAMI, FLORIDA

September 13, 2019



The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

As a trade official from the Consulate General of Brazil in Miami representing the fruitful commercial partnership between Brazil and the state of Florida, we write to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the "*PortMiami Fumigation and Cold Chain Processing Center*" (Center) project.

The components of the Center will improve the safety, efficiency and reliability of the movement of perishables as well as the processing capacity of temperature-controlled cargo at PortMiami. It will also improve the port's economic competitiveness by providing additional capacity for cargo phytosanitary treatment, cold chain processing, and value-added services. The advance technology and innovative multipurpose layout will enhance Miami's position as a key point of treatment and processing of perishables and will support the safe flow of agricultural/food products, free of pests and diseases, both domestically and internationally.

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We urge your support of PortMiami's grant application for this important infrastructure project.

Sincerely,

A handwritten signature in blue ink, appearing to read "Rodrigo Fonseca", is written over a horizontal line.

Rodrigo Fonseca
Deputy Consul
Head of the Economic &
Commercial Affairs Office
Consulate General of Brazil in Miami

COMMERCIAL REAL ESTATE SERVICES

CBRE

Michael K. Silver, SIOR
First Vice President

CB Richard Ellis, Inc.
Brokerage Services
Industrial

777 Brickell Avenue
Suite 1100
Miami, FL 33131-2814

305 779 3124 Tel
305 381 6462 Fax
305 527 3612 Cell

michael.silver@cbre.com
www.cbre.com

September 4, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

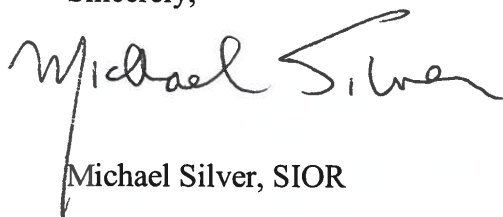
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We urge your support of PortMiami's grant application for this important infrastructure project.

Sincerely,



Michael Silver, SIOR



CHINA LATIN AMERICAN TRADE CENTER

中国拉丁美洲贸易中心

2710 NW 24th street
Miami, Florida 33142 USA

Tel: 305-636-0902
Fax: 305-636-0910

www.chinalatam.com
[joechi888yahoo.com](mailto:joechi888@yahoo.com)

August 30, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

As members of the South Florida trade and logistics community, we write to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the “*PortMiami Fumigation and Cold Chain Processing Center*” (Center) project.

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We urge your support of Port Miami’s grant application for this important infrastructure project.

Sincerely,

Joe Chi

Executive Director

China Latin American Trade Center 中国拉丁美洲贸易中心

www.chinalatam.com



September 10th, 2019

To,
The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

As members of the South Florida trade and logistics community, we write to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the "*PortMiami Fumigation and Cold Chain Processing Center*" (Center) project.

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We urge your support of PortMiami's grant application for this important infrastructure project.

Sincerely,

A handwritten signature in blue ink, appearing to read "Efrain Osorio".

Efrain Osorio
VP Regional, LATAM and Caribbean



www.comreal.com

September 10, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

As members of the South Florida trade and logistics community, we write to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the “*PortMiami Fumigation and Cold Chain Processing Center*” (Center) project.

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We urge your support of PortMiami’s grant application for this important infrastructure project.

Sincerely,

Edward J. Redlich, SIOR, CCIM
Managing Member
eredlich@comreal.com
T 305-710-5593 | O 786-433-2380

September 12, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

As members of the South Florida trade and logistics community, we write to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the “PortMiami Fumigation and Cold Chain Processing Center” (Center) project.

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We urge your support of PortMiami’s grant application for this important infrastructure project.

Very truly yours,

A handwritten signature in black ink, appearing to read "Jennifer R. Diaz". The signature is fluid and cursive, with a prominent initial "J" and "R".

Jennifer R. Diaz



KENY Is a Registered Trademark of KSG TRADE CO., on USPTO / USCPB / WIPO

KSG TRADE CO.

P.O. Box 150357

Cape Coral, FL 33915-0357, USA

Tel: +1-239-810-3080

Fax: +1-239-573-0934

E-mail: ksgtrade@aol.com

August 30, 2019

The Honorable **Elaine Chao**
 U.S. Secretary of Transportation
 U.S. Department of Transportation
 1200 New Jersey Ave. SE
 Washington, DC 20590

Dear Secretary Chao:

As members of the South Florida trade and logistics community, we write to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the “*PortMiami Fumigation and Cold Chain Processing Center*” (Center) project.

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We urge your support of PortMiami’s grant application for this important infrastructure project.

Sincerely,

German Vite,
 PRESIDENT & CEO



Port of Miami Terminal Operating Company, L.C.

635 Australia Way
Miami, Florida 33132

www.pomtoc.com

Telephone: (305) 533-8200

Fax: (305) 373-6916

September 10, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

As members of the South Florida trade and logistics community, we write to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the "*PortMiami Fumigation and Cold Chain Processing Center*" (Center) project.

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We urge your support of PortMiami's grant application for this important infrastructure project.

Sincerely,

A handwritten signature in blue ink, appearing to read "Charles O'Malley", is written over a large, stylized blue scribble or flourish.

Charles O'Malley
Chief Financial Officer
Port Of Miami Terminal Operating Co. L.C.



August 30, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

The Latin Chamber of Commerce of the United States, CAMACOL is a member of the South Florida's vibrant international business community. As such, we write to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the "*PortMiami Fumigation and Cold Chain Processing Center*" (Center) project.

The components of the Center will improve the safety, efficiency and reliability of the movement of perishables as well as the processing capacity of temperature-controlled cargo at PortMiami. It will also improve the port's economic competitiveness by providing additional capacity for cargo phytosanitary treatment, cold chain processing, and value-added services. The advance technology and innovative multipurpose layout will enhance Miami's position as a key point of treatment and processing of perishables and will support the safe flow of agricultural/food products, free of pests and diseases, both domestically and internationally.

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We urge your support of PortMiami's grant application for this important infrastructure project.

Sincerely,

A handwritten signature in blue ink, appearing to read "Patricia Arias", is written over a faint, larger version of the signature.

Patricia Arias, Managing Director
CAMACOL

September 13, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

Eller-ITO Stevedoring Company, L.L.C., as part of the South Florida Maritime Industry wants to show our complete endorsement of the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the “*PortMiami Fumigation and Cold Chain Processing Center*” (Center) project.

This Center is essential to the continued improvement of temperature controlled perishables moving safely and efficiently through PortMiami. This Center will also improve the competitiveness of PortMiami as a hub for cold chain processing and increase its foothold as a destination for safe flow agricultural products, free of pest and diseases both domestically and internationally.

PortMiami is the second largest employer in Miami-Dade County and contributes \$43 billion to the South Florida economy. The Center will help PortMiami to continue growing and become a destination for fresh produce as demand for such products continue to escalate worldwide.

Your support of PortMiami’s grant application is vital for this essential infrastructure project.

Sincerely,



Christopher C. Arocha
Senior Vice President
Eller-ITO Stevedoring Company, L.L.C.



August 30, 2019

Classic Fruit Company
 5480 West Spruce Ave.
 Suite 101
 Fresno, California 93722
 Tel (559) 271-9200
 Fax (559) 271-9211

The Honorable Elaine Chao
 U.S. Secretary of Transportation
 U.S. Department of Transportation
 1200 New Jersey Ave. SE
 Washington, DC 20590

Dear Secretary Chao:

As members of the South Florida trade and logistics community, we write to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by Port Miami for the “*PortMiami Fumigation and Cold Chain Processing Center*” (Center) project.

The components of the Center will improve the safety, efficiency and reliability of the movement of perishables as well as the processing capacity of temperature-controlled cargo at PortMiami. It will also improve the port’s economic competitiveness by providing additional capacity for cargo phytosanitary treatment, cold chain processing, and value-added services. The advance technology and innovative multipurpose layout will enhance Miami’s position as a key point of treatment and processing of perishables and will support the safe flow of agricultural/food products, free of pests and diseases, both domestically and internationally.

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Sincerely,

Mark Woodham

September 12, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

As members of the South Florida trade and logistics community, we write to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the "*PortMiami Fumigation and Cold Chain Processing Center*" (Center) project.

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We urge your support of PortMiami's grant application for this important infrastructure project.

Sincerely,



Mrs. Barbara Pimentel
Director of Operations
SPR

August 30, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

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We urge your support of PortMiami’s grant application for this important infrastructure project.

Sincerely,



Frank Ramos
President



THE UNITED STATES-MEXICO
CHAMBER OF COMMERCE
INTER - AMERICAN CHAPTER

September 12, 2019

*The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590*

Dear Secretary Chao:

On behalf of the United States - Mexico Chamber of Commerce, Inter-American Chapter and as members of the South Florida trade and logistics community, we write to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the "PortMiami Fumigation and Cold Chain Processing Center" (Center) project.

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We urge your support of PortMiami's grant application for this important infrastructure project.

Sincerely,

*Antonio Peña
President of the Inter-American Chapter of the United States-Mexico Chamber of Commerce*

September 10, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

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I urge your support of PortMiami’s grant application for this important infrastructure project.

Sincerely,



Carlos Gaviria
Vice President
Transwestern

Waterclerks, LLC

September 12, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

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We urge your support of PortMiami's grant application for this important infrastructure project.

Sincerely,



T. Lykes



WORLD TRADE CENTER®
MIAMI

September 11, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

As a member of South Florida's trade and logistics community, I write to you to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the "*PortMiami Fumigation and Cold Chain Processing Center*" (Center) project.

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Sincerely,

A handwritten signature in black ink, appearing to read "C Gallogly".

Charlotte Gallogly
President



2750 NW 84TH AVE
DORAL, FL 33122
T: 305.805.6797
F: 305.805.6798
WWW.ACB-US.COM

August 30, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

As members of the South Florida trade and logistics community, we write to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the "*PortMiami Fumigation and Cold Chain Processing Center*" (Center) project.

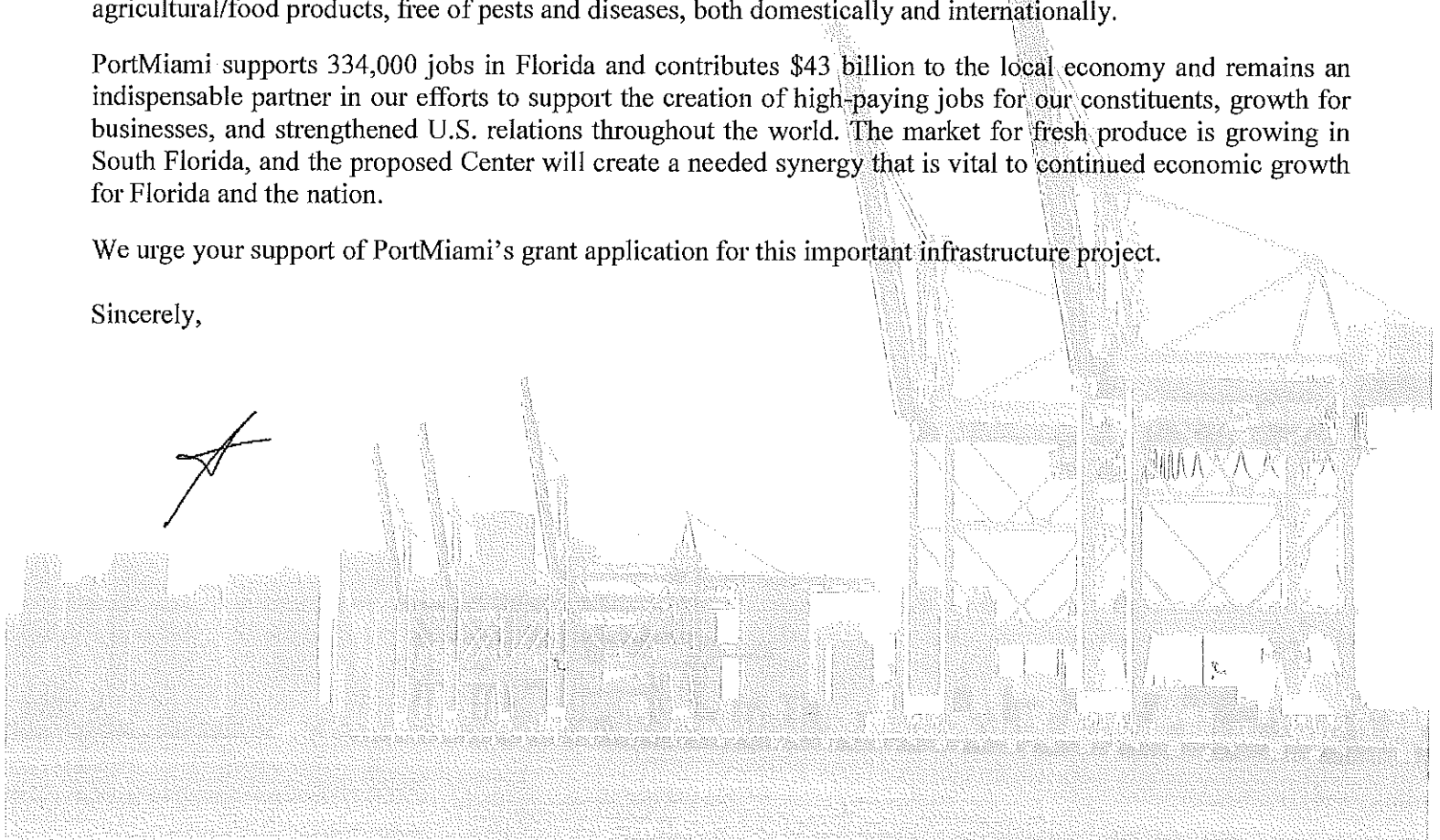
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A handwritten signature in black ink, consisting of a stylized 'A' followed by a horizontal line.



August 30, 2019

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1200 New Jersey Ave. SE
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Sincerely,

Priscilla L. Bush

Priscilla Lleras-Bush
Executive Director of Peruvian Asparagus Importers Association



**AFIF
AMERICA'S
FLOWER
CONNECTION**

2500 NW 97th Ave

Suite 201

Doral, FL

33172

TEL: 305-593-2383

www.afifnet.org

September 12, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

As members of the South Florida trade and logistics community, we write to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the "*PortMiami Fumigation and Cold Chain Processing Center*" (Center) project.

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We urge your support of PortMiami's grant application for this important infrastructure project.

Sincerely,

Christine Boldt
Executive Vice President



FLORIDA STEVEDORING INC.

Miami - Port Everglades

September 12th, 2019

The Honorable Elaine Chao
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 U.S. Department of Transportation
 1200 New Jersey Ave. SE
 Washington, DC 20590

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We urge your support of PortMiami's grant application for this important infrastructure project.

Sincerely,

Jorge P. Roviroso
 President

JPR/emp

2541 S.W. 27th Avenue, Miami, Florida 33133 • Telephone: 305-373-4765 • Fax: 305-371-6874
 E-mail: flastev@farovi.com

Mailing Address: P.O. Box 011309, Miami, Florida 33101



September 12th, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

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We urge your support of PortMiami’s grant application for this important infrastructure project.

Sincerely,



Jorge P. Roviroso
President



President Gerardo "Jerry" Becerra

Secretary/Treasurer Anthony A97fat
Vice President Luis Gonzalez

Local 1922
1007 N. AMERICA WAY #407
Miami, Florida 33132
Telephone: 305-379-8694

International Longshoremen'sAssociation....

Affiliated with the AFL-CIO and Canadian Labour Congress



The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

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We urge your support of PortMiami's grant application for this important infrastructure project.

Sincerely,

1015 N. America Way, 2nd Floor, Miami, Florida 33132
Phone: 305-347-4800



September 13, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

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We urge your support of PortMiami’s grant application for this important infrastructure project.

Sincerely,

James Kohnstamm
Executive Vice President
Miami-Dade Beacon Council



MIAMI-DADE CHAMBER OF COMMERCE

September 16, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Chao:

As members of the South Florida trade and logistics community, we write to express our strong support for the 2019 U.S. Department of Transportation (DOT) Infrastructure Development Program grant application submitted by PortMiami for the “*PortMiami Fumigation and Cold Chain Processing Center*” (Center) project.

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Sincerely,

Gordon Eric Knowles, President and CEO
Miami-Dade Chamber of Commerce, Inc.



Florida Department of Transportation

RON DESANTIS
GOVERNOR

1000 N.W. 111 Avenue
Miami, Florida 33172

KEVIN J. THIBAUT, P.E.
SECRETARY

September 12, 2019

Juan M. Kuryla, PPM
Port Director and CEO
PortMiami
1015 North America Way, 2nd Floor
Miami, Florida 33132

RE: Commitment Letter, U.S. Department of Transportation, Port Infrastructure Development Program, FY 2019 Appropriations Act

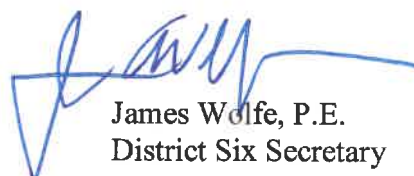
Dear Mr. Kuryla:

This letter serves to document the Florida Department of Transportation's investment in projects related to PortMiami's *Cargo Yard Resiliency Improvements* and *Fumigation and Cold Chain Processing Center* projects. Related projects have received the following Non-Federal funding investments from the State of Florida:

Financial #	Project	Previous Expenditures	Future Expenditures	Required Match	Expiration
431126-1	Ship to Shore Cranes	\$7,964,572	\$19,344,616	50%	06/30/2020
440616-1	Yard Densification & Truck Gates	\$2,725,204	\$10,724,795	50%	06/30/2022
440617-1	Cargo & Container Distribution Center	\$0.00	\$200,000.00	50%	06/30/2022

Once completed, these coastal seaport infrastructure projects will improve the safety, efficiency and reliability of the movement of goods and cargo at PortMiami.

Sincerely,



James Wolfe, P.E.
District Six Secretary



MAT Concessionaire LLC
860 MacArthur Causeway
Miami, Florida 33132

September 16, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

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We urge your support of PortMiami's grant application for this important infrastructure project.

Sincerely,

A large, stylized handwritten signature in black ink, appearing to read "Chris Hodgkins".

Christopher Hodgkins
MAT Concessionaire, LLC
Chief Executive Officer

September 16, 2019

The Honorable Elaine Chao
U.S. Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

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Sincerely,

Priscilla L. Bush

Priscilla Lleras-Bush
Executive Director – Peruvian Asparagus Importers Association

Date: February 27, 2018

Presented by: Priscilla Lleras-Bush/PAIA

Eliminating the Discriminatory Impact of AQI Treatment Fees on Florida/SE Trade

Final Rule: Docket No. APHIS-2013-0021 Agency of the Department of Agriculture, Animal and Plant Health Inspection Service
User Fees for Agricultural Quarantine and Inspection Services
80 Federal Register No. 209, at 66748-66779 (October 29, 2015)

ISSUE:

- USDA treatment fee creates disproportions/inequities for fresh fruit and vegetable importers subject to APHIS agricultural quarantine and inspection (AQI).
- AQI Treatment Fees imposed by APHIS/USDA are a detriment to Florida’s economy, trade position and jobs (that will be leaving Florida).
- USDA treatment fee acts as a new tax that hinders growth in the produce industry.

Creation of the New Treatment Fee:

APHIS/USDA set the following escalating fee amounts over a five year period. The AQI - Agricultural Quarantine and Inspection Service Fee was created by a flawed study performed in 2011. The fee addresses imported products to the U.S that are either subject to possible treatment after inspection or subject to mandatory treatment without initial inspection as a condition of entry into the U.S. APHIS states that the cost in overseeing the treatment, administration, research and general overhead is estimated to be \$9 to \$12 million per year. AQI Treatment Fee Background document is attached.

Year 1: \$47 per treatment (effective Dec. 28, 2015)	Year 2: \$95 per treatment (effective Dec. 28, 2016)
Year 3: \$142 per treatment (effective Dec. 28, 2017)	Year 4: \$190 per treatment (effective Dec. 28, 2018)
Year 5: \$237 per treatment (effective Dec 28, 2019)	

The inequities are inherent in the USDA decision to adopt a per-treatment fee based upon charging a fee “per-enclosure.” The commercial nature of enclosures is dramatically different from region to region- For example: In Southeast (Florida), an “enclosure” is one 40-foot trailer that holds up to 20 pallets of commodity for fumigation (treatment); whereas in the Northeast, an “enclosure” is a warehouse that can hold up 2,400 pallets at a time for fumigation (treatment). Despite the differences, APHIS adopted the same fee for each type of treatment.

This clearly creates a dramatically unfair trade and cost advantage between regions, treatment methods, commodities, and ports of entry. This positioning will continue to place Florida at a significant disadvantage to welcoming in volumes of fresh fruits and vegetables that would require fumigation or need fumigation as a condition of entry.

U.S. Industry Cost:

The two largest agricultural commodities being imported into U.S. requiring fumigation as a condition of entry: Chilean fresh grapes and Peruvian fresh asparagus. In 2017, the Southeast (SE) represented only 24% of the Northeast (NE) volume requiring fumigation, but paid substantially more, even though SE volumes are less. Thus in 2018, the SE will pay over \$778,586 more in AQI fees. In other words for 2018, if both import volumes were equal the **SE would pay \$3.27 Million compared to the NE paying only \$21,868** for the same imported volume. Clearly this fee structure is inherently unfair and places a burden on trade. See below escalating AQI Fees chart by year.

<u>2017 Region</u>	<u>Commodity</u>	<u>LBS Import</u>	<u># of Pallets</u>	<u>Cost / pallet</u>	<u># of Fumig.</u>	<u>AQI Fee</u>	<u>Total Cost</u>
SE Fumig.	Asparagus	173,961,700	112,479	\$4.75	5,637	\$95	\$535,515
NE Fumig.	Grapes	711,320,166	370,479	\$0.04	154	\$95	\$14,630
<u>2018 Region</u>	<u>Commodity</u>	<u>LBS Import</u>	<u># of Pallets</u>	<u>Cost / pallet</u>	<u># of Fumig.</u>	<u>AQI Fee</u>	<u>Total Cost</u>
SE Fumig.	Asparagus	199,766,146	129,214	\$7.10	6,461	\$142	\$917,419
NE Fumig.	Grapes	715,196,774	467,448	\$0.06	194	\$142	\$27,657
<u>2019 Region</u>	<u>Commodity</u>	<u>LBS Import</u>	<u># of Pallets</u>	<u>Cost / pallet</u>	<u># of Fumig.</u>	<u>AQI Fee</u>	<u>Total Cost</u>
SE Fumig.	Asparagus	199,766,146	129,214	\$9.50	6,461	\$190	\$1,227,590
NE Fumig.	Grapes	715,196,774	467,448	\$0.07	194	\$190	\$36,860

2020 Region	Commodity	LBS Import	# of Pallets	Cost / pallet	# of Fumig.	AQI Fee	Total Cost
SE Fumig.	Asparagus	199,766,146	129,214	\$11.85	6,461	\$237	\$1,531,257
NE Fumig.	Grapes	715,196,774	467,448	\$0.12	194	\$237	\$56,169

Industries Affected:

The USDA AQI Treatment Fee is increasing year over year and jeopardizing Florida’s commerce, economy and trade. Florida jobs and international market share is at stake. The affected include:

- U.S. Agricultural companies predominately based in Florida, which include shippers/importers, major U.S. Seaports (especially Miami, Port Everglades and Tampa).
- Ocean carriers, airlines, fumigators, freight forwarders and customhouse brokers, industry commodity associations (importing fresh fruits and vegetables for United States consumers’ consumption to healthy food alternatives at retailer and food service levels across the United States), warehousing.
- Industry service provider companies such as logistics companies, and other industries that enable imports to work in conjunction with USDA, APHIS and PPQ to protect the U.S.
- Increased costs for fresh fruit will ultimately be passed on to consumers, making such produce substantially more expensive for the middle and lower class

Suggested solutions to eliminate the discriminatory impact.

We are aware of the importance and urgency of President Trump’s January 30, 2017, “Presidential Executive Order Enforcing the Regulatory Reform”,¹ which addresses the management of costs associated with the governmental imposition of private expenditures. We believe that this AQI Treatment Fee implemented on December 28, 2015 is a prime example of the type of regulatory scheme which

¹ <https://www.whitehouse.gov/presidential-actions/presidential-executive-order-reducing-regulation-controlling-regulatory-costs/>

(d) Each Regulatory Reform Task Force shall evaluate existing regulations (as defined in section 4 of Executive Order 13771) and make recommendations to the agency head regarding their repeal, replacement, or modification, consistent with applicable law. At a minimum, each Regulatory Reform Task Force shall attempt to identify regulations that:

- (i) eliminate jobs, or inhibit job creation;
- (ii) are outdated, unnecessary, or ineffective;
- (iii) impose costs that exceed benefits;
- (iv) create a serious inconsistency or otherwise interfere with regulatory reform initiatives and policies;

imposes unnecessary costs and which the Executive Order is intended to address.

Request:

- Propose that the fee be eliminated while a new more equitable cost-capturing arrangement established to capture the costs of United States Department of Agriculture (USDA) treatment activities is developed.
- Request the USDA/APHIS and Office of OMB to cease collection of all treatment fees (AQI) until an overall analysis of the equality and impartiality of this fee has been accomplished and consequences have be weighed affecting Florida's economy.

I would be happy to share any additional information in support of this document.

Priscilla Lleras-Bush, International Trade Consultant

Email: priscillaprestige@outlook.com

Phone: 817-793-3133

The AQI Treatment fee. All fresh agricultural products imported into the United States are either subject to *possible treatment* after inspection, or are subject to *mandatory treatment* without initial inspection as a condition of admissibility into the United States. Agricultural products include the major fruit and vegetable commodities consumed by United States consumers, such as grapes and asparagus, and all horticultural products, including live plants and flowers. Fresh-cut flowers are an example of products “subject to possible treatment”; blueberries and asparagus from Peru are examples of products subject to mandatory treatment.

Treatment methods vary depending upon products and problems, and include processes such as fumigation, irradiation, and “cold treatment.” The USDA oversees treatments, which are performed by approved private sector service providers and paid for by importers, carriers, et al. The cost to the USDA in administering the treatment process is estimated to be \$9 to \$12 million per year.

Until 2015, the USDA did not charge a “treatment fee,” but attempted to collect its costs through the conveyance fees charged to carriers for bringing AQI-regulated products into the United States. In 2015, the USDA adjusted all of its fees, and created a separate, new fee to reimburse its treatment program costs. *See Docket No. APHIS-2013-0021 Agency of the Department of Agriculture, Animal and Plant Health Inspection Service – User Fees for Agricultural Quarantine and Inspection Services.*^[1] The amount of the fee was debated in the regulatory process, but was finally set at the following escalating amounts over a five year-period.

Year 1: \$47 per treatment (effective December 28, 2015)
 Year 2: \$95 per treatment (effective December 28, 2016)
 Year 3: \$142 per treatment (effective December 28, 2017)
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 Year 5: \$237 per treatment (effective December 28, 2019)

The Inequitable and Discriminatory Nature of the Existing Fee. The new APHIS fee is highly discriminatory as applied to importers due to its disparate impact on types of products, size of imports, ports of entry, and types of treatments. It is particularly inequitable as seen by its drastic negative impact on Florida airports and seaports. Suggestions that the fee serves as a deterrent to importation of contaminated products is misplaced: there typically are no alternative sources for products subject to mandatory treatment. In any event, it is not the government’s place to entitle or even allow that one or more ports of entry be at a disadvantage over others.

The inequities are inherent in the USDA decision to adopt a per-treatment fee based upon charging a fee “per-enclosure.” The commercial nature of enclosures is dramatically different from port-to-port: in the Southeast (Florida), an “enclosure” is one 40-foot trailer that holds up to 20 pallets of commodity for fumigation (treatment), whereas in the Northeast, an “enclosure” is a warehouse that can hold up 2,400 pallets at a time for fumigation (treatment). This clearly creates a dramatically unfair trade and cost advantage between regions, commodities, and ports of entry

^[1] Web Link: https://www.aphis.usda.gov/newsroom/federal_register/aqi_fees.pdf

Southeast fumigation (\$95/20 pallets) =	\$4.75 per pallet ^[2]
Northeast fumigation (\$95/2400 pallets) =	\$0.04 per pallet

or

Southeast fumigation of 2400 pallets =	\$11,640.00
Northeast fumigation of 2400 pallets =	\$95.00

The inequities are also inherent in charging the same fee regardless of the type of treatment. Fumigation and irradiation typically involve AQI personnel continuously overseeing the treatment process during the hours of the treatment; cold treatment typically involves a short review of a written report submitted by the company responsible for the cold treatment process.

The discriminatory application of the treatment fee clearly violates the sound policies of the USDA and federal government regulatory agencies, and may very well violate the statutory authority to assess fees. Based on the disparate impact of the fees discussed above, the new APHIS fees are not “commensurate with the costs of agricultural quarantine and inspection services with respect to the class of persons or entities paying the fees,” as required under the Food, Agriculture, Conservation and Trade Act of 1990, referred to as the “FACT Act” 21 U.S.C. § 136a.

Proposed Solution: We are working with Senators Rubio, Cong. Diaz-Balart and Cong. Rooney to include language in the Omnibus bill to freeze the collection of the fees at \$95 per treatment until a new study can find a more equitable fee. Please contact your business contacts who do business with the ports of Mobile, Charleston, or New Orleans to call the below staff's or e-mail them to support the inclusion of the proposed language

Senator Shelby (Alabama) morgan_carter@shelby.senate.gov 202-224-5744

Senator Graham (South Carolina) Scott_Graber@graham.senate.gov 202-224-5972

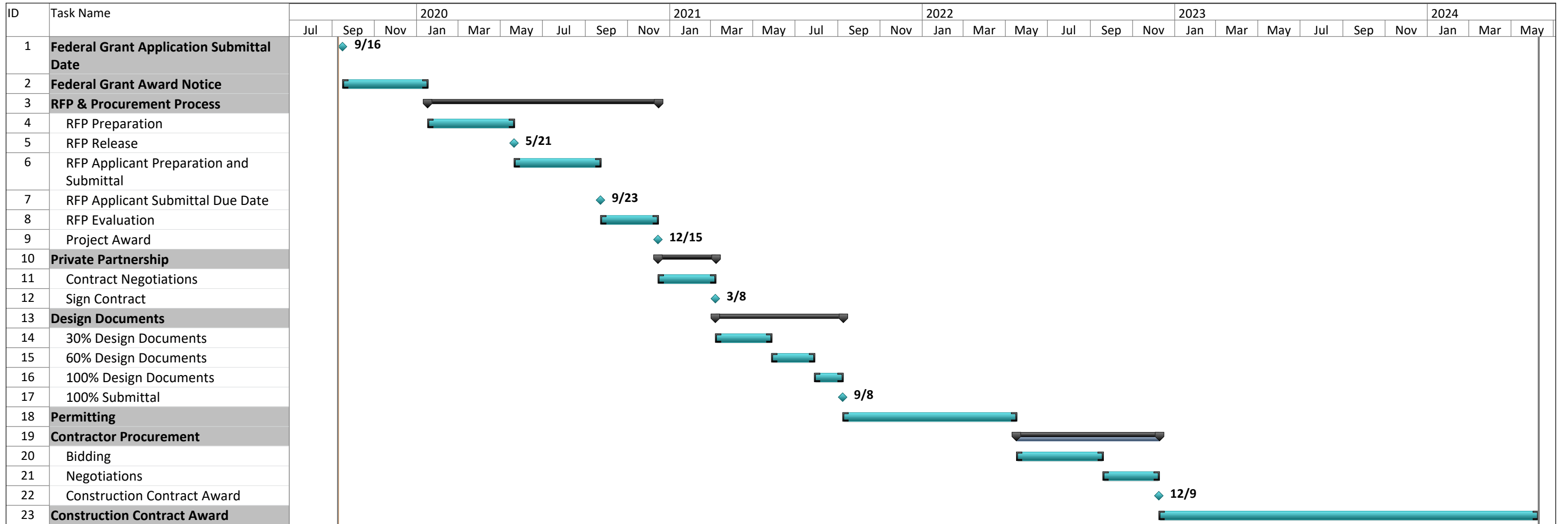
Senator Kennedy (Louisiana) Marcie_smith@kennedy.senate.gov 202-224-4623

^[2] Furthermore, in situations where pallets to be treated are not consolidated, the per-treatment charge favors large-scale treatments and marginalizes smaller-scale treatments.

APHIS AQI treatment monitoring fee equity: Include report language: “The Committee notes that assessing AQI treatment monitoring fees on a per-enclosure basis imposes disproportionate impacts on industry and user groups at certain key ports of entry, including PortMiami, Port Everglades, and Port Tampa Bay. The Committee encourages USDA to conduct a new study that specifically outlines the actual costs of treatments, examines the disproportionate impact the fee has on airports and seaports in different regions of the U.S., and evaluates alternative and equitable funding mechanisms. Such report should also incorporate due consideration of the recommendations of the Treatment Fee Working Group’s September 27, 2016 “Report to APHIS”. Within 120 days after the enactment of this act, USDA shall brief the Committees of Appropriations of both Houses of Congress on the status of such study and other efforts to ensure equitable collection of revenues for vital AQI treatment monitoring efforts.”

ID	Task Name	2020				2021				2022			
		Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
1	Engineering Plans and Permitting	[Bar spanning Qtr 3 2020 to Qtr 2 2021]											
2	Procurement					[Bar spanning Qtr 2 2021 to Qtr 4 2021]							
3	Construction									[Bar spanning Qtr 2 2022 to Qtr 4 2022]			
4	Construction Close-out									[Bar spanning Qtr 3 2022 to Qtr 4 2022]			

Project: Project Schedule-Cargo Y Date: Wed 9/11/19	Task		Project Summary		Inactive Milestone		Manual Summary Rollup		Deadline	
	Split		External Tasks		Inactive Summary		Manual Summary		Progress	
	Milestone		External Milestone		Manual Task		Start-only			
	Summary		Inactive Task		Duration-only		Finish-only			



Project: Project Schedule Date: Tue 9/10/19	Task		Project Summary		Inactive Milestone		Manual Summary Rollup		Deadline	
	Split		External Tasks		Inactive Summary		Manual Summary		Progress	
	Milestone		External Milestone		Manual Task		Start-only			
	Summary		Inactive Task		Duration-only		Finish-only			

PORTMIAMI™

2035 MASTER PLAN
EXECUTIVE SUMMARY



EXECUTIVE SUMMARY FOREWORD

The Port of Miami's mission is to operate and further develop the world's leading cruise port and the largest container port in the State of Florida; to maximize its assets and strengthen its advantage for future growth; promote international trade and commerce as a vital link between North and South America and a growing global trade; support sustainability and operate in an environmentally responsible manner.

At the Port of Miami, with the support of the Mayor and County Commission, we are up for the challenge of the new global trade reality and we are positioning ourselves to compete well into 2035.

The POM 2035 Master Plan is a planning tool used to update the Port of Miami Master Plan Sub element of the County's Comprehensive Development Master Plan (CDMP). This document was prepared simultaneously with the County's Evaluation and Appraisal Report which analyzes if the Port is meeting its goals, policies and objectives.

By incorporating a market analysis for both cruise and cargo and a financial analysis of capital infrastructure, this master plan helps us better understand the direction in which we need to guide the Port. Cruise passenger projections take us from 4.1 million passengers to 5.9 million in 2035. And our cargo projections run from 847,249 TEUs in 2010 to 1.7 – 3.3 million in 2035. Increasing Port business ultimately increases the County's economy.

The 2020 Master Plan presented the need for a tunnel connecting Port traffic directly to the Interstate system and promoted dredging the South Channel to -50'/-52' in order for post-Panamax ships to berth at the Port. These projects are currently underway and their completion should coincide with the completion of the Panama Canal expansion.

The 2035 Master Plan continues to push the envelope and takes us into the future with projects that will help increase both cargo and passenger throughput by adding services, upgrading infrastructure, enhancing efficiency and increasing berthing capacity.

Projects presented in the 2035 Master Plan include a phased implementation plan allowing for development depending on additional changes in the global market. There are three main components to the Ports future progress: Cargo, Cruise and Commercial with an overarching theme of sustainability.

Sustainability:

The Port of Miami is located within the Biscayne Bay Aquatic Preserve, surrounded by the natural environment including sea grass and marine life, as well as the human environment with commercial and residential uses. Protecting both of these environments for future generations is a major concern in how the Port will grow. The Master Plan dedicates much thought to the surrounding areas and outlines projects that will help preserve it.

- **Shore Power:** Also known as cold ironing; allows ships that berth at the Port to plug-in to the electrical grid and turn off their engines, therefore reducing the emission of carbon dioxide.

- **Electrification of Cranes:** The Port of Miami is in the process of retrofitting all of its existing cranes to run on electricity instead of diesel fuel. This not only reduces carbon dioxide emissions but noise emissions as well.
- **LEED Buildings:** All new buildings constructed on the Port must meet the County's minimum requirement of LEED Certification.
- **Green Energy Initiatives:** There are several projects the Port plans to undertake to save energy. These include installing solar panels port-wide, electric generating wind turbines and water turbines.
- Additional sustainable projects outlined in the following sections include the Port of Miami Tunnel, rail service, consolidation of cargo gates, and a multimodal center. All are projects which will help integrate the Port with the community and reduce congestions and emissions.

Cargo:

In preparation to compete for cargo for the next 50 years, the Port of Miami is focusing on three major projects: the construction of the Port of Miami Tunnel which will connect Port traffic directly to the interstate system, dredging the main channel to accommodate post-Panamax ships, and the rehabilitation of rail on Port.

- **Dredge:** This Master Plan, as those prior to it, continues to encourage the dredging of the South Channel. Furthermore, this master plan bases all its calculations and market analysis past 2014 solely as if the dredge has occurred, as it obviously notes that, without the dredge, the Port cannot compete for trade.
- **Rail:** Reintroducing rail service at the Port and the development of an on-Port rail yard which will help decrease traffic congestion and reduce emissions.
- **Inland Distribution Center:** The development of an off-Port Inland Distribution Center in the warehousing district to handle increased container traffic.
- **Consolidation of accessory uses:** such as Customs and Border Protection, fumigation yard, sheds, etc., to one area in order to create continuous cargo area for tenants.
- **Cargo Gates:** Consolidation of the individual tenants' cargo gates to the Port's one Security Cargo Gate complex. This project also includes creating a fast-pass lane to increase efficiency and reduce processing time at the gates.
- **Cranes:** Breaks down the purchase of new cranes over the next 25 years, taking the Port to a total of 23 cranes by 2034.

Cruise:

The cruise industry supports one of the County's biggest economic engines: **tourism**. The Port of Miami, known worldwide as the Cruise Capital of the World, plans to remain number one by competing for the growing cruise industry. To accommodate for this growth in 2035, the Port must begin to invest in new larger terminal complexes and multimodal centers.

- **Berths:** Three new berthing spaces plus the extension of berth 6 to accommodate the new standard of larger cruise ships. This will allow for the berthing of nine of the world's largest class of ships.
- **Cruise Terminals:** The plan outlines several options for two to four new cruise terminals, including introducing the first of its kind twin linear terminals that will offer new efficiencies to cruise lines.

- **Multimodal Center:** A multimodal center allowing for the consolidation of ground transportation, decreasing the sprawled footprint of the Port, therefore allowing for increased efficiency and additional land to be dedicated to cruise or cargo business.

Commercial:

The Master Plan aligns the anticipation of an increase in cruise passengers visiting the Port with the need for providing commercial development onsite. This development is the anchor that will connect the Port and the tourism industry that it serves to the community. By working together we will create a unified waterfront global destination.

- **Cruise Ferry:** Design and development of a cruise ferry to service the Caribbean.
- **Marina:** A marina to berth mega yachts.
- **Hotel and commercial:** Development of a hotel, retail, restaurant, and office space to serve cruise passengers, port users, and the community.
- **Trans-shipment:** The creation of a transshipment area with additional cargo berths at the south channel.
- **Utilities:** Increasing capacity of utilities such as electricity, water, sewer, etc.

The capital improvement elements outlined in this master plan total \$2 billion over the next 25 years. The Port, with the goal of creating jobs and building a stronger economy for the community, is aggressively moving forward to implement the projects outlined in this plan, laying the foundation for tomorrow's job and business opportunities.

A handwritten signature in blue ink that reads "Bill Johnson". The signature is written in a cursive, flowing style.

Bill Johnson
Port Director

SECTION ESI

INTRODUCTION

ESI.1 HISTORY

Located in the heart of downtown Miami in Biscayne Bay, The Port of Miami is one of the most significant economic generators for South Florida. Through its cargo and cruise activities, the Port has determined that it contributes over \$18 billion annually to the South Florida economy and helps provide direct and indirect employment for over 176,000 individuals. The Port is owned and operated by the Seaport Department of Miami-Dade County.

In 2010 the Port of Miami handled more than 4.1-million cruise passengers and 7.3-million tons of cargo providing a tremendous economic and social benefit to Miami-Dade County and the South Florida community. To meet the challenges of the future in Miami-Dade County and the South Florida region, the Port of Miami will continue its sustainable growth through the development of the cargo, cruise and commercial entities in order to create new jobs in the community. It is timely and relevant for Miami-Dade County to focus attention on this important community asset and plan accordingly for the future.

The Port of Miami is recognized as the "Cruise Capital of the World" – it has retained its status as the number one cruise passenger port in the world for well over four decades accommodating cruise vessels of major cruise lines such as Carnival Corporation, Royal Caribbean Cruises, Ltd. and Norwegian Cruise Line.

As the "Cargo Gateway of the Americas", the Port primarily handles containerized cargo and small amounts of break bulk, vehicles and industrial equipment. The Port of Miami is among an elite group of ports in the world which cater to both cruise ships and containerized cargo.

The port industry is in the middle of competitive changes which require ports to adjust if they are to continue to develop. The Port is geographically positioned for growth opportunities as the Panama Canal expansion project is completed in FY2014/15 allowing for post-Panamax vessels to transit the canal. The Port of Miami will be the closest US Port to the Canal. The Port of Miami is currently moving ahead with deepening the South Channel to -50-ft / -52-ft. to accommodate the new post-Panamax ships – a large container vessel providing for faster routes to Florida and the US East Coast. The development of the tunnel, on-port rail and off-site intermodal yard will accommodate this growth opportunity into the future.

ESI.2 BUSINESS APPROACH

This Master Plan is anchored by 5, 15 and 25-year forecasts for cruise and cargo traffic. These forecasts have been assembled through market assessments, the commitments that the Port has in current and planned User Agreements and the Port's recently completed Economic Impact Analysis. These last items are used to assist in the development of a sustainable strategic business plan and a framework for infrastructure planning to meet the projected demands to fulfill the Port's obligation to the community and to be fiscally sound.

The Master Plan also addresses the ancillary supportive tasks required to operate the port, inclusive of berth and mooring assessments, infrastructure improvements and others that are pertinent to the long-term development and success of the Port. The Plan has been prepared and presented so that it can serve several functions:

- Establish short and long-term capital programs;
- Achieve consensus, among the political leadership, on the long-term vision for the Port;
- Provide sound public need and justification to support future environmental permits;
- Allow for the incorporation into the County's Comprehensive Development Plan (CDMP) as its Port of Miami Master Plan sub element; and,
- Provide a potential planning vehicle for use in seeking grants.

ESI.3 PLANNING APPROACH

The Master Plan's main focus is to maximize the throughput and optimize its existing "footprint" to obtain sustainable growth. To achieve a plan based on this policy, the Master Plan was crafted in a way that would allow the decision-making logic to support that policy.

By defining the future cruise and cargo market demand for the Port through the market assessment process, the Plan can define the future physical and operational requirements of the Port for each of these main business units within the physical boundaries of the Port area. In the case of cargo, the Plan also explores the creation of off-port sustainable development to meet future demands and provide for increased market opportunities.

ESI.4 DIRECTION

From the outset there were several major policies that provided the directional framework for the study; these include:

- Port of Miami's mission statement and organization;
- The role of the Port of Miami in the community as an economic engine;
- Growth strategies for cruise, cargo and other commercial interests to strengthen and support the County;
- Priorities associated with trade, environment and community leadership; and,
- Successes and limitations of past master planning efforts of the Port of Miami.

During the course of the master planning process, several major strategies were contemplated that provided the overall direction for this report. These major strategies focused on the key components of the Port today (cruise and cargo) while also providing the platform for future commercial development opportunities. Major strategies linked specifically to the study included the following:

- **Cruise**
 - Development of new terminals; and,
 - Updating existing older terminals to meet the needs of larger modern vessels.
- **Cargo**
 - On-port development;
 - Creation of a flexible yard layout;
 - Increasing the dockside capacity;
 - Increase the number and size of cargo berths;
 - Dredging to meet the requirements of the next generation of cargo vessel; and,
 - Include the Tunnel in the development of the long-term port plan layout.
 - Off-port development;
 - Create port rail access to increase market opportunities; and,
 - Create distribution centers for rail and road movements.

- **Financial**
 - Increase revenues of the port;
 - Increase profitability; and,
 - Diversify revenue streams.
- **Management**
 - Manage to maximize profit through the development of business units.

ESI.5 OUTREACH

The approach for this plan included extensive outreach to Port users. Stakeholder outreach is an essential component of the Plan to provide the current tenants, facility users and other entities had a role in the assembly and implementation process.

ESI.6 COMPREHENSIVE PLAN COMPLIANCE

On July 1, 2011 the House of Representative passed Bill 399(FSTED) SS 311.14.3(a-e) which requires Ports to have a Board approved Strategic Plan which must include 5 components as outlined below:

Each port shall develop a strategic plan with a 10-year horizon. Each plan must include the following:

1. An economic development component that identifies targeted business opportunities for increasing business and attracting new business for which a particular facility has a strategic advantage over its competitors, identifies financial resources and other inducements to encourage growth of existing business and acquisition of new business, and provides a projected schedule for attainment of the plan's goals.
2. An infrastructure development and improvement component that identifies all projected infrastructure improvements within the plan area which require improvement, expansion, or development in order for a port to attain a strategic advantage for competition with national and international competitors.
3. A component that identifies all intermodal transportation facilities, including sea, air, rail, or road facilities, which are available or have potential, with improvements, to be available for necessary national and international commercial linkages and provides a plan for the integration of port, airport, and railroad activities with existing and planned transportation infrastructure.
4. A component that identifies physical, environmental, and regulatory barriers to achievement of the plan's goals and provides recommendations for overcoming those barriers.
5. An intergovernmental coordination component that specifies modes and methods to coordinate plan goals and missions with the missions of the Department of Transportation, other state agencies, and affected local, general-purpose governments.

To the extent feasible, the port strategic plan must be consistent with the local government comprehensive plans of the units of local government in which the port is located.

Additionally, Bill 7207 (Transportation Element of CDMP) – SS 613.3177.6(a)11.(b)2(b) and 3(b) adds the need for plans for ports, but does not address adoption of a master plan. While Bill 7207 (Coastal Management Element of CDMP) – SS 613.3178.2(k) stipulates that "A port master plan shall be prepared by or for each deep-water port for the purposes of coordinating the activities of the port with the plans of the appropriate local government." The plan is to be incorporated into the Transportation Element of the local government's comprehensive plan and be consistent with the goals, objectives,

and policies of that element. Although the Port lies physically within the City of Miami limits, as a facility owned and operated by Miami-Dade County, it falls under the jurisdiction of the County.

An approved master plan must have a 10 year horizon. This plan has a 25 year horizon which is used yearly to update FSTED's Seaport Mission Plan. The Port of Miami Master Plan will need to be updated every 7 years to align with the CDMP.

This Master Plan provides information required for Comprehensive Plan Compliance. It provides discussions on existing and future land uses within the Port; infrastructure needs to support future market conditions, and environmental conditions resulting from any changes to the land uses. These representations are illustrated on aerial maps and other figures within the document.

To guide the Port of Miami through the 2035 Master Plan horizon, this document contains a series of proposed goals, objectives, and policies for implementation to allow for the long-term adoption of the Master Plan for the Port. As part of the 2010 Evaluation and Assessment Report (EAR), the Miami-Dade County Seaport Department and Miami-Dade County Department of Planning & Zoning will coordinate the adoption of the Port of Miami Master Plan sub element within the Comprehensive Development Master Plan.

SECTION ES2

EXISTING CONDITIONS

ES2.1 PORT OF MIAMI OVERVIEW

The Port of Miami is situated on an island with a land mass of 520-acres in central Biscayne Bay. It is bounded to the north by the Main Channel adjacent to MacArthur (I-395) Causeway, to the west by downtown Miami, to the east by Miami Beach and Fisher Island, and to the south by Fisherman's Channel and Biscayne Bay.

Though physically one island, it was created as part of a beneficial reuse plan out of three spoil islands: Dodge, Lummus and Sam's islands. In this 2035 Master Plan, the terminology "on-port" refers to facilities and activities located on these now joined islands (the Port of Miami) and "off-port" refers to locations, facilities or activities elsewhere and outside of the Port of Miami.

The Port of Miami acts as a transient point of entry or departure for cargo, and to meet its objectives, relies on its connections with other intermodal facilities such as the Miami International Airport (MIA), the FEC Hialeah Intermodal Facility, and the West Dade trade-related, freight forwarding and consolidation warehouses. The users of the Port of Miami also rely on the local, regional and inter-regional transportation network components consisting of roads, railway lines and channels to facilitate the efficient movement of goods and passengers including the Fort Lauderdale / Hollywood International Airport for a considerable amount of cruise passenger traffic departing to and from the Port of Miami.

ES2.2 PORT OF MIAMI ADMINISTRATION

The Port of Miami is a non-operating port, owned by Miami-Dade County, Florida, and managed by the Miami-Dade County Seaport Department. A "non-operating" port is one that provides, manages, maintains and leases the facilities for private entities to operate all shipping activities. The Port does not itself provide the services, shipping activities and/or manpower required to load and off-load vessels. The Port is under the leadership of the Port Director which is appointed by the Mayor.

Facilities are either leased or made available to Port users and operators. Tenants include shipping agents, cruise lines, freight forwarders, custom house brokers, stevedores, ship chandlers, federal, state and local agencies, and other port-related firms. The U. S. Coast Guard serves as Captain of the Port in matters relating to safety and inspection. Fire protection and Police services are provided by Miami-Dade County by contractual agreement with the Seaport Department. The Biscayne Bay Pilot's Association is responsible providing piloting services in the harbor.

ES2.3 LAND USES

Land uses are established by Miami-Dade County. They are all reflected in the County's Comprehensive Land Use Plan. The entire Port is classified as "Terminal" which allows for a broad range of uses and activities.

CHANNELS AND TURNING BASINS

Ships approaching from the Atlantic Ocean enter the Port of Miami through Outer Bar Cut and travel northwest to Government Cut and its 1,200-foot radius Fisher Island turning basin.

The Port is scheduled to undergo future deepening from its existing -42-foot depth to between -50 and -52 feet in order to accommodate the next generation of new post-Panamax cargo vessels capable of transiting the Panama Canal once that expansion project is completed in 2014. During the dredge other improvements to the channels will be made including widening the Fisher Island turning basin to 1,500-feet in diameter.

BERTHING INVENTORY

The Port of Miami accommodates cruise, cargo, military, barge, yacht, and numerous other miscellaneous vessels in support of commercial operations. At present, the Port has more than 28,739 feet of linear berth or buffer surrounding the Port. Approximately 8,474 feet of lineal berthing space are provided for cruise ships and 11,458 lineal feet for container ships. There is still a considerable amount of lineal water's edge of undeveloped berth space along the Main Channel (5,101 feet) from Bay 69 to 98 and additional space along the southwest corner adjacent to the RCCL headquarters building.

ES2.4 CARGO

The Port of Miami is a general cargo port with strict limitations on handling certain types of bulk products. Principal cargos passing through the port include fruits and vegetables, apparel and textiles, non-refrigerated food products / groceries, paper, electronic equipment, stone, clay and cement tiles, construction and industrial equipment, trucks, buses, and automobiles. Four types of cargo operations occur at the Port:

- Roll-on / roll-off (Ro / Ro) container operations;
- Lift-on / lift-off (Lo / Lo) container operations;
- Break- bulk cargo operations; and,
- Vehicle exports.

The Port allows container lines and or stevedores to operate at the port. At present there are three major terminal operators at the Port:

- **SEABOARD MARINE** - is an ocean transportation company that provides direct, regular service between the United States and the Caribbean Basin, Central America and South America.
- **SOUTH FLORIDA CONTAINER TERMINAL (SFCT)** is a joint venture terminal operator and stevedoring company between Terminal Link (CMA CGM) and APM Terminals.

- **PORT OF MIAMI TERMINAL OPERATING COMPANY (POMTOC)** has been operating at the Port for more than 10 years.

The Port is continuing to implement elements of the 2020 Cargo Master Plan through its Capital Improvements Program. This includes the continued expansion of berths and upland areas to assist in improving functionality and efficiencies of the operators. The main cargo projects to date include dredging deeper in order to meet the future new post-Panamax cargo vessels that can easily reach the Port following the expansion of the Panama Canal, new Tunnel providing for increased ingress and egress capacity for cargo with direct access to the main highway system, rail, cargo gate expansion with new inbound and outbound lanes, software modernization to increase throughput efficiencies, and a possible consolidation of gate functions to expedite processing times, replacing rip-rap with new bulkheads to accommodate additional vessels for cargo operations, stronger storm protection and cargo yard improvements to increase overall efficiencies.

ES2.5 CRUISE

The Port of Miami serves as a primary port of embarkation / debarkation (homeport) for the Caribbean region and is mostly used by the top three cruise lines in the world - Carnival Corporation (principal Miami brand – Carnival Cruise Line), Royal Caribbean Cruise Lines (Royal Caribbean International, Celebrity Cruises and Azamara Club Cruises) and Norwegian Cruise Line. Cruise operations occur on the north side of the island. Cruise facilities located in this area includes six cruise terminals with 744,784 square feet of interior operational space, cruise berths, cruise ship loading and support aprons, customs inspection and storage areas, provisioning spaces and parking areas. Additionally, Terminal J is located on the Southwest side of the Port and is able to accommodate cruise vessels up to 800 feet in length based upon current pilot standards. The landside portion of all cruise terminal operations, including parking, comprises approximately 52 acres.

The continued growth in the size of vessels affects the Port's ability to handle the mega-vessel passenger throughput. As discussed, and as shown as a major part of this 2035 Master Plan, some of these facilities will require renovations in the future to accommodate this increased demand.

One of the major issues for the Port of Miami, at present and over the long-term, is the ability to accommodate larger cruise vessels of 1,200 feet in length with larger passenger capacities. The current layout of the terminals does not provide for flexibility to accomplish this. This element is further discussed in the sections that follow.

SECTION ES3

PROPOSED GOALS, OBJECTIVES AND POLICIES

ES3.1 CURRENT STATUS

This Master Plan updates and replaces the Port's 2020 Master Plan previously adopted. This new Master Plan calls for sustainable growth in operations and expansion in cruise and cargo activities through enhancements of existing facilities, the development of a commercial business unit and the creation of a financial model whereby the Port maximizes profitability, prioritizes expenditures, diversifies revenues streams, protects our natural resources and allows for the Port to become self-sustaining.

SECTION ES4

The Port faces a number of challenges which require looking into the future to determine how to best position itself to meet its mission and role within the community. It must understand the issues and recognize the opportunities and limitations allowed for the creation of a realistic and sustainable Plan that can serve the Port beyond 2035.

Among the critical issues studied and evaluated as part of the Master Plan were the following:

- The location of the Port within the urban core of a major metropolitan area and its role in terms of the types of cargoes that move through it on a daily basis;
- The nature of an island port and its ability to expand (or not) within the Biscayne Bay Aquatic Preserve;
- The economic impact and role of the Port in terms of job creation within Miami-Dade County;
- The role that international trade will have on the future of the South Florida community;
- The realities of the inland transportation of freight from the Port and through the interstate highway system and beyond into the rest of the US hinterland, specifically, the use of rail to service the Port;
- The current economic condition of the Port and its ability to fund future capital programs;
- The Port is committed to achieving a sustainable balance between its customers, operations and development, while continually focused on its environmental responsibilities; and,
- The mobilization and diversification of cruise outside of the U.S. and Miami.

Cargo and cruise capacity throughputs have been consistent over the past few years. Therefore, increasing the level of competition and challenges in the traditional market share of cruise and cargo that the Port of Miami will need to meet over the next 25 years will be essential, not only to keep pace, but to strive to meet the demands of the markets it serves.

Moving forward, the Port will need to expand its physical footprint outside of the Port to remain competitive, diversify its financial capacity through the introduction of a commercial component to its cruise and cargo portfolio that is not tied to tariff income, increase its operational efficiencies in meeting the demands of the Port’s key sectors through the application of technology to increase productivities for port users, and strengthen its marketing efforts to leverage these expansion efforts into additional customer successes.

The main goal for the Port of Miami is as follows:

THE PORT OF MIAMI SHALL CARRY OUT ITS DAY-TO-DAY OPERATIONS AND ITS LONG-TERM EXPANSION PROGRAM THROUGH COORDINATION WITH FEDERAL, STATE, AND LOCAL AGENCIES IN ORDER TO RETAIN AND EXPAND ITS SHARE OF THE MARKET AS THE TOP-RANKING CRUISE PORT IN THE WORLD AND AS ONE OF THE LEADING CONTAINER PORTS IN THE NATION WHILE CONSIDERING ITS EFFECT ON THE COMMUNITY AND THE ENVIRONMENT.

CRUISE AND FERRY

ES4.1 OVERVIEW

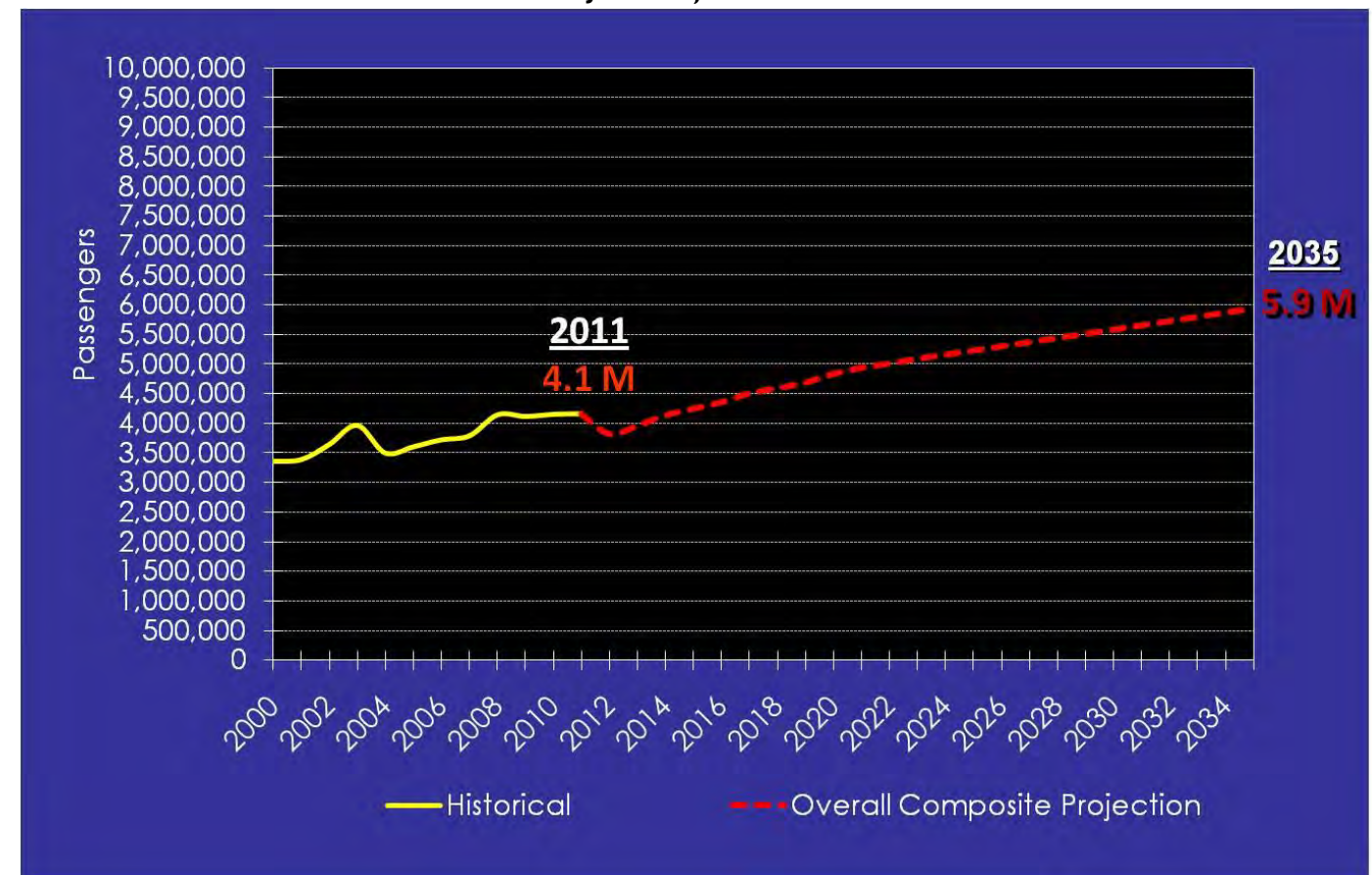
This section discusses the future of cruises at the Port of Miami and the facilities required to meet the needs. These forecasts are used as the baseline for the business plan and physical master plan efforts for the Port to determine future facility demand and financial performance.

The cruise forecasts assess the current industry trends impacting future cruise passenger and vessel throughput for the Port of Miami over the 25-year planning period (2010 - 2035). This assessment of the Port’s main revenue drivers identifies global and regional market trends that impact potential levels of traffic.

ES4.2 PROJECTION OF CRUISE TRAFFIC

Figure ES4.1 shows the most likely passenger throughput scenario for the Port of Miami with a growth rate of 1.79% per annum.

FIGURE ES4.1: MOST LIKELY PASSENGER PROJECTION, 2011 - 2035



The passengers per sailing ranges from 2,733 to 3,074 based upon the type of vessels that will call at the Port of Miami.

Based upon the most likely revenue passenger projection and the passengers per sailing as illustrated on a per year basis, the overall number of anticipated calls grows from 760 in 2011 to 885 in 2020 and to 966 calls in 2035.

ES4.3 CRUISE BERTH DEMAND

CRUISE VESSEL GROWTH TRENDS

To forecast the facility requirements to meet the projections, it is important to take into account the anticipated trends in ship construction and deployment. This section illustrates the requirements of the industry relevant to the construction and deployment of cruise vessels in the worldwide cruise market and Caribbean region, in general. A summary of this section is presented below:

- In November 2009, Royal Caribbean International delivered the first new-build of the next generation of cruise vessel – *Oasis of the Seas*. It is approximately 43 percent larger than their other largest vessel delivered in spring 2006 – *Freedom of the Seas* - at 220,000 gross tons (GT). The sister ship - *Allure of the Seas* – was delivered in fall 2010. Also in summer 2010 the 150,000-GT, 325-meter LOA cruise vessel - *Norwegian Epic* - capable of accommodating more than 4,200 passengers and crew began seasonal sailings from the Port of Miami. NCL also ordered two additional vessels for delivery in 2013 and 2014 at 4,000 passengers each. RCCL has also begun a new shipbuilding program named *Project Sunshine* to deliver their next generation vessel.
- As of July 2011, 18 new cruise vessels with a total berth capacity of 56,215 are scheduled for delivery over the next six years (2010 through 2016). A total of 18 vessels have been delivered since December 2010 with a berth capacity of more than 36,000 berths. For comparison purposes, in December 2006, the forward cruise vessel order book contained 29 vessels with a berth capacity of approximately 85,000.
- The evolution of the cruise vessel has been one of the principal mechanisms propelling industry growth. Over the past ten years, the newest and most popular generation of vessels continues to offer greater passenger volumes, beams and lengths to accommodate the area needed for large-scale outside cabin development. These vessels range in length from 965 to 1,300 feet and have an average lower berth passenger complement of between 1,950 and 5,400.

For the Port of Miami to remain competitive in the regional marketplace and be able to fully accommodate the service requirements of the future generation of cruise vessels, current and future berth, terminal facilities and upland support areas will need to accommodate these large cruise vessels. This will include the ability to offer industry operators facilities and venues capable of accommodating a passenger complement upwards of 5,000 to 6,000 passengers per vessel into the mid to long-term. The core market will continue to reflect the predominant brands sailing from the Port of Miami including vessels ranging from 2,000 to 4,200-passengers per vessel.

Design vessel requirements for the Port of Miami homeport operations provide a heavy leaning toward the deployment of larger vessels into the Port and marketplace. Historically, the Port has catered to the mid-size to larger cruise vessels in the North American and, more recently, the worldwide fleet. This trend is likely to continue into the long-term. Albeit, the Port does serve some smaller vessels of the Oceania, Crystal, SeaDream, and World cruise fleets.

Using large vessel design parameters, consideration can be given to each of the primary infrastructure categories required to support the Port of Miami's cruise operations with specific emphasis on the primary infrastructure of entrance channels, turning basins, berths, passenger terminals, ground transportation areas, and other elements.

The Port of Miami presently has demand to serve post-Panamax and super post-Panamax vessels into the long-term. For the Port, the ability to accommodate ships of more than 120,000 to 150,000 GT and approximately 1,200 feet LOA, is a key factor in its ability to serve as a primary regional cruise homeport. The net result of the vessel development trend is that current and future facilities will need to accommodate large cruise vessels for the Port to remain competitive in the cruise marketplace.

DESIGN VESSELS

To facilitate the Port of Miami 2035 Master Plan, a recommended series of design vessels for the Port over time is presented. Based upon the plan layout for berthing it is envisioned that, to accommodate all classes of vessels that may utilize the Port, facilities that berth layout design must be in conjunction with the super post-Panamax vessels allowing for a 1,200-foot berth. Upland areas may be developed to provide for a wider range of facilities to then accommodate vessels ranging from post to super post-Panamax.

Table ES4.1 shows the recommended design vessels for the Port of Miami.

TYPE	CURRENT	NEW BERTHS
	Design Vessel 2 (post-Panamax)	Design Vessel 3 (super post-Panamax)
Passengers	2,500 to 4,000	4,200 to 5,400
Crew	800 to 1,000	1,000 +
Gross Tons	90,000 to 130,000	140,000 to 225,000
Length Overall (feet)	985 to 1,100	1,100 to 1,300
Beam (feet)	130 to 165	140 to 185
Draft (feet)	28 to 32.8	28 to 32
Air Draft (feet)	Up to 210	210 +

TRAFFIC ANALYSIS

Part of the process in identifying long-term berth demand is to develop an understanding of the traffic patterns for the facility. For the Port of Miami a defined seasonal, monthly, and daily traffic pattern emerges through analysis of the historical traffic data. Traffic patterns for the Port of Miami were evaluated based upon an historical assessment. The following elements contributing to Port demand were identified:

- Seasonal and monthly traffic patterns are primarily driven by the winter Caribbean season with a focus on November through April. Redeployment to the Caribbean is shrinking each year as the Mediterranean and other competing destinations worldwide draw away cruise vessels from the Caribbean region;
- The Port of Miami is successful as a key regional homeport providing service to the Caribbean and Bahamas regions as the primary target;
- Over the five year period (2006 – 2011) the months of December, January and March provide the highest volume of cruise calls and passenger traffic with 10.7%, 11.1% and 10.8% respectively; and,

- The peak day for traffic over the period was Sunday. However, in 2009 there was a shift to more capacity sailings on Friday and Monday. That was somewhat offset in 2010.

MONTHLY TRAFFIC ANALYSIS AND SEASONALITY

For the Port of Miami the peak monthly traffic occurs in the winter months of November through April each year. During this 6-month period, 61.9% of the annual traffic moves through the Port (10.3% per month). This is in line with the typical Caribbean winter cruise season. Additionally, the Port has maintained a year-round presence in the region from May through October with some 7.9% traffic per month over this period. This pattern will continue into the long-term barring any unforeseen changes in the Caribbean region.

Should Cuba open for North American (US resident) travel and cruise line visits providing additional port options then it is likely this figure will increase to some degree. Seasonal cruise activities can also be attributed to outside influences, primarily Europe, Alaska, and Mediterranean market trends. See Figure 4.5 for the actual numbers of calls on a monthly basis over the 5-fiscal year period. The trend line is indicative of the Ports traffic pattern and used as the long-term baseline for monthly traffic throughput.

Based on the projection assumptions, growth is envisioned to occur in a consistent seasonal pattern for regional traffic on sailings of less than eight days. This is primarily due to the competition from other worldwide summer destinations whereby the revenues will continue to draw traffic out of the regional cruise market catchments over the 25-year planning period. Much of the long-term passenger growth (not cruise call growth) will be a reflection of the increased passenger capacity of the cruise vessels. This will be defined by the type of cruise sailing from the key regional homeports.

DAILY TRAFFIC ANALYSIS

From a passenger volume perspective, Saturday and Sunday consistently have shown the highest passenger throughputs.

However, in 2009, there was a considerable increase in the Monday and Friday traffic accompanied by a decrease in weekend cruise calls. This change was due in part to the addition of the *Jewel of the Seas* on Monday/Friday departures; *Norwegian Sky* on Monday/Friday departures; and the switch of the *Carnival Destiny* on Monday/Thursday for the *Carnival Fascination* on Monday/Friday, amongst others. The days from Friday through Monday will continue to be the busiest days for the Port of Miami as they are based upon the vacation patterns of the North American consumer.

If these change, and the European consumer becomes more prevalent in the market, these may be modified slightly into some additional mid-week sailings with a particular emphasis on Thursdays. These patterns are also indicative of a short-cruise duration market with an emphasis on 8-day; 5-, 5-, 4-day; and 3- and 4-day sailings that meet the demands of the North American consumer.

For the Port of Miami, a more consistent traffic pattern is shown with an average of 91.6% of its traffic placed on the peak weekend days (Fri, Sat, Sun, Mon) and the remaining 8.4% on the mid-week days. This is compared to approximately 80% of the traffic on peak weekend days and 20% on mid-week days for Port Everglades over the period. There has been a slight increase in the peak weekend day capacity over the past three years with most of that traffic attributed to larger vessels and the deployment of ships to slots on Monday and Friday.

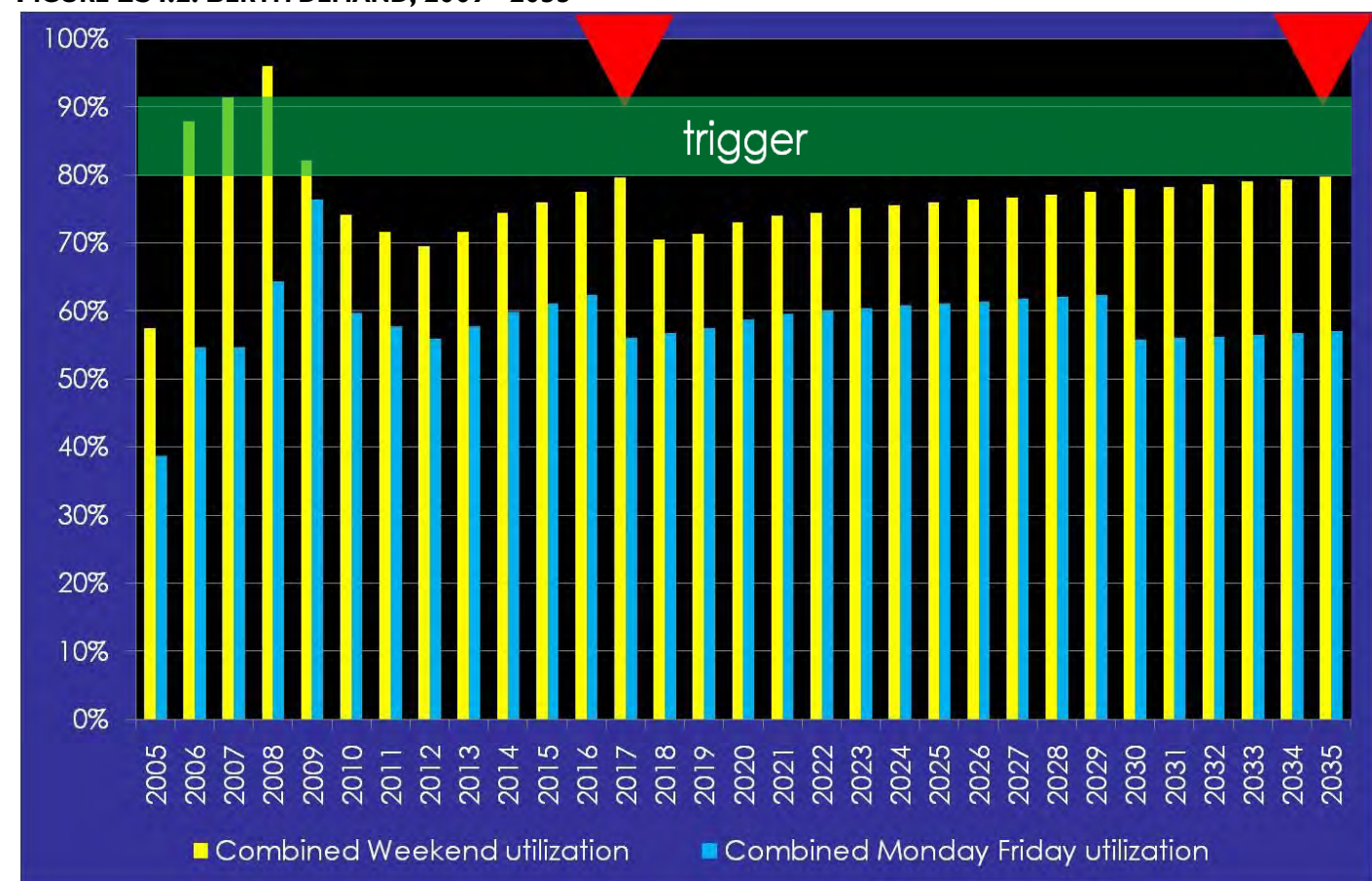
For cruise ports, the consistency of cruise traffic calling on a year-round basis is a positive attribute. This consistency allows the Port to manage the cruise facilities through revenue planning, personnel scheduling, and other defined areas of operations. If cruise traffic is inconsistent on an annual basis, it poses challenges in terms of apportioning reserves to maintenance during low cruise traffic periods and places more demands on other aspects of the cruise operation.

FACILITY DEMAND

For the purposes of this master planning study, we believe the majority of the berths should be able to accommodate the future design vessels of 1,100 feet LOA (berth size 1,260 feet). With this size berth, the facility can also accommodate vessels of less than these dimensions. Thus, the berth demand and projected requirements are based upon this berth length.

Figure ES4.2 illustrates the anticipated demand for berths in the upcoming years based upon the triggers. As shown there is a total demand for up to 9 berths during the projection period with an extension of berth 6 and a seventh now; an 8th berth in 2017; and, a 9th berth in approximately 2035. As presented in the Master Plan, vessels of more than 900-ft. would berth along the North Channel due to pilotage concerns with moving larger cruise vessels along the South Channel. The Southern Terminal “J” would act as the overflow facility until 8 to 9 berths are built along the North Channel.

FIGURE ES4.2: BERTH DEMAND, 2009 - 2035



ES4.4 FERRY

North American operators have had success in understanding how to market and develop cruise products that appeal to the tastes of many diverse consumer groups. These operators suggest there are still opportunities within the Caribbean cruising region; as such, this region will be one of the many focuses of their development in the mid- to long-term. For instance, the development of Cuba, offering a series of cruise ports and the continued development of new destinations throughout the region, will bolster mid- to long-term interest in the region by cruise lines, and more importantly, by consumers. Cruise line deployments will also continue to be based upon outside influences directly related to other potential markets in Europe and Asia as these begin to open and develop.

It is not believed, based upon cruise line interviews, that the introduction of Cuba at any point will have a dramatic effect on increased capacity from the South Florida market. However, this will assist the region in maintaining its dominance. Additionally, there are likely limited opportunities for passenger ferry service as the airline industry will capture much of the market to the dispersed cities of Cuba. There is an opportunity in the short-term for ferry Ro-Pax services and Ro-Ro services to move people, vehicles and construction supplies to the island community.

The development of shorter patterns sailings from South Florida on 3- to 5-day patterns to take advantage of the proximity of key Cuban ports may increase passenger throughput to some degree with the opening of Cuba to cruise tourism. However, many experts agree that the development of the infrastructure to support cruise tourism operations as seen in other Caribbean islands may take up to 2 to 3 years to develop once Cuba is open. This time period should also allow adequate development time for any U.S. ports to transition infrastructure, if necessary, to support new cruise operations.

From a competitive homeport standpoint, in the long-term Havana, Cuba may compete for international (particularly European) homeport traffic as the airline industry deploys to the island with direct flights. However, the major portion of the cruise consumer market will be North American and is much more likely to use Cuba as a port-of-call rather than a homeport operation.

ES4.5 CRUISE LAYOUT ALTERNATIVES

Historically, the Port of Miami has grown its cruise facilities organically as the need has arisen. This means that, as cruise vessel volumes (numbers of total vessels needing to be accommodated) as well as the vessel size (increases in vessel length, tonnage and passenger capacity) have increased, the Port has created the upland cruise terminal, ground transportation areas, and parking to accommodate the need. In many instances the Port had to respond to customer needs within months and resorted to building a terminal at a location that might not be the best from a planning perspective, but rather it was the only practical solution at the time. While this mode of growth appears to be appropriate from a financial perspective whereby the Port does not overly extend itself, this method does not work for long-term planning. What has occurred at the Port is that facilities built in the mid-1990's to serve that generation of cruise vessels are now out of place, creating conditions that impact operations and service for the Port and cruise line users.

The Port already has a major investment in the four westernmost terminals (F, G, D, and E) as well as Terminals B and C where an additional \$21 million was recently spent to accommodate the *Norwegian Epic*. The next question will arise when additional terminals are needed to the east. Therefore, for planning purposes, it is important to layout the optimum berth configuration and then decide upon the most appropriate location.

Flexibility is inherent in this plan, thus the final decision of when and where to place the terminal can and should be made at the time that the need arises, however this will allow the Port to proceed with items that are very long-term in nature such as the environmental permitting and financial planning.

BERTH CONFIGURATION

Based upon the cruise market assessment and berth demand analysis, there is a demand for up to 9 berths of 1,200-ft. over the projection period of 2035. As such an extension of berth 6 and a 7th berth is required now, followed by an 8th berth in 2020 and a 9th berth in approximately 2032. All of this cruise development would occur along the North Channel. This area would be separated from cargo operations to provide a passenger-friendly and sustainable cruise operations zone. In the short to mid-term, all cruise vessels over some 900-ft. would berth along the North Channel. Terminal "J" on the South Channel would continue to be used for smaller vessels until at least 8 berths are built. Cargo would utilize the South Channel only.

In order to accommodate the requirements for up to 9 – 1,200-ft. berths along the North Channel of the Port an analysis was done as to the most viable approach to add these berths to the channel.

To allow for the extension of berth 6 and add three more berths along the channel, the option was chosen to cut into the island based upon cost, marine elements and environmental balance.

Approximately 12.1-acres of cargo area would be needed in order to develop this new cruise berth area and uplands support areas. A 9th berth would require an additional approximate 6 acres of cargo space. To fully implement the plan additional cargo area of more than the acreage needed for the berths would be required for the terminals and upland support areas.

CRUISE TERMINAL LAYOUT

The Port has a fixed amount of land that can be used in various ways including cruise, cargo and commercial. From a cruise perspective, future development of upland facilities should maintain maximum flexibility and return on investment. However, from the Port's perspective, the allocation of land is a more complex evaluation which weighs the available solutions' impact on each user, the environment and the overall needs of the community.

The traditional approach of terminal development at the Port has been to build almost independent terminals for each ship. This now requires extensive infrastructure and the need for multiple Customs, Immigration, and security stations. As part of this plan, other options were considered to this approach. The concept of the sustainable development of twin or mega-terminals that can be positioned to service multiple vessels can align with different berth configurations, can be accessed via walkways, can be adjacent to Ground Transportation Area (GTA) and parking facilities, and can provide for mixed operations (such as security, Customs & Border Protection) to save on costs and perhaps even combining baggage and check-in long-term into the formula may apply.

RECOMMENDATION

Alternatives were evaluated through a process that looked at cost, implementation, areas impacted, and the theoretical **internal rate of return (IRR)** which compares the revenue generated per square foot of land for each competing land uses. Alternative A2 is preferred in the short-term for development at a total cost of approximately \$241-million.

Providing for a continued linear berth pattern that works along the edge of the Main Channel and minimizes the impacts to the cargo yards adjacent to the cruise facilities will assist the Port in achieving its long-term goals. Based upon the recommended option A2, a mid-term and long-term master plan layout for the cruise terminal facilities has been developed as illustrated in Figure ES4.3 and the long-term Figure ES4.4, respectively. Based upon feedback from the cruise line users, the separation of cruise tourism and cargo activities is a positive impact on the Port.

Within the overall cruise zone of the Port, it is envisioned in the mid to long-term that a centralized multi-modal center could be developed to serve as a transportation hub for the Port, provide additional commercial (hotel, retail, entertainment) and allow for the opportunity to serve as a link to the Miami International Airport. The multi-modal center would also provide green spaces for activities such as tennis, jogging, swimming, and other outdoor activities that could accommodate port staff, crew, and other community activities. This site would primarily serve the cruise terminals from CB 1 to CB 4 with additional parking and support services.

The sustainable development in this central area of the Port can be done in conjunction with the development of the intermodal center. As shown, this area encompasses new buildings adjacent to the existing Port of Miami offices and Miami World Trade Center as well as development within the proposed multi-modal center and a replacement park on the roof.

A multi-modal center is approximately 230,000-SF per floor and a total of 3 to 7 stories. This dimension provides numerous internal uses and a rooftop green space. Uses may include parking, GTA, hotel, retail, entertainment, and others as required to support cruise functional operations and Port-specific needs. A second multi-modal center made up of

parking, ground transportation area for bus, taxis, and private cars, potential baggage drop off, and other operational support elements would also be established to serve cruise terminals CB 5 to CB 8 (CB 9 long-term).

Additionally, to allow for financially viable cruise facilities growth of the Port, the next generation terminal complex at the Port would provide for the consolidation of services allowing for better management of operations and security (entryways to the terminal complex may be a shared security zone) where passengers would then move to individual halls from a series of main entryways and corridors for check-in processing.

FUTURE CRUISE OPERATIONS

With the development of the 2035 Port Master Plan there are significant operational issues related to the planned development approach that must be resolved through further review and specific master planning of the multi-modal centers, terminals, walkways, berths, and roadway systems servicing the cruise area. There are substantial operational challenges with the development of a terminal complex that may provide for up to five individual terminal spaces to service berths CB 5 through CB 9.

Cruise line users will need to be involved in the planning process to ensure that the adopted development pattern is consistent with how future cruise operations can be effectively and efficiently managed. Specific items of concern are the movement of baggage to and from cruise vessels berthed at a distance from the cruise terminal structure (such as CB 7 through CB 9). Alternative methods of moving baggage utilizing improved logistics and technologies will need to be explored. The current method of transporting baggage via forklift and cages to the individual vessels at this distance will certainly multiply substantially the total labor and equipment required. Thus, movement via green trolley trains or, more likely, via a beltway system linked to dispatch baggage from and to the terminals to each individual vessel would be used. This baggage system would be built as part of the walkway system that would provide access to the cruise vessel gangway systems for passengers moving to and from the cruise terminals.

The walkways, which may range from approximately 1,200 to 4,000-feet, would be equipped with an interior clearance space allowing for two-way travelators (moving walkways), shell door / gangway accessibility, movement via walking (if desired) and for trolley carts to provide transportation for disabled passengers along this core. The space would be air-conditioned and planning of the space should also consider the distance and time passengers will be in the space. Provisioning the individual vessels must also be considered. Pre-clearance of goods and service vehicles by CBP, stage areas for trucks, apron access, and an apron area wide enough to allow for these operations to function efficiently will need to be considered when master planning these sites.

The use of a terminal complex, instead of the traditional approach of one berth/one terminal, saves substantial real estate utilization at the Port and lessens the overall impact on cargo operations. However, this is a “visionary” master plan for the next 25-years and is meant to be utilized as a baseline for growth and improvement at the Port of Miami. Specific development will need to be driven by User need with a clear focus on operational costs, passenger services, and cost of the facilities. This set of factors may, over time, provide for a modified master plan development.

Working with the cruise line users and involving them in the decision-making process will not only improve the operational successes of the master plan development but also allow for enhanced relationship development between the Port and cruise line users. It is imperative that the Port continue to work with its cruise line partners as this master plan development moves forward through the sustainable planning of individual berth and terminal projects as well as upland support areas.

Additionally, it is noted within the mid and long-term master plan that Terminal “J”, the small ship cruise terminal facility located on the southwest corner, would be demolished to provide for new cargo capacity and be replaced through the addition of a new berth and green terminal on the North Channel in coordination with future need overall. The decision on when to do this will not be necessary at this time as it is based upon the Port’s business plan.

The southwest corner of the Port would also provide a future development area for mixed-use cargo, Ro/Ro and Ro-Pax ferry operations as may be dictated by future opportunities in the Caribbean, specifically Cuba.

FIGURE ES4.3: MID-TERM PREFERRED CRUISE PLAN ALTERNATIVE

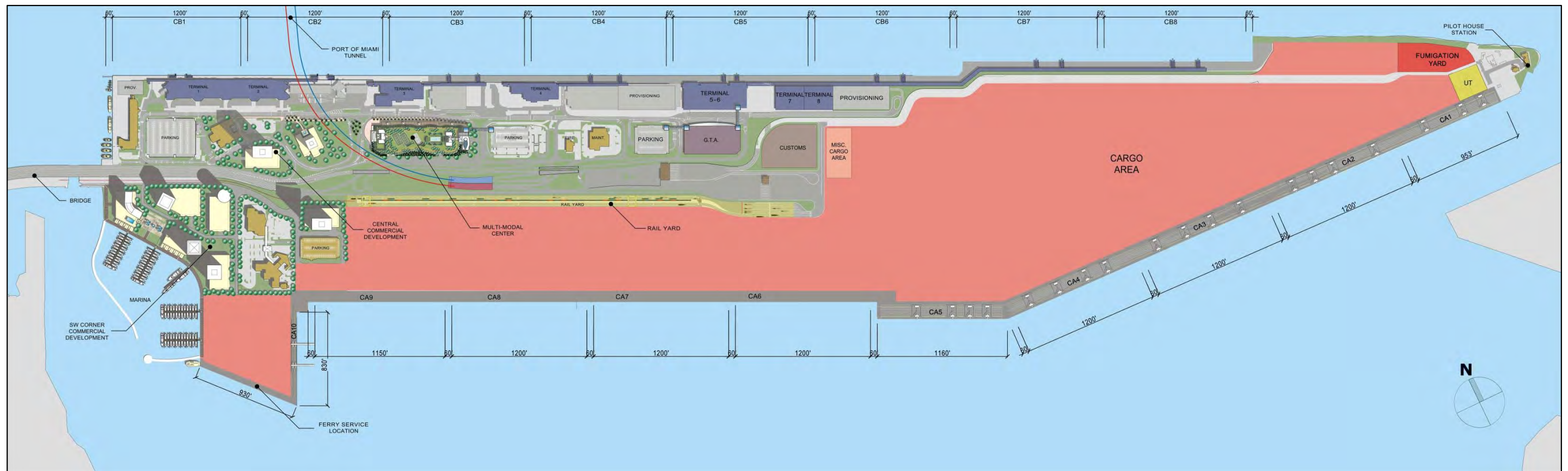
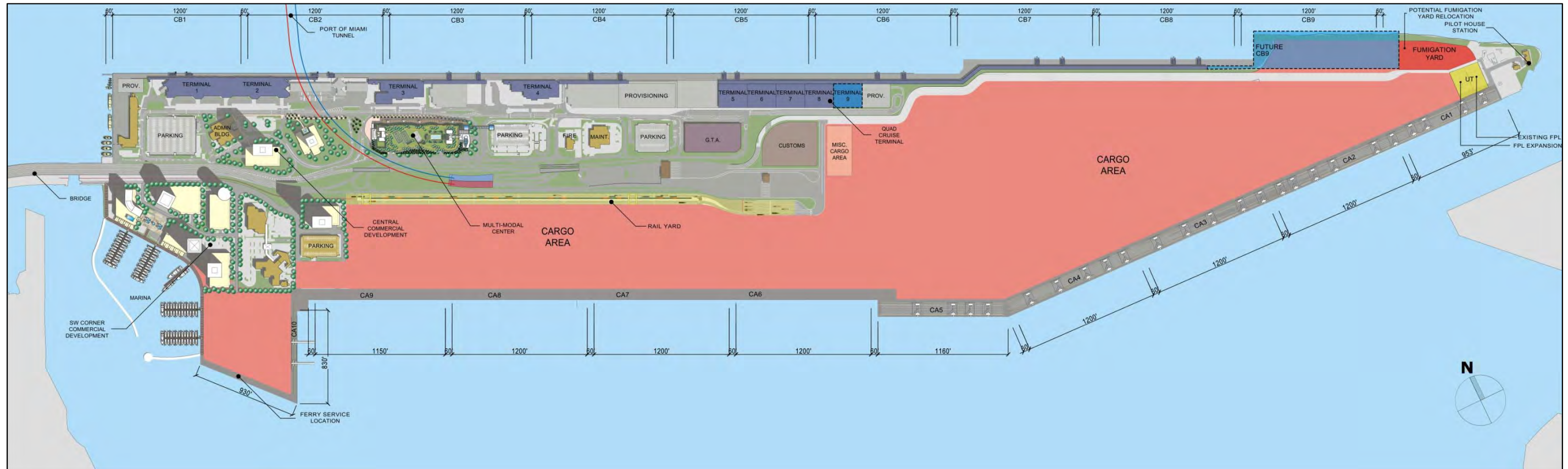


FIGURE ES4.4: LONG-TERM PREFERRED CRUISE PLAN ALTERNATIVE



SECTION ES5

CARGO

ES5.1 OVERVIEW

This section provides a summary of the projected containerized cargo throughput through 2035.

These forecasts are used as the baseline for the business plan and physical master plan efforts for the Port to determine future annual throughput capacities and facility demand.

The Port of Miami handles over seven million tons of waterborne containerized cargo annually. From 2000 through 2005, the Port’s tonnage increased steadily, growing at an average rate of about 4% per annum.

The containerized cargo activity handled at the Port is handled by three individual terminals occupying approximately 268 acres: Seaboard Marine, South Florida Container Terminal/Terminal Link (formerly APM Terminals), and Port of Miami Terminal Operating Company, LLC (POMTOC).

Latin American cargoes have typically accounted for about 45-50% of the Port of Miami’s total tonnage. Northern European cargoes have remained relatively constant at about 10-15% of the total, while Asian cargoes have increased from 15% in 2003 to nearly 30% in 2008. Conversely, Mediterranean, Middle East, and African cargoes share have been declining to less than 10%. It is anticipated that, as more direct, all-water services call the Port, the share of Asian cargoes will continue to grow.

Historically, growth at South Florida ports – Miami and Port Everglades – has averaged a modest 1.2% annually over the past ten years; however the 20-year containerized growth for these ports has been 5.4%. Specifically, since 1991, the Port of Miami has averaged 3.9% per annum.

Based on data from Moody’s economy.com, US real Gross Domestic Product is likely to grow between 2-4 % annually over next 5 years. Based on the 1.5X future growth rate, this equates to a 3% to 6% baseline growth rate in TEUS at US ports. Some ports will experience greater growth as a result of shifting trade patterns while other ports are likely to grow at lower rates. Similarly, Florida GDP is expected to remain between 2% and 4% through 2020.

It is anticipated that, over time, more Asian service will be introduced on all-water Suez and Panama Canal routings however, the Port of Miami will still remain heavily vested in an export market that serves Latin American and Caribbean countries with consumer goods and supplies that replenish the cruise and tourism industries. Historical and projected near-term growth was also examined in terms of gross domestic product (GDP) in the Latin American and Caribbean countries. According to the International Monetary Fund (IMF)’s World Economic Outlook (April 2011) the Latin American and Caribbean region’s GDP has experienced average annual growth rate of 3.4% over the past ten years. GDP growth rates for 2011 through 2016 are expected to average 4.1%.

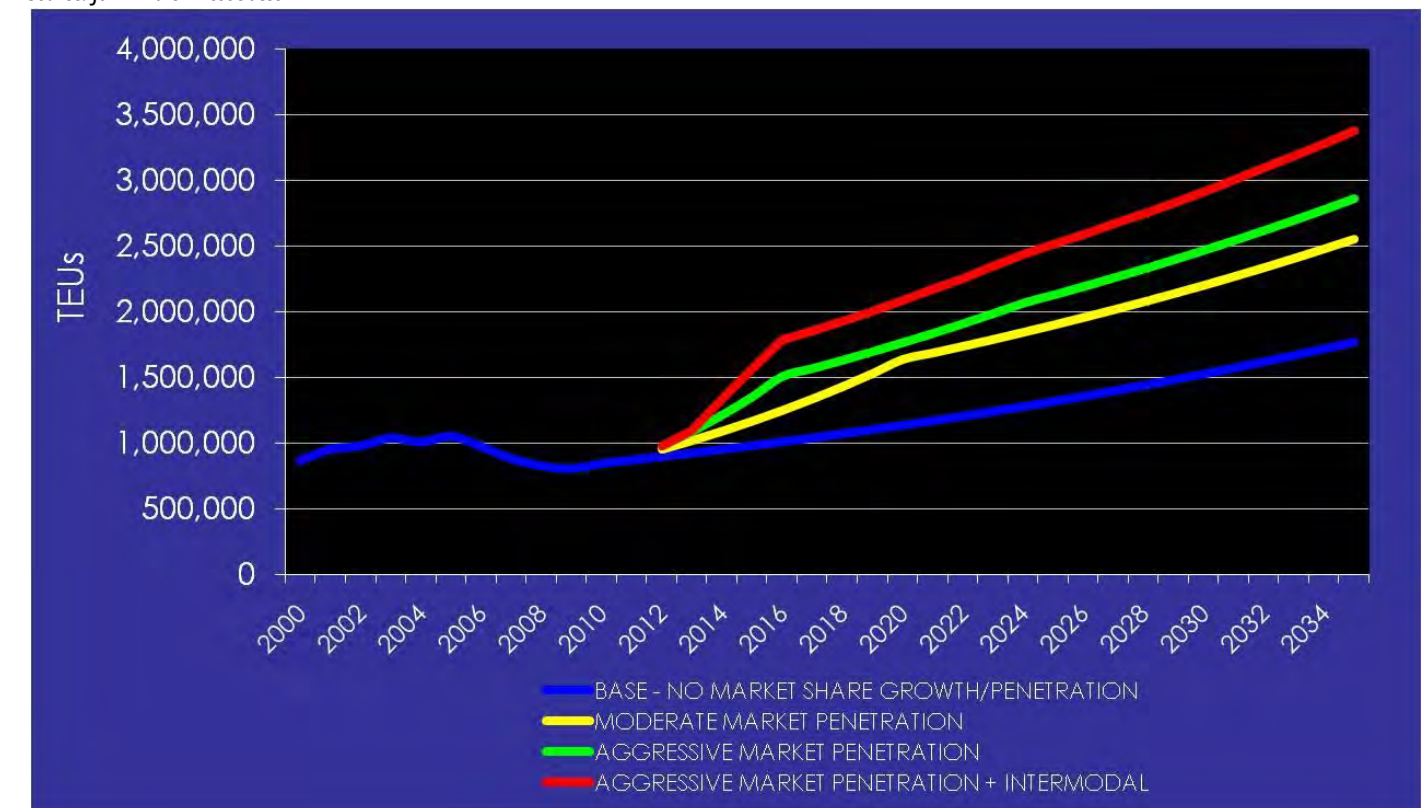
Based on the estimated FY 2010 containerized volume handled at the Port of Miami, interviews of Port terminal operators and carriers and future growth factors, a range of containerized forecasts were developed:

- Low scenario container forecast, with no new market penetration, assumes a 3% growth of FY2010 base cargo.
- The moderate growth penetration scenario incorporates the estimated 500,000 potential TEU market that the Port of Miami can capture; 50% of the local truck hinterland market and 25% of the Central Florida market by 2020, with a 3% growth thereafter.
- The aggressive market penetration scenario assumes the same 500,000 potential TEU market is captured by 2016, with a 4.5% growth through 2025 and 3% thereafter.
- The aggressive market penetration plus intermodal scenario assumes the same rate of capture of the local truck hinterland and Central Florida market as described in the aggressive scenario as well as an 18% intermodal share, assuming the Port deepens the channel to -50’, allowing for the ability to market to global carriers and handle a fully-laden first-inbound call.

By 2035, the unconstrained container throughput at Port of Miami is projected to range between 1.77 million and 3.38 million TEUs. The long-term growth rates of these scenarios range between 3% and 5.8%. The low/base, moderate, aggressive and aggressive plus intermodal container forecasts are graphically depicted in Figure ES5.1.

FIGURE ES5.1: PORT OF MIAMI LOW AND HIGH UNCONSTRAINED CONTAINER FORECASTS

Source: John Martin Associates



ES5.2 ON-PORT CARGO FACILITY DEMAND

In terms of current terminal capacity, the 828,349 TEUs handled over 268 terminal acres at the Port of Miami yielded about 3,200 TEUs per acre. This figure incorporates total gross acreage for all three cargo terminals. This TEU per acre

figure is fairly consistent with the East Coast average of 3,257 TEU per acre. Other Florida ports of Port Everglades and JAXPORT reflect similar densities under current configurations.

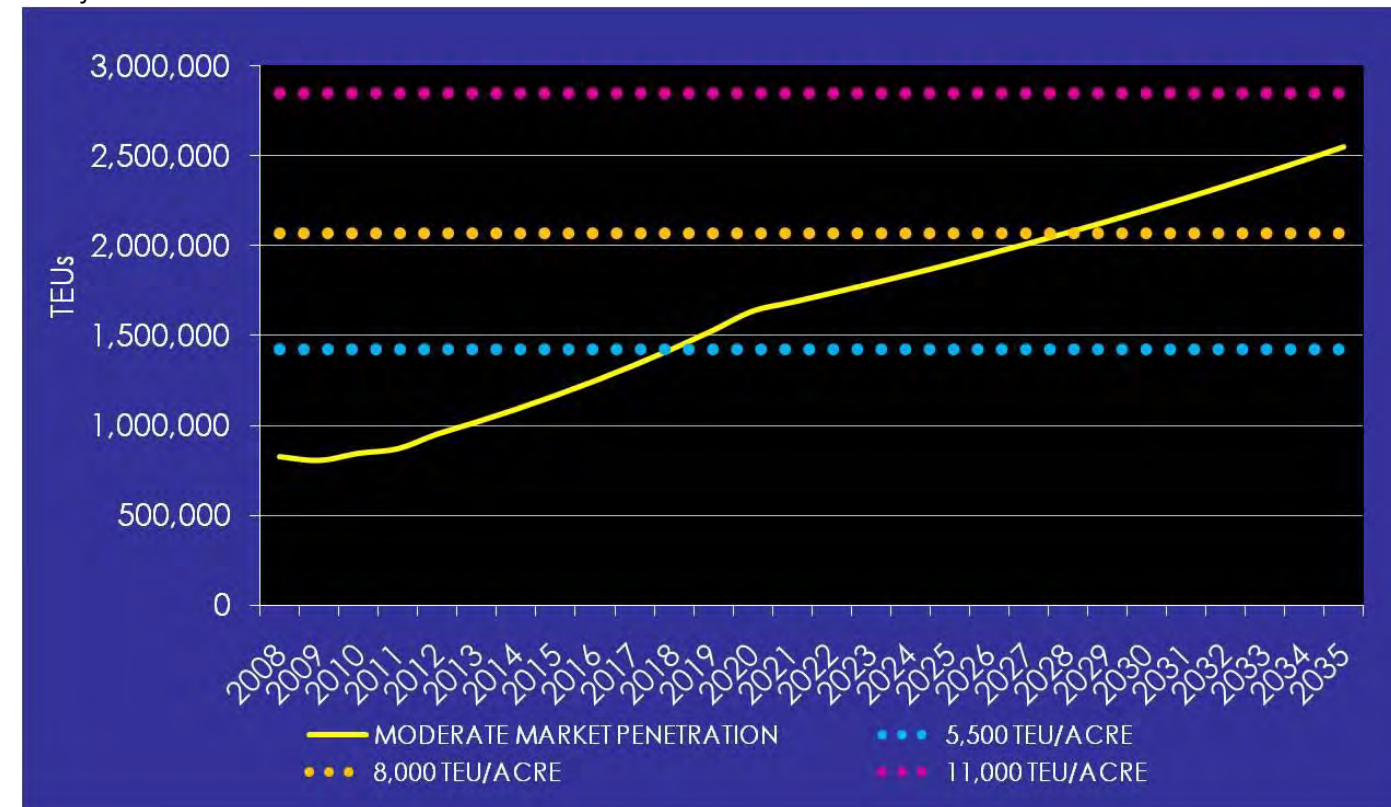
FUTURE ON-PORT CARGO TERMINAL CAPACITY

Based on the mid potential cargo projection scenario, the Port of Miami will be required to handle nearly 2.7 million TEUs in 2035. Using the current configuration of approximately 268 acres of gross cargo terminal area, this equates to about 10,350 TEUs per acre. Industry studies indicate that terminal density can increase to 11,000 TEU's / acre and eventually to 15,000 TEU's / acre without full terminal automation. However, to reach this level of densification, significant amounts of investment, including rail mounted gantry cranes (RMG) and other technology to minimize dwell times, will be required.

Figure ES5.2 illustrates the thresholds of capacity under various densification scenarios. This analysis suggests that, under the medium projection scenario, Port of Miami will approach densification of 8,000 TEU per acre in 2028. Assuming an 11,000 TEU per acre densification, the Port will not reach capacity in the planning period under the medium growth scenario.

FIGURE ES5.2: TEU PER ACRE PROJECTED CAPACITY THRESHOLDS

Source: John Martin Associates



Given these scenarios, the Port's terminals will need to densify in order to meet future long-term demand. This can be accomplished by:

- Reducing on-dock dwell times;
- Moving toward RTG and RMG operations;
- Improving gate efficiencies; and,
- Managing off-dock overflow yards, if necessary.

The levels of investment required to achieve this level of densification could result in higher operating costs per unit. It is imperative that there is a balance of maintaining reasonable cost per unit while gaining terminal efficiencies.

FUTURE BERTH CAPACITY

In addition to the landside constraints, future berth capacity must be taken into consideration. The average TEU per ship call has increased from about 350 to 510 since 2000. The average number of TEUs per call will most likely continue to increase. As larger vessel deployments occur on direct all-water routings, these vessels will discharge and load more units per call to ensure economies of scale of these larger ships. Currently the top 10 global carriers' fleets average about 3,600 TEU capacity per vessel. The order book for these same carriers reflects an increase in average vessel capacity to nearly 8,000 TEU per ship.

Based on industry standards, it is estimated that berth capacity can handle between 400,000 and 500,000 TEUs annually. The berth capacity analysis is based on 10,000 LF of berth – 6,700 of container crane and 3,300 of mobile crane berth operations. Assuming an average of 1,100 LF per berth, the analysis generates the need for 9 berths.

ES5.4 OFF-PORT CARGO FACILITY DEMAND

OFF-PORT DISTRIBUTION CENTER OPPORTUNITY

The potential for the Port of Miami to compete for distribution centers (DCs) to serve the Florida wholesale and retail markets is assessed in this section. This is due to the anticipated growth in Asian imports to the East Coast ports from increases in all-water direct services via the Panama and Suez Canals, and the accompanying growth in distribution centers near East Coast ports.

The Port of Miami finds itself in a unique situation by virtue of the fact that there is a significant parcel of land adjacent to the Hialeah intermodal yard that may be available for DC operations. The Flagler Property is approximately 400 acres and can be used for both intermodal and distribution opportunities. The following analysis focuses on this potential opportunity.

The Distribution Center (DC) and warehousing market in Florida has historically served not only retail and wholesale industries that serve the key consumption markets throughout the State with import and domestic shipments, but also the freight consolidators primarily located in South Florida and Jacksonville to serve the export Caribbean Island and Latin American trade as well as supply cruise vessels calling the Florida ports. The majority of DC growth in Florida has occurred in three regions:

- **MIAMI-DADE/BROWARD COUNTIES:** Serves the South Florida retail and wholesale markets; food wholesalers near the Port of Palm Beach, Port of Miami, and Port Everglades infrastructure serve cruise and island export markets; consolidators focus on near-airport facilities to also serve the air cargo market at Miami International Airport (MIA). There are also major highway and rail corridors linking the major cores of these areas.
- **I-4 CORRIDOR (TAMPA-LAKELAND-ORLANDO):** Serve growing population and tourism in Central Florida. Also ability to serve South Florida retail and wholesale markets; excellent highway and rail access from hinterland.
- **GREATER JACKSONVILLE AREA:** Increasing market share; ability to serve into North/Central Florida as well as westbound; inexpensive land, low congestion; excellent highway and rail access that can also access South Florida; high interest by Asian steamship lines to develop container terminals in JAXPORT.

Historically, the South Florida markets of Palm Beach, Broward, and Miami-Dade Counties have been significantly more expensive in terms of lease rates and operating costs than Central and Northern Florida. Miami-Dade County's current

industrial gross (IG) asking rate is \$7.48 per square foot. Industrial gross differs from triple net (NNN) leases in that in a NNN agreement, the lease pays for rent and absorbs the costs of utilities, building insurance, and taxes. In an industrial gross arrangement, these costs are included in the rent. The differential from NNN to industrial gross is about \$1.50 per square foot. Current NNN asking lease rates in Palm Beach and Broward Counties are \$ 6.71 and \$7.37, respectively. In contrast, NNN rates in Central Florida market of Tampa and Orlando range from \$5.27 to \$5.66 per foot. Furthermore, the Jacksonville area boasts a NNN asking rate of \$3.86 per square foot.

PORT OF MIAMI DISTRIBUTION CENTER SITE ANALYSIS

The Port of Miami can compete with the Central and Northern Florida locations to serve the Florida consumption market with DC operations in Hialeah or Medley. The Flagler Property, which provides significant industrial acreage and intermodal access, exists and is available for development. The size of the parcel, coupled with the fact that smaller to mid-size DCs are becoming the trend, allows the site to pose as a potential multi-tenant complex. It is recommended that the Port continue to work in conjunction with Flagler and other involved parties including the Florida East Coast Railroad (FEC) to market this site to carriers, developers, and DC operators (shippers/consignees).

ES5.5 CARGO LAYOUT ALTERNATIVES

The options for providing for the cargo needs at the Port are affected by the cargo projections, input from the current leaseholders of the cargo terminals, and the longevity of the leases that the Port has over the current Port lands.

Since the cruise plan calls for the extension of cruise berths along the north shore of the container yard, the main component of the plan is to reroute the main access road to all of the container terminals on Lummus Island from that location. The plan proposes a new cargo access roadway allowing for the expansion of the cruise berths CB 7 to CB 9, and the access to each yard, fumigation yard, pilot station, and the utilities zone at the far eastern end of the Port.

To provide the Port and Users with future sustainable yard flexibility, the approach to flow cargo traffic from the main gate complexes to the north along the cargo/cruise boundary and into the cargo yards has been taken. The specific gates for each yard, configuration and acreage of each, layout of support facilities, and containers is then only dictated by the available space within the yard and not affected by outside issues. As noted in the cruise section above, the addition of the new cruise berths on the North Channel impacts the cargo yard acreage in that area. Access to the Seaboard cargo yard will continue to be organized in a similar fashion as today following the implementation of their master plan and gate complex.

ADDITIONAL LAND

Based on the analysis shown in the previous section, the plan will be to optimize the use of the current land within the port for cargo operations. As such, in a range from 2027 to 2029 more space will be required. It is possible that some of this need may be offset by increases in overall yard efficiencies and new technologies related to the improved handling and movement of boxes to and from the Port and yards.

Impacts on Port of Miami cargo operations will be seen in two specific upcoming projects: The Port of Miami tunnel project which has started construction as of May 2010 and is scheduled for completion in 2014, and the new deep dredge project on the South Channel that will allow for 50+ feet of draft for larger cargo vessels to enter and use the Port of Miami facilities. These projects together will assist in positioning the Port for the widening of the Panama Canal and the opportunity to service these large vessels capable of transiting from the Pacific to Atlantic once the canal project is completed in 2014. The development of these projects will serve as a new opportunity for the Port to expand its cargo operations to the outlying regions of the southern U.S.

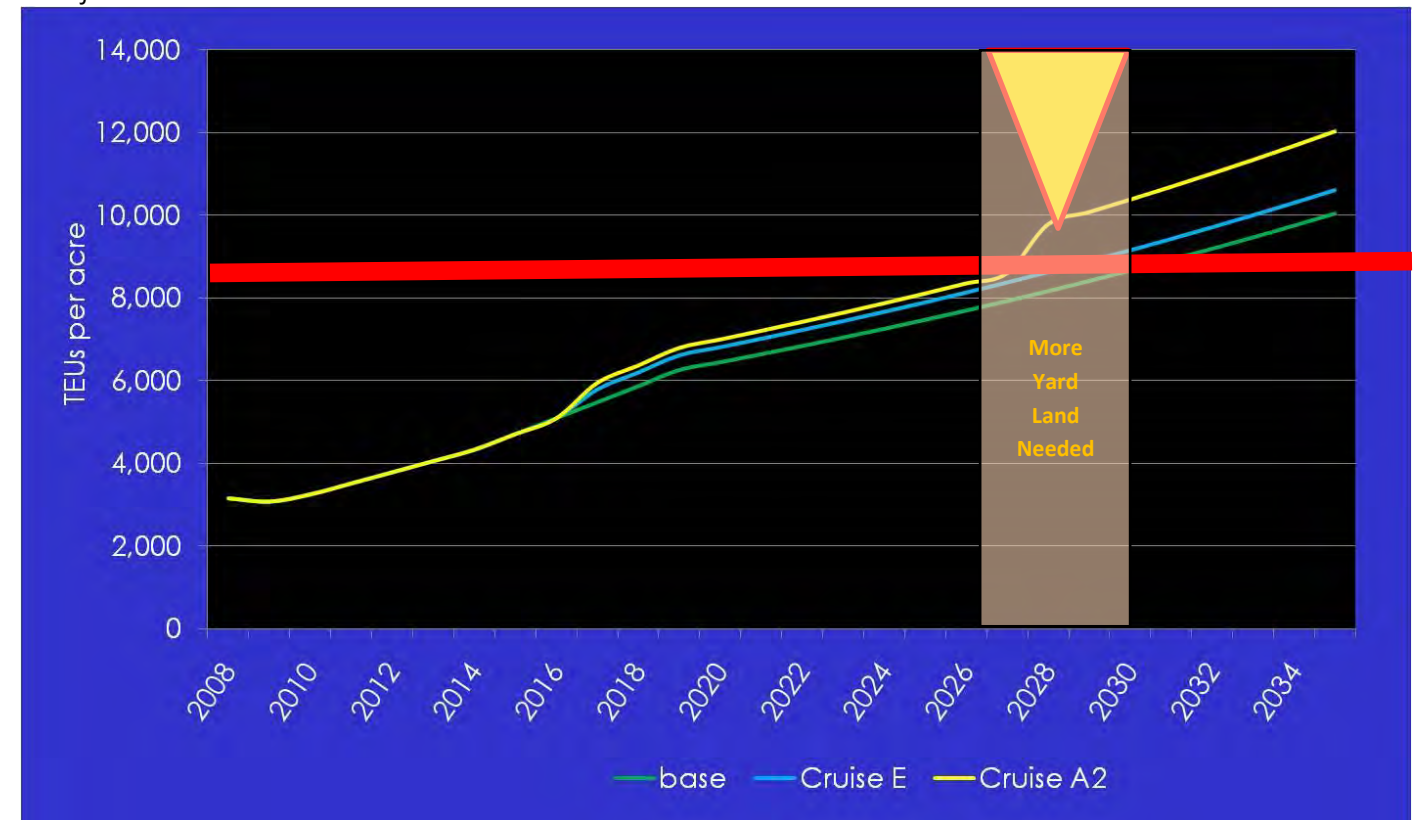
Additionally, planning and design enhancements to the Port security cargo gate complex have also started and will provide for further efficiencies to cargo movements. Although this was not a key part of the master plan project, it is evident that

this is a key barrier to the cargo yard efficiencies. The operations of each cargo operator are different and it is not an easy task to facilitate changes that impact each user. However, improvements to allow for faster movement in and out, box scanning capabilities, pre-clearance of trucks, and other related gate issues should be further explored as part of the overall tunnel and master plan.

See Figure ES5.3 for the TEU's per acre forecast for the Port of Miami.

FIGURE ES5.3: TEU'S PER ACRE FORECAST

Source: John Martin Associates and B&A



ES5.6 CARGO LAYOUT

Most of the cargo operations are consolidated in Lummus Island and the south side of Dodge Island. However, transit shed B is an isolated building still handling cargo while adjacent to cruise terminals. This creates operational issues and does not allow for efficient use of space; customs is in a tight space for access.

The recommended cargo master plan layout provides for consolidation of cargo yards and supporting functions and the ability for future expansion to coincide with projected TEU throughput demand and reconfiguration of the cruise area. In doing so, a separation of cruise and cargo will occur.

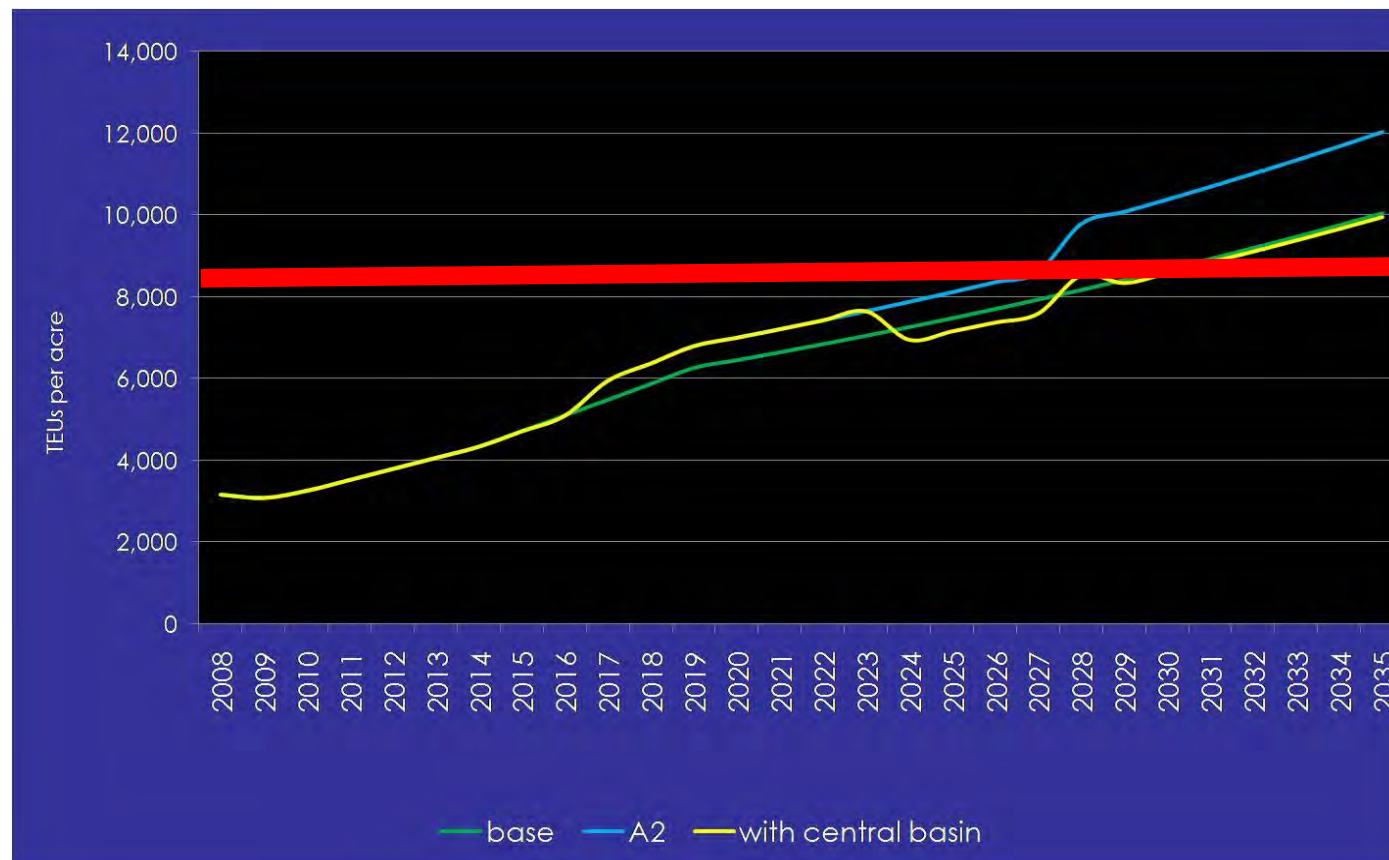
A new space for the transit shed B to allow for continued use of these facilities for bulk commodities will be provided. The Customs area will be expanded and moved to a location adjacent to the gate complexes that can also serve to support cruise operations functions as necessary and the present fumigation yard will be relocated to allow for the safe distance required for use, placing it in an area where it will not impact future cruise and cargo area development.

The master plan also takes into consideration current actions by Seaboard to develop their yard plan. South Florida Container Terminals is most impacted by the reconfiguration of the cruise and cargo areas due to the location of the yard gate complex. This will likely need to be relocated to provide for the completion of the master plan as presented.

To offset the potential loss of cargo yard as land is reallocated to cruise, it is recommended to expand the cargo area along the southwest corner edge by some 13.46 acres to provide a platform for future cargo operations. This expansion program would cost the Port an estimated \$111,800,000 and would include the addition of two 830 to 927-linear foot berths with an area of 4.20 acres. This area would provide for potential river traffic interaction, Ro-Pax and Ro/Ro services.

Figure ES5.4 provides an overview of the projected requirements of TEU's per acre. This forecast was used as a baseline for the cargo master plan development. As shown, when levels reach approximately 8,000 TEU's per acre, there is a need for additional land area to meet the projection demands.

FIGURE ES5.4: TEU'S PER ACRE FORECAST WITH CENTRAL TERMINAL



The proposed long-term master plan provides for 13,252 linear feet of berth. Existing bulkheads along the channel will remain and current Port plans will further enhance these areas. These projects will be done in conjunction with the deepwater channel dredge project. Based upon the cargo market demand projections, the Port of Miami will require additional cargo land in:

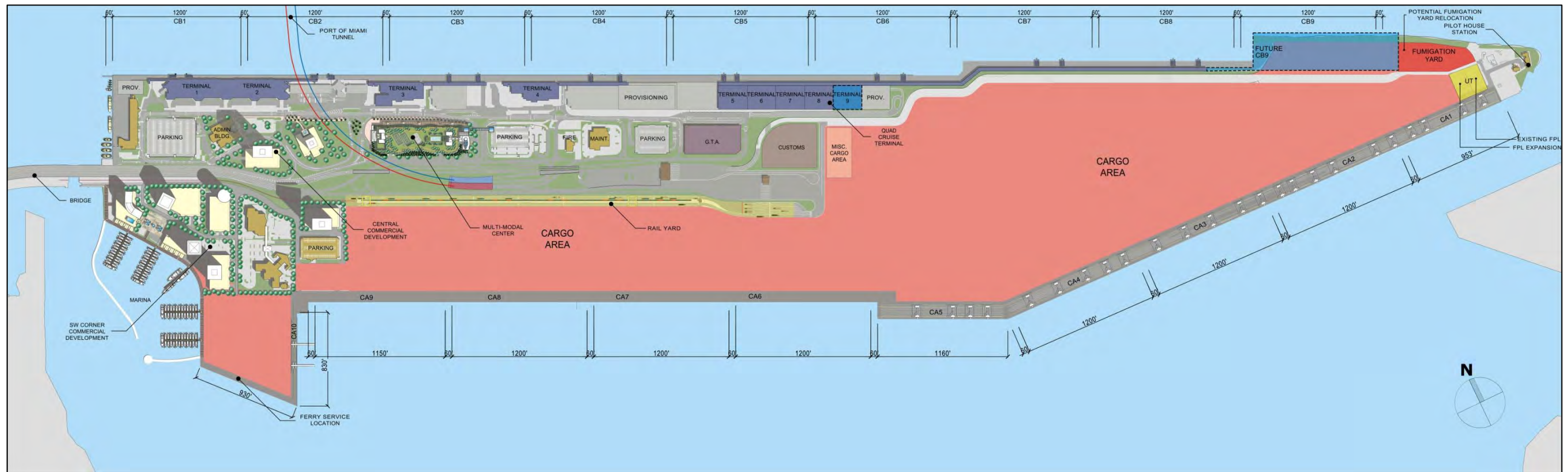
- 2023 with cruise Alternative A1; or,
- 2030 with cruise Alternative A2.

This assessment takes into consideration the acreage lost to cruise development and the addition of land with the new southwest infill. There will be a need for further detailed operational modeling prior to the sustainable development of any new cargo land areas to ensure there is adequate need based upon the TEU per acre metrics.

New berths for cargo will be required in 2029 with a total of 23 cranes by 2034 to meet the cargo market demand based upon the forecast. There are 16 operational cranes at present in the Port of Miami (including 5 operated by Seaboard). Four additional cranes are currently on order and will be placed at the Port as required to meet the operational needs of the Users with these additional cranes being planned for 2014 to coincide with the opening of the widening of the Panama Canal and new Port channel dredge efforts. Three existing gantry cranes (two of which are in use) will then be decommissioned. They have already been sold to another port in the region. Additional units would be added as the vessel sizes expand and new berth area is needed with the first of the master plan cranes being required in 2028 based upon projections. The projections include the entire cargo yard throughput inclusive of the Seaboard Marine facility that currently does not use the large mobile gantry container cranes for the movement of its cargo from ship to shore. See ES5.5 for the Cargo Long-Term Master Plan.

The additional cranes are projected based upon a productivity rate of 40 TEUS per hour and an overall maximum utilization rate of 2,000 hours per year per crane. The actual deployment of new gantry cranes may fluctuate based upon peaking factors, yard and gate efficiencies and other factors. As such the Port of Miami will need to monitor the overall yard effort to accurately time the purchase and deployment of new cranes, as is the case with the deployment of four new cranes to coincide with the completion of the widening of the Panama Canal and dredge project. Thus, actual implementation is a combination of operational needs, financial assessment and throughput over the next 25 years.

FIGURE ES.5: PROPOSED LONG-TERM MASTER PLAN



ES5.7 ON-PORT RAILAND OFF-PORT CARGO OPERATIONS

The Port of Miami currently has an existing rail spur of approximately .57 miles in the Port. To provide for the reduced cost benefits associated with an intermodal link, a new on-port rail yard is planned for better accessibility for container movements from and to the Port. The rail yard will be incorporated into the long-term master plan. The yard would use the existing corridor and linkages to the Hialeah FEC yard as its base. The layout of the off-site rail yard is a separate master plan element. It is envisioned that the yard would be accessed by container haulers via a security gate system, assigned a train unit, and then off-loaded by a picker system onto double-stacked trains. The rail reduces truck trips by several hundred thousand trips per year. This will improve road safety, while reducing fuel consumption, oil dependence green house gas emissions and road degradation.

The total yard area would be approximately 9.5 acres and reside adjacent to the tunnel access to the Port and Seaboard Marine yard. The total length of the intermodal rail yard is approximately 2,750-feet. The cost for the on-port rail portion and bascule bridge component of the project is approximately \$22.7 million plus an additional \$2.3 million for RTG equipment.

This rail yard would be used to stack and unload boxes from trains arriving and departing in the nighttime hours, thus not impacting downtown Miami traffic along Biscayne Boulevard. The train could either be used for direct service or interim service to a multi-modal transshipment yard close to the Miami International Airport. This provision provides another tool for marketing the Port and allowing the cargo yard users to compete in the Florida and Southeast U.S. market. It also establishes a sustainable cost effective direct rail service to and from the Port of Miami to lower transportation costs for shippers.

SECTION ES6

COMMERCIAL

ES6.1 OVERVIEW

One of the new strategic elements of the Port of Miami will be the introduction of commercial aspects to the business portfolio. The sustainable development will provide the Port with another avenue for generating revenues from the Port’s land resource. In many ports throughout the U.S., commercial real estate income is one of the largest revenue figures for the business. Examples include the Port of San Diego and Port of Seattle, among others. The Port of Miami has spare land assets that allow for commercial development opportunities. The Port of Miami’s weakness as a Central Business District “downtown” port can be exploited as a major strength in this regard. Furthermore, this allows the Port to develop a much needed “third leg” of the financial stool to provide additional strength to its portfolio of assets and earnings potential. The three “C’s” include:

- Cargo;
- Cruise; and,
- Commercial.

Land and waterfront surrounding and adjacent to the existing southwest corner can be used to create a commercial complex for future port development opportunities.

The Master Plan focused on existing properties within the Port which could be developed or redeveloped without impacting the primary business of the Port or requiring land fill. The Port contains some parcels which have been isolated due to the roadway network, or which now have poor waterborne access and can no longer fulfill a maritime mission.

ES6.2 SOUTHWEST CORNER COMMERCIAL DEVELOPMENT

Lying adjacent to a newly created cargo expansion area, the introduction of new commercial opportunities for the Port will strengthen its financial position and provide growth options into the future. Development of this area will be further defined in the phasing and implementation sections of the master plan report.

The key element of the Southwest Corner is the introduction of a mega-yacht marina complex that would anchor the surrounding commercial development and provide for an active area. This would provide a mirror for Bayside and may enhance development opportunities on the mainland as well over the master plan period. Immediately adjacent to the marina would be a waterfront promenade with retail and restaurant areas. This development would ideally work in conjunction with the cruise area to provide early arriving passengers the opportunity to spend quality time in Miami prior to their cruise. Arrangements could be made to allow cruise passengers easy transportation options to and from the cruise terminals or intermodal facilities for this purpose via electric shuttle buses. See Figure ES6.1.

FIGURE ES6.1: SOUTHWEST CORNER COMMERCIAL DEVELOPMENT ZONE



ES6.3 ZONING AND ADVERTISING

To better address the needs of its tourist, the Port must develop a comprehensive Wayfinding and Advertising Signage Program. Both Wayfinding and Advertising are consistent with this Master Plan's concept to further explore commercial development on-port. By creating a comprehensive Signage Master Plan the Port will create a more efficient flow of traffic and people on the island while advertising will increase revenue with minimal costs.

The Port will need to develop a comprehensive signage master plan. It will also need to rezone to a designation which will allow commercial signage for advertising. The Port must do a thorough analysis of alternative types of signs that can be installed which will not compromise the aesthetic integrity of the surrounding community. In addition, the Port should look at designs which integrate architectural and artistic components. *As a component of this Master Plan a Way finding and Signage Analysis Report was assembled and included as part of the Appendix.*

SECTION ES7

PREFERRED PLAN

7.1 OVERVIEW

As outlined in the previous sections, the preferred 2035 Plan for the Port of Miami encompasses elements of cruise, cargo, and commercial. The preferred plan is generated through the cruise and cargo 2035 projections, feedback from Port Users and Port of Miami staff, and a review of associated issues and sustainable opportunities over the long-term. The assembly of the plan followed a logical order in the development of cruise and cargo market assessments, definition and assembly of cruise and cargo design vessels and future berth demand requirements, financial and physical analysis of the Port properties, recognition of the role of future technological and operational advancements in the cruise and cargo sectors enhancing operations, needs of the surrounding communities and environment and the development of a third financial leg for the Port with the addition of a commercial component. The plan is shown in Figure ES4.3, ES4.4 and ES5.5 above. Figure ES7.1 shows an alternative layout for the cruise portion of the long-term plan.

FIGURE ES7.1: PREFERRED LONG-TERM MASTER PLAN ALTERNATIVE TERMINAL LAYOUT

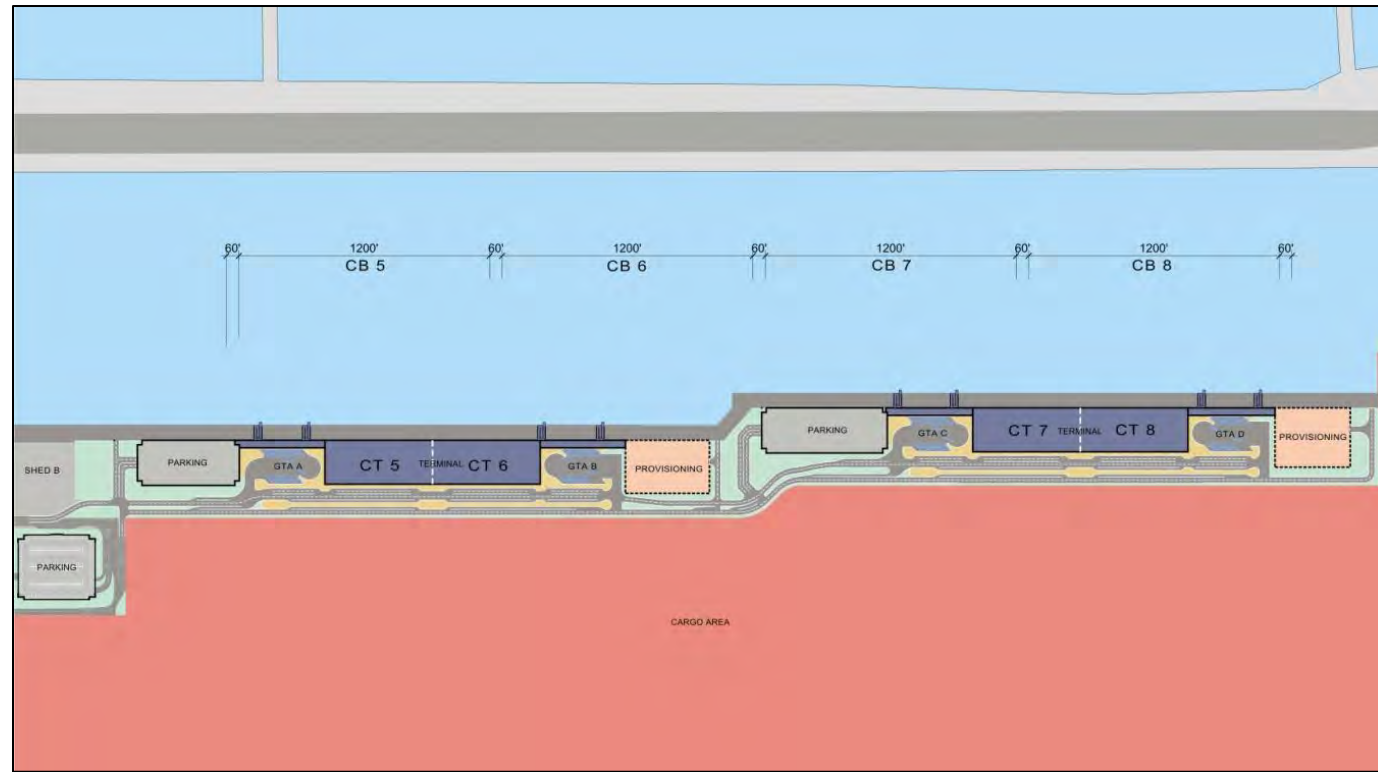
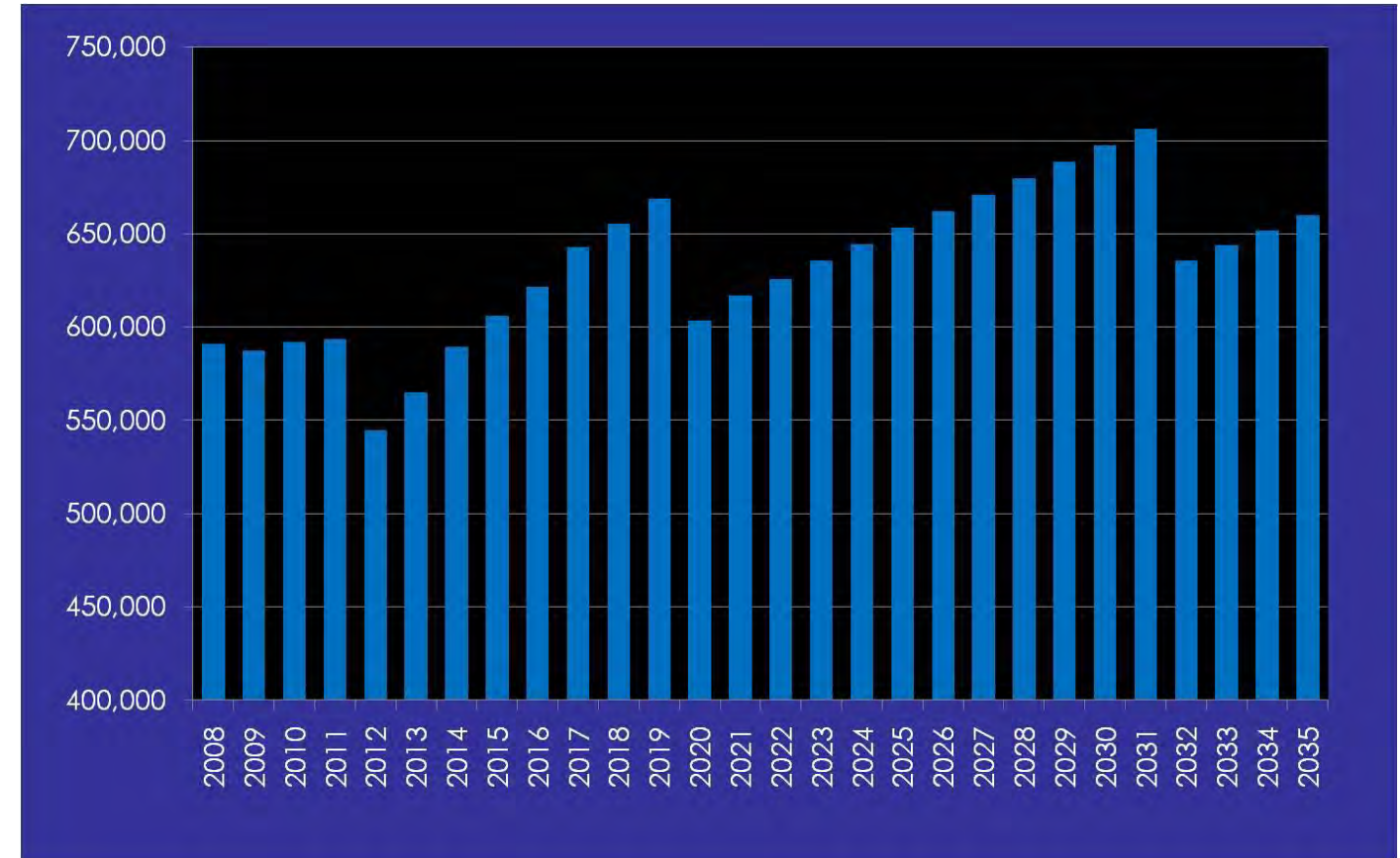


FIGURE ES7.2: CRUISE METRIC - PASSENGERS PER BERTH



ES7.2 METRICS

To measure the effectiveness of the plan, a number of parameters were reviewed that allow continuous tracking to make sure that the plan is as efficient as possible. Subsequently, in the financial section of this Master Plan, the financial performance metrics are included that allow comparisons of the multiple uses within the Port. If implemented in concert with the anticipated traffic, the Plan will perform with the following operational performance metrics in cruise and cargo:

CRUISE

Since cruise is berth-intensive, the best metric is the cruise passengers per berth that is shown in Figure ES7.2. This metric is the best indicator of efficiency. Currently the Port is operating with less than 600,000 passengers per berth.

Although this is at the top of the industry, as cruise ships increase in size, these numbers should go up. The chart reflects a stair step pattern which is due to the introduction of new berths on a particular year, and thus reducing the overall averages. Should the Port exceed the approximately 650,000 to 700,000 passenger per terminal mark, the facility should be generating sufficient revenues to support its costs.

CARGO

For cargo, being both berth and land-intensive, two metrics are the most indicative of efficiency: TEU's per acre as shown in Figure ES7.3 and TEU's per lineal feet of berth as illustrated in Figure ES7.4. The throughput of containers per berth fluctuates as the business evolves and new berths are constructed at the Port.

FIGURE ES7.3: CARGO METRIC - TEU'S PER ACRE

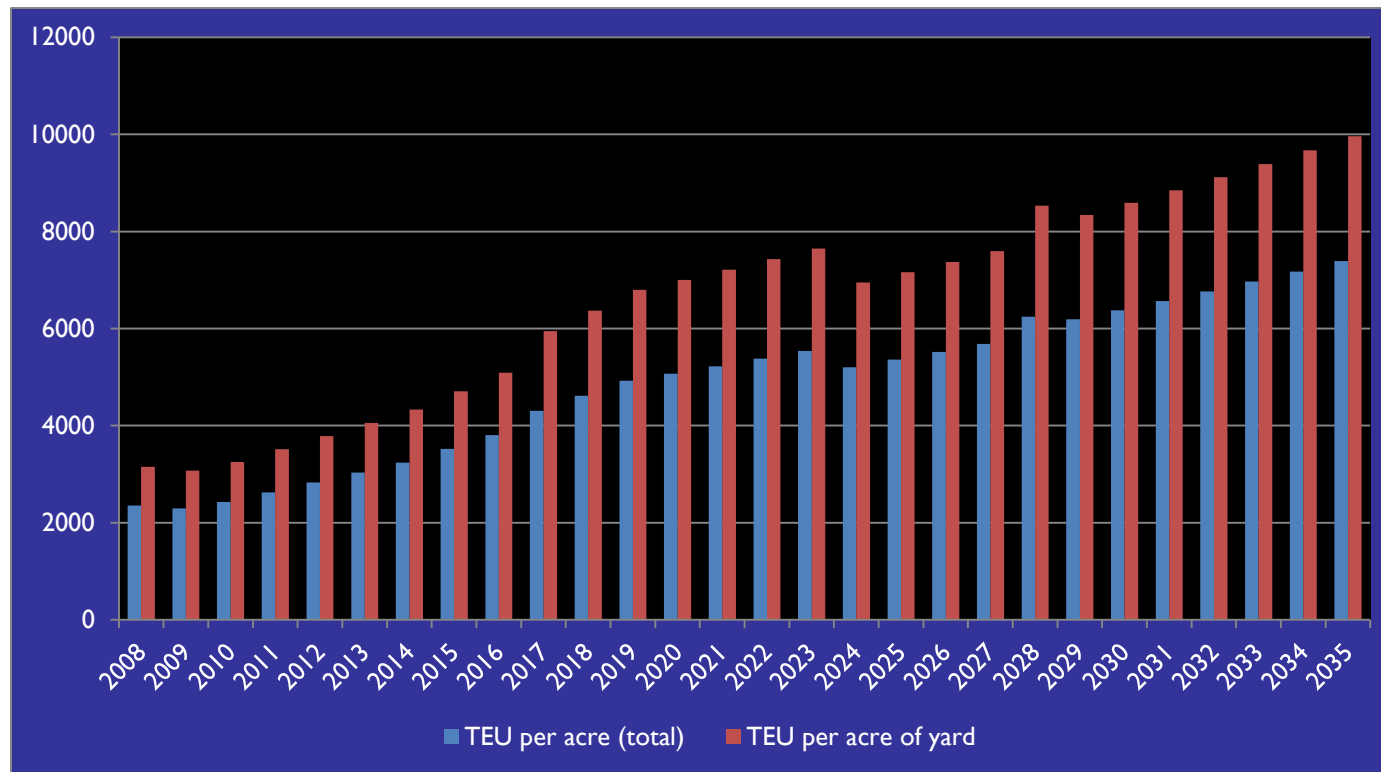
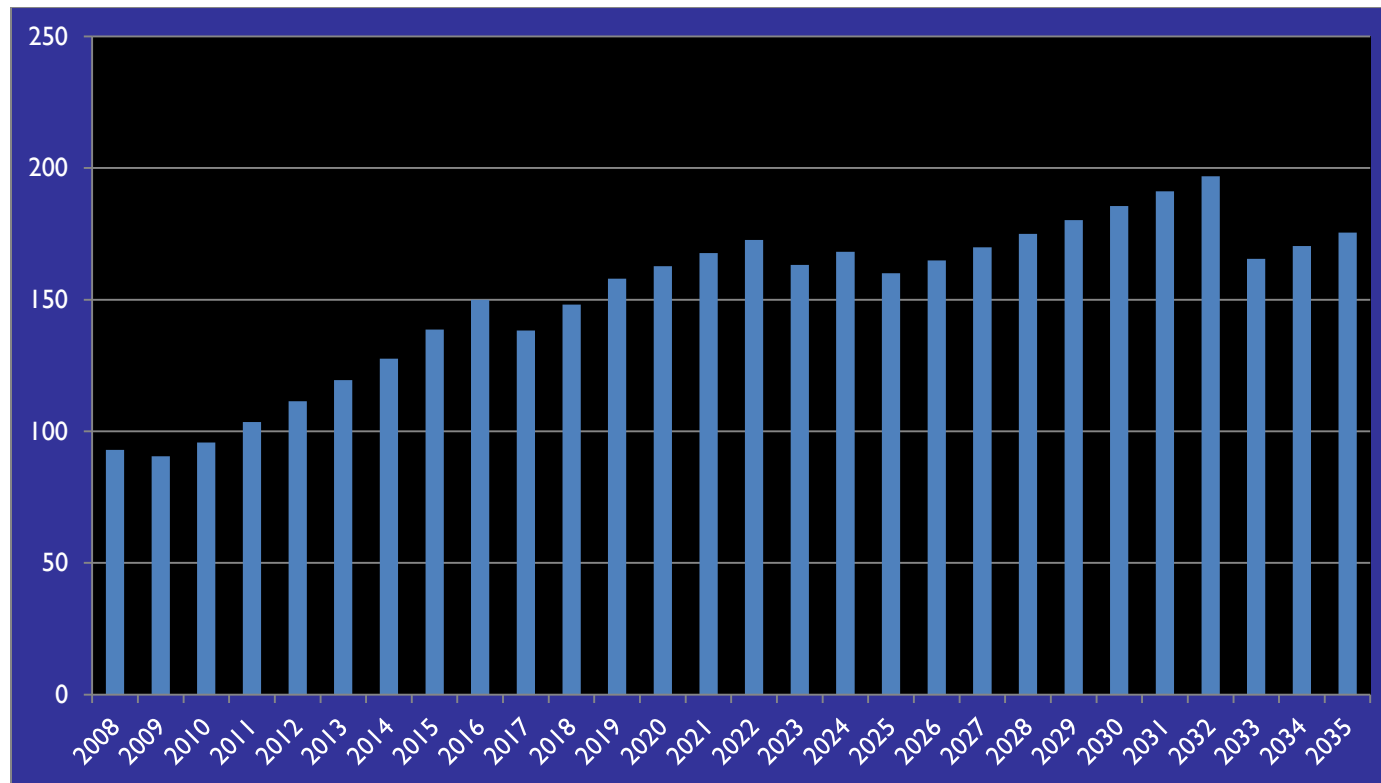


FIGURE ES7.4: CARGO METRIC - TEU'S PER LINEAL FEET OF BERTH



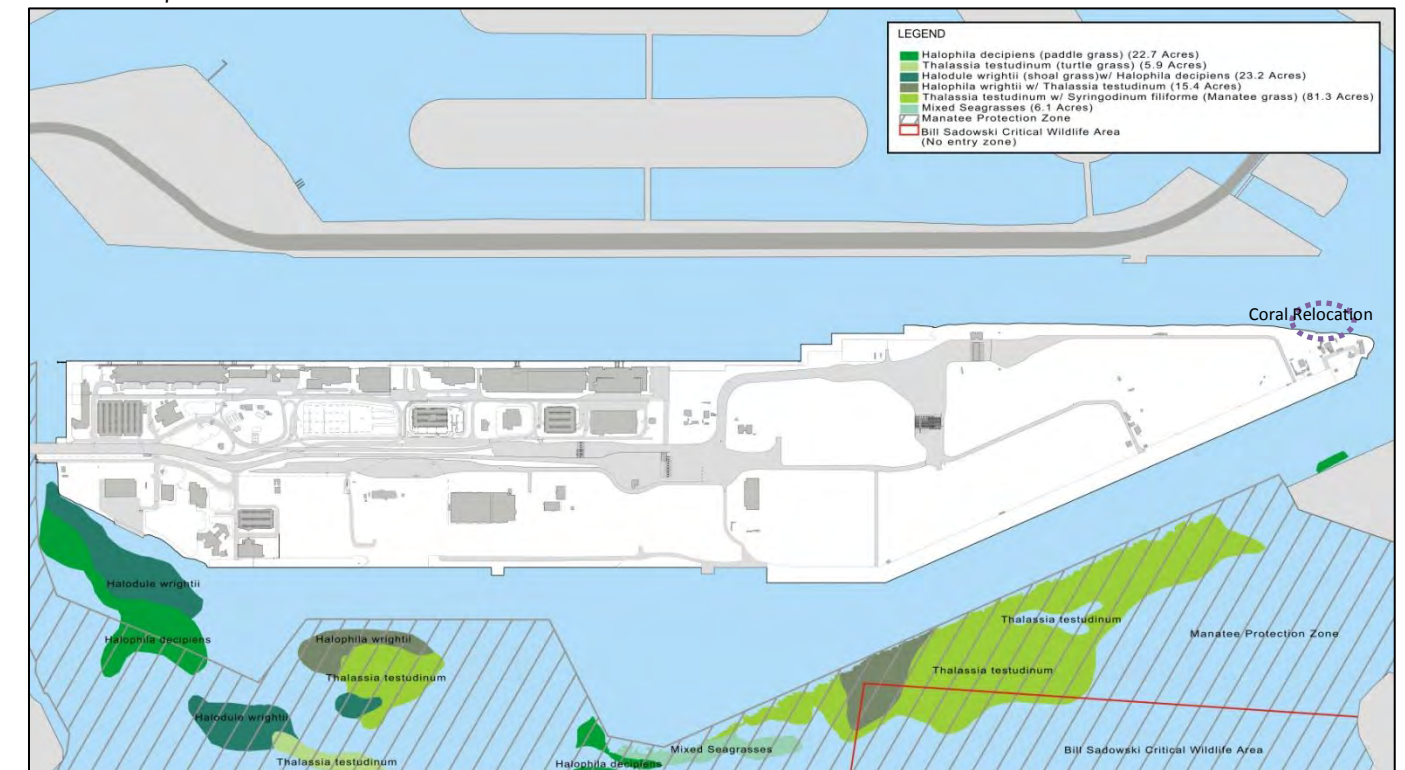
As with the cruise metric, the stair-step pattern shown in Figure ES7.4 reflects the justification for the addition of land to the cargo area when the program begins to near the 8,000 TEU's-per-acre thresholds. In the Plan, the Southwest corner land reclamation is scheduled for approximately 2023.

ES7.3 ENVIRONMENTAL

Located within the Biscayne Bay Aquatic Preserve, an area designated by the State of Florida for special environmental protection, the Port of Miami is a manmade land structure formed through beneficial land reuse of three spoil islands (see Figure ES7.5). The Port also provides for a coral relocation site along the northeast corner of the port boundary to assist in mitigation tied to port sustainable development projects.

FIGURE ES7.5: EXISTING ENVIRONMENTAL MAPPING, PORT OF MIAMI AND SURROUNDS

Source: Westthorp & Associates and B&A



Although estuarine conditions (i.e., water quality and movement) in the vicinity of the Port are generally good, human-influenced changes have resulted in increased overall turbidity and water quality awareness due to input from industrialized canals (e.g., the Miami River). The Port is well flushed by tidal action and Port-related activities are unlikely to impact natural environments outside the Port vicinity.

The proposed North Channel Cruise Terminal Expansion has been designed to accommodate more berthing area for cruise lines. The development of this expansion will involve new bulkhead construction along the seawall eastwardly adjacent to the current cruise line berthing area. Environmental impacts to the Port and its proximity are minimal for this project since it is located in an already much disturbed and altered area.

It is expected that the Port will conduct mitigation measures for this project type. The normal mitigation is to create one cubic yard of rip-rap for each linear foot of new berth or most likely the establishment of an artificial reef based upon this

formula plus dredging of 1 cubic yard of rip rap for every 100 cubic yards of dredged bottom material. The Port will also relocate any existing corals to its established coral relocation site.

The North Channel is currently at a depth of 36 feet below sea level which does not provide the proper environment for sea grass to thrive due to the lack of sunlight. In the barren soft bottom communities that dominate the Port, wildlife is limited to a few burrowing animals and a few other burrowing invertebrates.

The Southwest expansion, located in the southwestern corner of the Port adjacent to the current Western Turning Basin, is designed to potentially accommodate a marina for vessels, a ferry, and a transshipment area. Although the exact layout of the expansion has not yet been determined, filling will be required and will consist of approximately 17.51 acres. The chief environmental concern associated with this project is the unavoidable removal of sea grass in the area. These sea grass beds provide low-to-moderate quality habitat for some juvenile fish and invertebrates and are also a staple to the endangered West Indian manatee. Due to the proposed marina on the southwestern side of Dodge Island, the Port will need to conduct mitigation activities for the sea grass that will be displaced. Providing for marina in an existing marine environment with the Port of Miami will mitigate other potential impacts into the future that may occur if such a marina facility would be placed in another location outside of the traditional port area.

GLOBAL CLIMATE CHANGE AND NATURAL DISASTER PLANNING

Southeast Florida has experienced 34 hurricanes between 1994 and 2007, nine of which were a Category 3 or above. During Hurricane Andrew in 1992, record high flooding occurred due to 17 feet of storm surge.¹ In addition, flooding due to torrential rainfall or a rise in sea level poses a serious threat to portions of Miami-Dade County, specifically in low lying areas such as Dodge Island (Port of Miami).

CLIMATE CHANGE AFFECTING THE PORT OF MIAMI

One of the biggest concerns involving the future of the Port of Miami is global climate change and the threat of sea level rise. Sea level rise, one of the likely effects of global warming, is a major threat to all coastal communities and infrastructure. Along much of the Florida coast, sea level has been rising at a rate of 7 to 9 inches per century.² In response to this matter, the Miami-Dade Board of County Commissioners passed an ordinance to establish the Miami-Dade Climate Change Advisory Task Force (CCATF) to provide technical assistance and advice on mitigation and adaptation with regard to global climate change. The scientists on the CCATF predict a rise in sea level of at least 1.5 feet in the next 50 years as reported in their Second Report and Initial Recommendations approved in March 2008. A 2-foot rise in sea level would result in spring tides at 4.5 to 5 feet higher than present mean sea level.³ This would cause frequent flooding of barrier islands, fill islands, and low-lying mainland areas as the Port is classified. Areas along the coast are assigned a ranking from low to very high risk, and the Southeastern Coast of Florida is considered at high risk.

Of major concern is Dodge Island whose elevation is approximately 7.5 feet NGVD with a base flood elevation of 10 feet NGVD, while the elevation of Lummus Island is approximately 11.5 feet NGVD. During Hurricane Wilma in 2005, Dodge Island experienced severe flooding and minor damage while Lummus Island did not experience effects to the same degree. Dodge Island may be more susceptible to damage and flooding due to sea level rise and storm surge than Lummus Island. Dodge Island's elevation should be raised to a minimum of 10 feet NGVD, which is the FEMA base flood elevation. The Port must also consider future project modifications that may reduce or eliminate the adverse impacts from sea level rise and evaluate the structural integrity of structures near the ocean that are subject to potential hazards caused by sea level rise.

¹ Miami-Dade County, FL Comprehensive Emergency Management Plan. June 2008. Miami-Dade County Department of Emergency Management and Homeland Security Plan

² *Climate Change and Florida*, September 1997, EPA.

³ *Second Report and Initial Recommendations*, April 2008, Miami-Dade County Climate Change Advisory Task Force.

PERMITS

In the past 30 years, the Port has completed several expansion and improvement projects. All of these projects are examined on a project-by-project basis in reference to mitigation and permitting requirements.

An Ocean Dredged Material Disposal Site is already in place, its capacity may not be sufficient to contain the footprint of dredged material from future projects beyond the already approved – 50 ft. dredge. In keeping with the Port's Sustainability Committee's initiatives to reduce waste during construction, the Port should decant the water at a permitted location and coordinate possible beneficial uses of the remaining material for future projects that require fill, if possible.

SUSTAINABILITY

The Master Plan is underpinned by thoughtful consideration of future sustainable development in environmental, social and economic terms. This process considers the surrounding areas and outlines projects that will help preserve and improve conditions.

ES7.4 TRANSPORTATION

Port traffic is generated from cargo, cruise and other commercial operations within the Port. Determining traffic impacts that may occur to the adjacent roadways based upon the 2035 Master Plan projects shown within the preferred plan, and the anticipated Capital Improvements Projects (CIP) already planned for by the Port, is required to understand the overall impacts these future expansion efforts play for the Port of Miami and downtown core. Additionally, the creation of another access way to and from the Port of Miami via tunnel also provides for a different level of impacts to the surrounding roadway system. The traffic impacts were determined based on the following preferred plan program elements⁴:

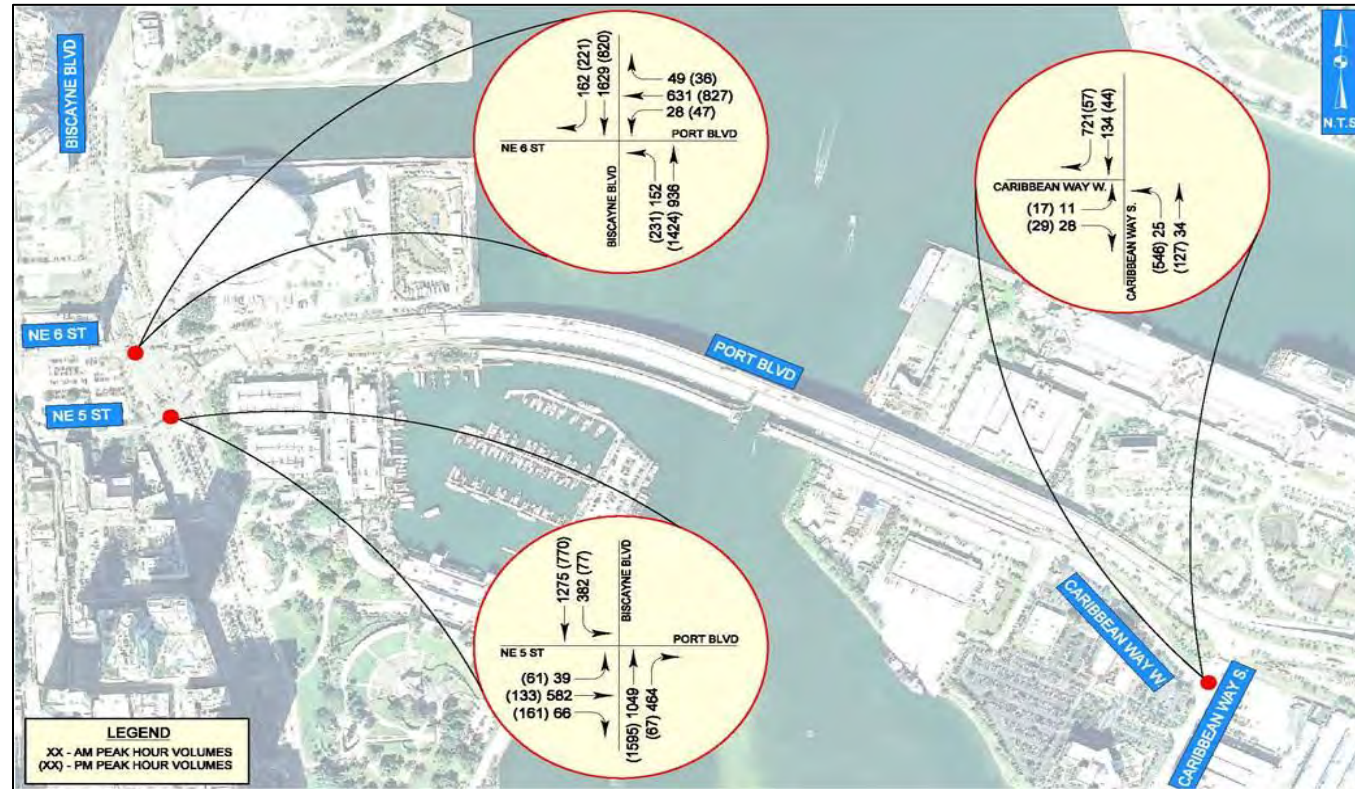
- A composite projection of 3,911,204 total passengers in 2009 moving to 5,821,46 in 2035;
- Cargo terminal mid-level summary of twenty-foot equivalent units (TEU) projection of 828,349 TEUs in 2009 to 2,682,545 TEUs in 2035; and,
- Commercial development in the southwest corner of the Port of Miami with a potential of approximately 600,000 square feet (SF) of office and other space, as well as marina.

The Port of Miami Master Plan has an established build-out year of 2035. Future traffic is established as described below. An annual growth rate was determined to forecast traffic volumes from 2009 through to 2035. The intersection volumes are provided in Figure ES7.6.

⁴ 2009 cruise and cargo projection figures provided and used for the transportation study were FY preliminary data. They do not accurately reflect the final projected numbers for 2009 to 2035 for the 2011 Master Plan Update.

FIGURE ES7.6: PROJECTED INTERSECTION VOLUMES, 2035

Source: Miami-Dade Public Works Department, FDOT and David Plummer & Associates



PORT TRAFFIC DISTRIBUTION

Traffic traveling to and from the Port is destined for one of three main areas inclusive of cruise terminal / parking facilities, cargo gates / terminals, or to the various offices / support facilities within the Port. The Port of Miami Tunnel Project is underway and will provide direct access between the Seaport, I-395 and I-95. This will relieve congested downtown Miami streets of Port passenger and cargo traffic, improving safety and circulation. The change in traffic patterns for vehicular access to the Port of Miami via the tunnel was considered for the traffic analysis. The amount of diverted traffic was based on the *POM 2020 Master Implementation Plan*. See Figure ES7.7.



Carlos A. Gimenez
Mayor

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County Attorney

Bill Johnson
Director Seaport Department



PORT MIAMI

2035 MASTER PLAN

EXECUTIVE SUMMARY

NOVEMBER 2011





Perishables Stats for the February – April Period between 2018 & 2019



The last USDA reports show a dramatic increase in fresh commodities arriving at PortMiami, when comparing the periods of February-April 2019 compared to the same period in 2018. In the 2019 period, total Kilograms of fresh commodities increased by 2.19% in comparison with the 2018 period. Below the detailed results:

- **Flowers:**
 - Comparing February '19 to February '18, we had the following increases:
 - From 90,720 stems in 2018 to 6,377,641 stems in 2019, an increase of 6,930%
 - From 1 shipment in 2018 to 68 shipments in 2019, an increase of 6,700%
 - Comparing March '19 to March '18, we had the following increases:
 - From 107,602 stems in 2018 to 4,418,230 stems in 2019, an increase of 4,006%
 - From 7 shipment in 2018 to 81 shipments in 2019, an increase of 1,057%
 - Comparing April '19 to April '18, we had the following increases:
 - From 2,407,624 stems in 2018 to 23,786,375 stems in 2019, an increase of 888%
 - From 20 shipment in 2018 to 392 shipments in 2019, an increase of 1,860%
 - Comparing the period February-April '19 to the period February-April '18, we had the following increases:
 - From 2,605,946 stems to 34,582,246 in 2019, an increase of 1,227%
 - From 28 shipments in 2018 to 541 shipments in 2019, an increase of 1,832%
- **All Fresh Commodities:**
 - When comparing the all fresh commodities during this period in 2019, to the one in 2018, we come to the following interesting pieces of information:
 - From 123,191,264 KGS for 2018 to 125,887,723 KGS in 2019, an increase of 2.19%
 - From 6,595 shipments in 2018, to 5,615 shipments in 2019, a decrease of 14,86%

Attached USDA's report on the top fresh perishables (Fruit/Vegetables and Flowers) imported via PortMiami during February and April 2019, as well as their country of origin and total quantity imported. Reports indicates the following:

- PortMiami received 35 varieties of cut flowers from 5 different countries totaling 34,582,246 stems.
- In terms of fruits & vegetables, PortMiami received 62 different products from 23 different countries, for a total of 91,074,203 kilograms.

**Top Ranked Fresh Perishables
Commodity / Country Combinations
TOTAL IMPORT SUMMARY**
Feb 1, 2019 to Apr 30, 2019
Top 10 Imports by Quantity
FL Miami Sea CBP

Location	Commodity Type Name	Propagative Material Type	Commodity/Country	Quantity	Units of Measure	Quantity Ranking	Number of Shipments	Shipment Ranking
FL Miami Sea CBP	Cut Flowers	NA	Rosa / Ecuador	4,744,453	Stems	1	73	11
			Rosa / Colombia	4,595,880	Stems	2	46	12
			Rosa / Guatemala	3,448,317	Stems	3	37	14
			Dianthus / Colombia	3,178,238	Stems	4	39	13
			Chrysanthemum (pom-pon) / Colombia	2,873,220	Stems	5	32	17
			Bouquet, Mixed / Colombia	1,900,177	Stems	6	16	18
			Chamaedorea / Guatemala	1,806,952	Stems	7	7	20
			Chamaedaphne / Guatemala	1,674,615	Stems	8	8	19
			Alstroemeria / Colombia	1,566,037	Stems	9	34	15
			Dianthus (mini) / Colombia	1,528,705	Stems	10	34	15
Cut Flowers - Summary				27,316,594			326	
	Fruits Vegetables	NA	Cantaloupe / Guatemala	10,705,656	Kilogram	1	456	2
			Cucumber / Honduras	8,816,062	Kilogram	2	382	3
			Watermelon / Guatemala	5,781,442	Kilogram	3	226	5
			Honeydew Melon / Guatemala	5,317,277	Kilogram	4	227	4
			Green Bean / Guatemala	5,260,746	Kilogram	5	476	1
			Cantaloupe / Honduras	5,071,994	Kilogram	6	211	6
			Honeydew Melon / Honduras	3,735,884	Kilogram	7	156	8
			Plantain / Ecuador	3,451,121	Kilogram	8	143	9
			Avocado / Dominican Republic	3,175,394	Kilogram	9	170	7
			Squash / Honduras	2,651,070	Kilogram	10	126	10
Fruits Vegetables - Summary				53,966,646			2,573	
Lumber		NA	Swietenia Macrophylla, Dowel / Mexico	30	Cubic Meter	1	1	23
Lumber -				30			1	

Shipment = The count of the number of commodities on a single BL/AW; the number of times a commodity appears on a BL/AW.

Note: This summary information is sourced from USDA databases and is being provided "as is" based on available data at the time of issuance, with no guarantee of completeness or accuracy.

**Top Ranked Fresh Perishables
Commodity / Country Combinations
TOTAL IMPORT SUMMARY**
Feb 1, 2019 to Apr 30, 2019
Top 10 Imports by Quantity
FL Miami Sea CBP

Location	Commodity Type Name	Propagative Material Type	Commodity/Country	Quantity	Units of Measure	Quantity Ranking	Number of Shipments	Shipment Ranking
FL Miami Sea CBP	Summary							
	Miscellaneous	NA	Rice / Thailand	99,301	Kilogram	1	5	21
			Rice / India	94,855	Kilogram	2	4	22
			Rice / Italy	15,010	Kilogram	3	1	23
			Bamboo / China	8,054	Kilogram	4	1	23
	Miscellaneous - Summary			217,220			11	
	Propagative Material	Nonpermit Seed	Panicum maximum var. Maximum / Mexico	9,000	Kilogram	1	1	1
Brachiaria sp. / Mexico			5,024	Kilogram	2	1	1	
Propagative Material - Summary			14,024			2		
FL Miami Sea CBP - Summary				81,514,514			2,913	
Rankings Summary				81,514,514			2,913	

Overall Totals

Location	Commodity Type Name	Propagative Material Type	Commodities	Countries	Quantity	Units of Measure	Number of Shipments
FL Miami Sea CBP	Cut Flowers	NA	35	5	34,582,246	Stems	541
	Fruits Vegetables	NA	62	23	91,074,203	Kilogram	5,060
	Lumber	NA	1	1	30	Cubic Meter	1
	Miscellaneous	NA	2	4	217,220	Kilogram	11
	Propagative Material	Nonpermit Seed	2	1	14,024	Kilogram	2
Overall - Summary	5	2	102	24	125,887,723		5,615

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Shipment Volume Summary for Fresh Commodities Arriving at FL Miami Sea CBP During February, March, April 2018, 2019

Quantity and Shipments of Commodities Inspected by Month and Year (Commodities Sorted by Total Quantity)		April / 2019		April / 2018		March / 2019		March / 2018		February / 2019		February / 2018	
		Quantity	Number of Shipments	Quantity	Number of Shipments	Quantity	Number of Shipments	Quantity	Number of Shipments	Quantity	Number of Shipments	Quantity	Number of Shipments
Commodity - Type	Unit of Measure												
Cucumber - FV	Kilogram	56,444	3	161,510	11	2,923,930	131	5,409,767	244	6,269,057	269	6,812,490	305
Banana - FV	Kilogram	191,919	9	3,521,254	183	406,507	20	11,348,462	592	147,862	7	5,232,990	258
Cantaloupe - FV	Kilogram	4,269,017	176	3,635,493	186	7,251,709	310	307,650	14	4,256,924	181	272,180	12
Watermelon - FV	Kilogram	171,834	7	1,494,437	96	3,274,212	155	2,418,898	120	4,303,649	167	7,179,927	282
Rosa - CF	Stems	8,563,993	107	1,791,596	16	1,737,529	22	35,050	1	3,477,128	28	90,720	1
Plantain - FV	Kilogram	1,707,041	72	3,148,368	148	2,246,001	102	3,316,575	154	1,908,552	81	3,135,625	158
Honeydew Melon - FV	Kilogram	3,758,797	141	2,855,269	149	3,369,439	151	1,495,649	73	1,924,925	91	1,926,247	94
Mango - FV	Kilogram	869,541	38	5,964,650	259	535,707	21	1,452,544	63	1,901,800	76	4,134,118	174
Green Bean - FV	Kilogram	1,684,634	170	1,560,480	126	1,872,746	170	2,007,697	167	1,791,857	146	1,114,546	105
Squash - FV	Kilogram	310,658	19	1,338,210	82	1,328,629	71	1,716,980	95	1,190,286	61	812,217	53
Dasheen - FV	Kilogram	1,028,390	38	958,876	45	874,246	36	988,759	41	948,578	40	1,358,947	67
Avocado - FV	Kilogram	1,068,033	57	539,628	29	1,131,494	62	629,413	35	1,124,116	58	1,015,439	63
Snow Pea - FV	Kilogram	539,242	69	873,055	76	1,100,517	130	1,149,269	114	991,118	86	696,942	81
Pineapple - FV	Kilogram			1,455,151	64	21,164	1	1,745,659	84	21,885	1	1,668,328	73
Melon - FV	Kilogram	620,417	24	1,665,449	82	756,908	56	446,498	22	412,606	18	881,311	40
Pepper, Bell - FV	Kilogram	413,797	42	473,267	39	650,350	58	880,544	75	688,697	63	305,808	31
Garlic - FV	Kilogram	356,011	15	188,802	13	870,493	36	489,647	30	926,103	37	562,792	33
Okra - FV	Kilogram	540,774	30	622,741	36	711,371	53	536,618	31	470,473	26	348,157	24
Bouquet, Mixed - CF	Stems	2,148,393	56	615,828	3	34,512	1			418,425	4		
Dianthus - CF	Stems	2,549,129	33			488,720	10			173,489	3		
Asparagus - FV	Kilogram	1,547,389	101	1,281,894	103	125,821	8	83,022	8	62,539	3	62,159	4
Chamaedorea - CF	Stems	1,394,250	3			273,639	4			1,432,505	3		
Papaya - FV	Kilogram	621,134	43	290,916	17	805,574	73	340,408	19	730,265	42	254,850	14
Chrysanthemum (pom-pon) - CF	Stems	2,469,746	23			379,566	6	72,552	6	23,908	3		
Cassava - FV	Kilogram	209,352	11	891,317	43	127,745	7	679,986	32	124,534	8	785,253	41
Yam - FV	Kilogram	1,064,898	47	211,855	11	374,023	17	343,842	16	254,233	11	522,857	25
Pea - FV	Kilogram	242,490	23	853,769	81	398,375	36	271,817	28	695,599	56	122,155	10
Ginger, Root - FV	Kilogram	237,589	10	212,072	9	194,077	9	496,441	25	196,706	8	614,528	31
Pepper - FV	Kilogram	377,154	38	355,190	25	259,343	24	504,443	43	219,983	18	229,374	29
Onion - FV	Kilogram	20,520	2	135,865	6			801,167	39	295,689	11	478,454	20
Chamaedaphne - CF	Stems	1,466,115	7			208,500	1						
Alstroemeria - CF	Stems	917,903	21			641,429	11			9,248	3		
Dianthus (mini) - CF	Stems	1,262,501	24			187,314	7			78,890	3		
Carrot - FV	Kilogram	163,678	35	282,624	34	288,746	62	315,882	40	198,017	36	175,532	34
Pumpkin - FV	Kilogram	20,554	1	329,877	16	74,096	4	477,000	26	110,185	7	355,015	20
Chrysanthemum - CF	Stems	1,195,666	17			46,924	3			30,816	1		
Lime, Sour - FV	Kilogram	265,184	19	88,768	4	225,414	10	230,530	10	163,876	7	73,039	3
Tomato - FV	Kilogram	99,709	10	134,242	9	294,002	35	168,748	11	168,558	13	132,349	13
Chayote - FV	Kilogram			266,584	15	21,164	1	354,050	16	60,269	3	261,411	15
Blueberry - FV	Kilogram					77,114	5	68,788	4	612,349	47	183,304	10
Zucchini - FV	Kilogram	3,783	6	14,544	3	179,753	16	28,164	6	138,516	14	174,437	12
Bouquet, Rose - CF	Stems	323,169	12			18,320	1			150,960	2		
Coconut - FV	Kilogram	30,587	3	18,000	1	133,120	8	25,000	1	191,543	10	63,499	3
Shallot - FV	Kilogram	108,243	5	21,792	1	50,424	2	26,786	1	46,304	2	122,446	10
Bouquet, Pompon - CF	Stems	282,324	2			18,000	2			58,344	2		
Salix - CF	Stems									340,000	1		
Broccoli - FV	Kilogram	78,997	9	34,452	2	163,847	20	597	1	43,835	7	853	2
Hypericum - CF	Stems	307,260	13										
Bellis - CF	Stems	278,640	2										
Tomato, Red Or Pink - FV	Kilogram	62,957	10	113,252	11	23,160	3	5,987	2	30,839	4	23,346	2
Pitahaya - FV	Kilogram	32,999	2	15,436	2	86,399	5	46,225	4	64,062	4	9,720	1
Garlic Cloves, Peeled - FV	Kilogram	24,400	1	21,656	1	13,355	1			69,609	3	100,952	4
Eggplant - FV	Kilogram			42,655	4	59,035	5	32,146	4	60,895	5	27,571	3
Rice - MC	Kilogram	38,546	2			99,301	5			71,319	3		
Liatris - CF	Stems	7,560	1			200,176	1						
Asparagus, White - FV	Kilogram	26,485	2	33,600	2	17,637	1	13,252	2	67,277	5	41,780	3
Brussels Sprouts - FV	Kilogram			16,914	1	7,922	2	39,934	4	62,698	7	60,427	19

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Shipment Volume Summary for Fresh Commodities Arriving at FL Miami Sea CBP During February, March, April 2018, 2019

Quantity and Shipments of Commodities Inspected by Month and Year (Commodities Sorted by Total Quantity)		April / 2019		April / 2018		March / 2019		March / 2018		February / 2019		February / 2018	
		Quantity	Number of Shipments	Quantity	Number of Shipments	Quantity	Number of Shipments	Quantity	Number of Shipments	Quantity	Number of Shipments	Quantity	Number of Shipments
Gypsophila - CF	Stems	167,948	21			7,200	2			5,680	1		
Lemon - FV	Kilogram	31,225	1			23,855	1			100,669	4	24,080	1
Hydrangea - CF	Stems	47,104	8			34,646	3			47,698	3		
Tangelo - FV	Kilogram					20,160	1			101,910	5		
Chamaelucium - CF	Stems	115,620	1										
Ruscus - CF	Stems	37,800	2							75,150	3		
Grape - FV	Kilogram									111,605	7		
Pepper, Greenhouse - FV	Kilogram	17,218	3	24,000	2			53,840	4			13,343	1
Ranunculus - CF	Stems	98,688	1										
Tomato, Green - FV	Kilogram	13,768	1	3,280	1			42,428	4	32,495	4	4,832	1
Persian Lime - FV	Kilogram	43,793	2			52,469	2						
Corn - FV	Kilogram	4,752	8	3,373	9	73,026	14	212	2	1,194	3	1,691	2
Bouquet, Carnation (mini) - CF	Stems	6,400	1			65,255	2			3,520	1		
Bitter Melon - FV	Kilogram					8,022	1	6,573	1	37,414	2	11,865	2
Lilium - CF	Stems	37,850	4			10,900	3			14,398	3		
Sour Orange - FV	Kilogram	14,120	1	3,902	1			440	1	15,532	1	25,325	2
Dragon Fruit - FV	Kilogram	27,356	2	9,000	1			8,700	1			13,710	1
Aspidistra - CF	Stems	55,416	4										
Breadfruit - FV	Kilogram	26,758	2	25,698	3			997	1			1,650	1
Pepper, Chili - FV	Kilogram	11,000	1	9,516	1	16,161	2			15,792	3		
Gerbera - CF	Stems					51,410	1						
Mandarin - FV	Kilogram			21,840	1	23,861	1						
Tamarind - FV	Kilogram					45,263	2						
Radicchio - FV	Kilogram	13,599	6			19,204	10			3,086	1	6,715	3
Turmeric - FV	Kilogram	8,787	2	4,843	1	16,638	1	11,484	1				
Blackberry - FV	Kilogram	526	1	19,168	2	1,051	1	3,210	1				
Butternut - FV	Kilogram							23,600	1				
Yampi - FV	Kilogram											21,000	1
Abutilon - CF	Stems									20,000	1		
Coffee, Unroasted - MC	Kilogram							19,181	1				
Eryngium - CF	Stems	18,330	2										
Pitahaya, Yellow - FV	Kilogram	17,035	1										
Aralia - CF	Stems	16,500	1	200	1								
Cauliflower - FV	Kilogram	3,174	2			10,551	8			2,471	2		
Protea - CF	Stems					14,190	1						
Senecio - CF	Stems	13,954	18										
Rumohra - CF	Stems									10,722	1		
Panicum maximum var. Maximum - PM	Kilogram					9,000	1						
Bamboo - MC	Kilogram					8,054	1						
Chicory - FV	Kilogram	2,878	2			2,365	1			680	2	1,508	3
Lettuce - FV	Kilogram			2,369	1			4,486	2				
Leek - FV	Kilogram									5,652	2		
Brachiaria sp. - PM	Kilogram					5,024	1						
Bouquet, Carnation - CF	Stems									3,520	1		
Bouquet, Alstroemeria - CF	Stems									3,240	1		
Limonium - CF	Stems	2,820	6										
Pepper, Other - FV	Kilogram			2,092	1								
Canna sp. - PM	Plant Unit											1,766	1
Radish - FV	Kilogram							1,018	1				
Helianthus - CF	Stems	960	1										
Cacao Bean Pod - FV	Kilogram							450	1				
Aster - CF	Stems	336	1										
Swietenia Macrophylla, Dowel - LU	Cubic Meter	30	1										
Port Totals		46,885,591	1,718	38,660,619	2,069	38,177,804	2,051	41,979,065	2,325	40,824,328	1,846	42,551,580	2,201

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	2018-2017 TEU GAIN	2017-2018 TEU PERCENT GAIN
1 Peru	12,533	300%
2 Ecuador	7,078	88%
3 Indonesia	6,558	86%
4 India	5,716	48%
5 Italy	4,537	26%
6 El Salvador	4,422	20%
7 Trinidad And Tobago	4,324	49%
8 Guatemala	4,010	12%
9 Dominican Republic	3,679	9%
10 Spain	3,170	24%
11 Jamaica	2,808	14%
12 Malaysia	2,765	67%
13 Vietnam	2,698	18%
14 Haiti	2,594	20%
15 Honduras	2,270	4%
16 Nicaragua	1,900	11%
17 France	1,769	17%
18 Taiwan, Roc	1,336	14%
19 Singapore	1,323	33%
20 Netherlands Antilles	1,114	44%
21 Georgia	767	64%
22 Egypt	722	105%
23 Leeward And Windward	682	22%
24 Canada	666	NA
25 United Arab Emirates	643	22%



2017 Local and Regional Economic Impacts of PortMiami: Executive Summary

Conducted by Martin Associates
www.martinassoc.net

May 22, 2018



Overview of PortMiami

Handling approximately 9.2 million tons of cargo and more than 5.2 million cruise passengers, PortMiami is a leading cargo and cruise port located in Miami, Florida. PortMiami operates as a landlord port and maintains lease agreements with its cargo terminal operators including Seaboard Marine, POMTOC, and South Florida Container Terminal. Of the 9.2 million cargo tons, 9.1 million of these tons are containerized cargo while the remaining tonnage is a combination of project cargo and break bulk cargo. Additionally, PortMiami serves as global headquarters for Carnival Cruise Lines, Norwegian Cruise Lines, Royal Caribbean Cruises, Oceania Cruises and Regent Seven Seas Cruises. In 2017, 1,185 cruises called PortMiami's seven cruise terminals, carrying 5.2 million passengers to and from popular cruising destinations such as the Bahamas, Caribbean, and Mexico.

PortMiami recently completed a series of capital improvements totaling around \$1 billion. These improvements included completion of projects such as a new tunnel that provides direct access between the terminals and I-395 and I-95, modernization of on dock rail, and new cranes that can handle the larger Post-Panamax ships, which can now sail into the Port because of the recently completed 50-foot dredging alongside the main terminal.

Economic Impact Analysis Methodology

Martin Associates used the 2016 PortMiami economic impact model with calendar year 2017 cargo and cruise passenger data to estimate the 2017 local and regional economic impacts generated by maritime activity at the marine cargo and cruise terminals at PortMiami for the calendar year. The 2016 study which was used to develop the 2016 baseline cruise and cargo model employs methodology and definitions that have been used by Martin Associates to measure the economic impacts of seaport activity at more than 500 ports in the United States and Canada, as well as at the leading airports in the United States. It is to be emphasized that only measurable impacts are included in this study. To ensure defensibility, the Martin Associates' approach to economic impact analysis is based on data developed through an extensive interview and telephone survey program of the Port's tenants and the firms providing cargo and cruise services at PortMiami. In addition, a survey of 1,300 cruise

passengers and 300 cruise vessel crew was conducted to develop passenger spending profiles pre-and post-cruise as well as the spending characteristics of the vessel crew during each port call at Miami. Specific re-spending models have been developed for the Miami-Dade County area to reflect the unique economic and consumer profiles of the regional economy. The resulting impacts reflect the uniqueness of the individual Port operations, as well as the surrounding regional economy, and are based on detailed surveys of the Port's service providers to both cargo and cruise activity. The resulting economic models can be used to estimate annual updates, as well as to test the sensitivity of the impacts to changes in such factors as marine cargo tonnage or cruise passenger levels, labor productivity and work rules, and new marine facilities development and expansion.

2017 Economic Impact of PortMiami - Summary of Results

More than **334,500** jobs supported by Port activity

- Direct Jobs: 22,414
- Induced Jobs: 14,478
- Indirect Jobs: 9,297
- Related Jobs: 288,342

\$43.0 billion of total economic activity - 4.4% of State GDP

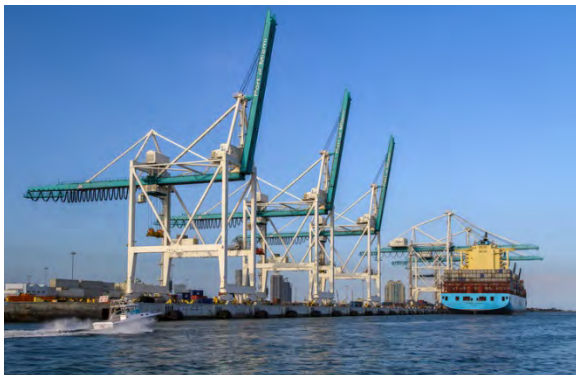
- \$6.2 billion of direct business revenue
- \$1.7 billion of re-spending of direct income and local consumption purchases
- \$35.1 billion of output supported with related port users

\$1.6 billion of state and local taxes

- \$299.2 million of direct, induced and indirect state and local taxes
- \$1.3 billion of state and local taxes with related exporters and importers supported by port activity

2016 PortMiami Economic Impact Results

In 2017, cargo and cruise activity at PortMiami supported 334,532 jobs in the state of Florida. Of these jobs, **22,414 jobs directly created**, of which about three-quarters reside in Miami-Dade County. As a result of local and regional purchases by those 22,414 individuals holding the direct jobs, **14,478 induced jobs** were supported in the regional economy. The **9,297 indirect jobs** were generated in the local economy because of the \$627.5 million of local purchases made by companies directly dependent on the Port. The cargo moving via PortMiami **supported 288,342 jobs** throughout the state of Florida with importers and exporters located in the state. These jobs are classified as related, and are created because of the demand for the product, not the use of the Port. Should PortMiami not be available for use by these importers and exporters, other ports would be used and the related jobs would not be impacted in the short term. In contrast the direct, induced and indirect jobs would be dislocated should the cargo not move via PortMiami.



The **total economic activity in the state of Florida** resulting from the cargo and cruise cargo activity at PortMiami, is estimated at **\$43.0 billion**. This consists of the direct business revenue of \$6.2 billion, the responding and local consumption impact of \$1.7 billion, and the related user output of \$35.1 billion.

¹The induced income impact also includes local consumption expenditures as well as induced wages, and should not be divided by induced jobs to estimate

The majority of these user impacts are associated with containerized cargo. This dollar value represents the sphere of influence of PortMiami in 2017 and accounts for 4.4 percent of the \$984.1 billion Gross Domestic Product (GDP) for the state of Florida. (Fourth Quarter 2017)



The 22,414 direct jobs received \$916.1 million of direct wage and salary income, for an average earnings of \$40,873 per direct employee. As the result of local purchases with this \$916.1 million of direct wages and salaries, an additional \$1.7 billion of income and local consumption expenditures were created in the Miami-Dade County area. It is this responding impact that supported the 14,478 induced jobs¹. The indirect jobs holders received \$329.8 million. In total, \$13.0 billion of personal income was created as the result of PortMiami operations, including the \$10.1 billion of wages and salaries received by those employed with the users of the Port.

As a result of the cargo and cruise activity at PortMiami, a total of \$1.6 billion of state and local tax revenue was supported in the State, of which \$1.3 billion is attributed to the related users of the Port.

the average salary per induced job. This would overstate the average salary.

2016 PortMiami Economic Impact Results – PortMiami Cargo and Cruise Activity Comparison

PortMiami Cargo Activity

- **304,443 total jobs**
 - *Direct:* 7,585
 - *Induced:* 5,647
 - *Indirect:* 2,869
 - *Related:* 288,342
- **\$298.3 million** in local purchases
- **\$37.2 billion** Total Economic Value
- **\$1.4 billion** of state and local taxes

PortMiami Cruise Activity

- **30,008 total jobs**
 - *Direct:* 14,829
 - *Induced:* 8,831
 - *Indirect:* 6,428
 - *Related:* N/A
- **\$329.2 million** in local purchases
- **\$5.8 billion** Total Economic Value
- **\$188.9 million** of state and local taxes

2012 vs. 2017

Impact Cargo and Cruise Comparison

Growth of Economic Impacts at PortMiami: 2012-2016

126,728
new jobs
supported
by cargo
and cruise
activity

- 2,701 direct jobs
- 605 induced jobs
- 2,836 indirect jobs
- 120,586 related jobs

\$14.4
billion
increase in
total
economic
activity in
Florida

- \$1.7 billion direct revenue
- \$148.5 million re-spending of income/local consumption
- \$12.6 billion related output increase

Since the 2012 Martin Associates' economic impact study of PortMiami, the overall economic impact of the Port has increased significantly. The total jobs related to the cargo and cruise activity at PortMiami increased by approximately 126,728 jobs and the total value of the economic activity at the Port increased by \$14.4 billion, from \$28.6 billion in 2012 to \$43.0 billion in 2016. This growth in economic impact is driven by the 19 percent increase since 2012 of nearly 100,000 containers handled at the Port in 2017, which reflects the investment in channel deepening to 50 ft., the completion of the new tunnel that provides direct access between the marine terminals and I-395 and I-95, modernization of on dock rail, and new cranes that can handle the larger Post-Panamax ships. In addition, passenger traffic grew by 1.4 million passengers since 2012.

Summary

Overall, PortMiami is an important economic force in the community, contributing \$43.0 billion of total economic activity and supporting 334,532 jobs in the state of Florida.

The \$43.0 billion dollar value of economic activity of the Port represents 4.4 percent of the \$984.1 billion state of Florida GDP in 2017 (4th Quarter). The importance of the \$1 billion of investment in channel deepening to 50 ft., the completion of the new tunnel that provides direct access between the marine terminals and I-395 and I-95, modernization of on dock rail, and new cranes that can handle the larger Post-Panamax ships is reflected by the fact that over the past four years, the Port has increased its containerized cargo by nearly 100,000 containers and has grown its cruise passengers by 1.4 million passengers. In turn, this growth in cargo and cruise business at the Port has increased the economic importance of PortMiami to the south Florida region and to the State. In order to continue to grow the economic significance of the Port, continued investment in cargo and cruise terminal infrastructure will be required, ensuring that PortMiami continues as a world class cargo and cruise port, capable of handling the next generation of container and cruise vessels.



PORTMIAMI INDUSTRY MEETING
AUGUST 30, 2019

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PORTMIAMI INDUSTRY MEETING
AUGUST 30, 2019

Name – [please print]	Organization	Email Address	Phone
Joe Pelayo.ccm.sior	TRAC	TRAC@joepelayo.com	954.241.3294 954.224.8773
Michael Silver	CB&E	Michael.Silver@conet.com	305.527.3612 ✓
John Dohm	Fla Transit Authority	john@jdohm.com	(954) 557-3646
Esheet Modi	CMA CGM	usa.esmodi@cma-cgm.com	(305) 398 4979
Eric Hasselmann	Seaboard	eric.hasselmann@seaboardmaritime.com	305 608 9554
Bob Balaam	USDA APHIS PPO	robert.J.balaam@usda.gov	305 453-5245
Dorothy Draithwaite	Seaport/PortMiami	dora dbraithwaite@miamidade.gov	(305) 577-6429
Carlos Cortina	Support	cortina@miamidade.gov	3/962 5904
Henry Ros	Seaport	eros@miamidade.gov	3/329-4030
Ronald Rojas	SEAPORT	ronr@miamidade.gov	3/347-4971



PORTMIAMI INDUSTRY MEETING
AUGUST 30, 2019

Name – [please print]	Organization	Email Address	Phone
Sebastian Zavar	Port Miami	sjavar@miamidade.gov	
Grant Rosenbaum	CBP- FIELD OFFICE	GRANT.ROSENBAUM@CBP.DHS.GOV	305-810-5114
CARLOS GARCIA	Transwestern	Carlos.garcia@transwestern.com	305-808-7313
Alexander E. Naples	AL-Flex Extramuros	ALFlex@bellsouth.net	305-552-0141
Lee Sandler	STR / EPTC	lsandler@strate.com	305-894-1000
Tiffany N. Compres	Shutts + Bowen	tcompres@shutts.com	305-415-9415
Eric Borrazas	Synthesis	borrazas@bellsouth.net	305-297-4827
Raul Echevarria	TDR Fumigation	raul@termite doctor.org	305-986-9454

This Workspace form is one of the forms you need to complete prior to submitting your Application Package. This form can be completed in its entirety offline using Adobe Reader. You can save your form by clicking the "Save" button and see any errors by clicking the "Check For Errors" button. In-progress and completed forms can be uploaded at any time to Grants.gov using the Workspace feature.

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OPPORTUNITY & PACKAGE DETAILS:

Opportunity Number: 693JF7-19-BAA-0002

Opportunity Title: Port Infrastructure Development Grants

Opportunity Package ID: PKG00253007

CFDA Number:

CFDA Description:

Competition ID:

Competition Title:

Opening Date: 06/12/2019

Closing Date: 09/16/2019

Agency: Maritime Administration

Contact Information: Judy Bowers
Contracting Officer
E-mail: judy.bowers@dot.gov
Phone: 202-366-1913**APPLICANT & WORKSPACE DETAILS:**

Workspace ID: WS00363191

Application Filing Name: PortMiami Infrastructure Project

DUNS: 1319102540000

Organization: MIAMI-DADE, COUNTY OF

Form Name: Application for Federal Assistance (SF-424)

Form Version: 2.1

Requirement: Mandatory

Download Date/Time: Sep 10, 2019 04:07:26 PM EDT

Form State: No Errors

FORM ACTIONS:

Application for Federal Assistance SF-424

* 1. Type of Submission: <input type="checkbox"/> Preapplication <input checked="" type="checkbox"/> Application <input type="checkbox"/> Changed/Corrected Application	* 2. Type of Application: <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision	* If Revision, select appropriate letter(s): <input type="text"/> * Other (Specify): <input type="text"/>
--	--	--

* 3. Date Received: Completed by Grants.gov upon submission.	4. Applicant Identifier: <input type="text"/>
---	--

5a. Federal Entity Identifier: <input type="text"/>	5b. Federal Award Identifier: <input type="text"/>
--	---

State Use Only:

6. Date Received by State: <input type="text"/>	7. State Application Identifier: <input type="text"/>
---	---

8. APPLICANT INFORMATION:

* a. Legal Name: Miami-Dade County	
* b. Employer/Taxpayer Identification Number (EIN/TIN): 59-6000573	* c. Organizational DUNS: 1319102540000

d. Address:

* Street1:	Stephen P. Clark Center
Street2:	111 NW 1st Street, 22nd Floor
* City:	Miami
County/Parish:	Miami-Dade
* State:	FL: Florida
Province:	
* Country:	USA: UNITED STATES
* Zip / Postal Code:	33128-1994

e. Organizational Unit:

Department Name: OMB Grants Division	Division Name: for Seaport Department
---	--

f. Name and contact information of person to be contacted on matters involving this application:

Prefix: Mr.	* First Name: Daniel
Middle Name: T.	
* Last Name: Wall	
Suffix:	

Title: Assistant Director

Organizational Affiliation:
County Government

* Telephone Number: 305 375-4742	Fax Number: 305 375-4049
----------------------------------	--------------------------

* Email: Daniel.Wall@miamidade.gov

Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

B: County Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

Maritime Administration

11. Catalog of Federal Domestic Assistance Number:

CFDA Title:

*** 12. Funding Opportunity Number:**

693JF7-19-BAA-0002

* Title:

Port Infrastructure Development Grants

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment

Delete Attachment

View Attachment

*** 15. Descriptive Title of Applicant's Project:**

PortMiami Cargo Yard Resiliency Improvements and Fumigation and Cold Chain Processing Center Project

Attach supporting documents as specified in agency instructions.

Add Attachments

Delete Attachments

View Attachments

Application for Federal Assistance SF-424**16. Congressional Districts Of:*** a. Applicant * b. Program/Project

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment

Delete Attachment

View Attachment

17. Proposed Project:* a. Start Date: * b. End Date: **18. Estimated Funding (\$):**

* a. Federal	<input type="text" value="43,928,393.00"/>
* b. Applicant	<input type="text" value="21,129,836.00"/>
* c. State	<input type="text" value="200,000.00"/>
* d. Local	<input type="text" value="13,500,000.00"/>
* e. Other	<input type="text" value="0.00"/>
* f. Program Income	<input type="text" value="0.00"/>
* g. TOTAL	<input type="text" value="78,758,229.00"/>

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

- a. This application was made available to the State under the Executive Order 12372 Process for review on
- b. Program is subject to E.O. 12372 but has not been selected by the State for review.
- c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)** Yes No

If "Yes", provide explanation and attach

Add Attachment

Delete Attachment

View Attachment

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

 ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: * First Name:

Middle Name:

* Last Name:

Suffix:

* Title: * Telephone Number: Fax Number: * Email: * Signature of Authorized Representative: * Date Signed:

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Opportunity Title:	Port Infrastructure Development Grants
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CFDA Number:	
CFDA Description:	
Competition ID:	
Competition Title:	
Opening Date:	06/12/2019
Closing Date:	09/16/2019
Agency:	Maritime Administration
Contact Information:	Judy Bowers Contracting Officer E-mail: judy.bowers@dot.gov Phone: 202-366-1913

APPLICANT & WORKSPACE DETAILS:

Workspace ID:	WS00363191
Application Filing Name:	PortMiami Infrastructure Project
DUNS:	1319102540000
Organization:	MIAMI-DADE, COUNTY OF
Form Name:	Attachments
Form Version:	1.2
Requirement:	Mandatory
Download Date/Time:	Sep 10, 2019 04:07:53 PM EDT
Form State:	No Errors

FORM ACTIONS:

ATTACHMENTS FORM

Instructions: On this form, you will attach the various files that make up your grant application. Please consult with the appropriate Agency Guidelines for more information about each needed file. Please remember that any files you attach must be in the document format and named as specified in the Guidelines.

Important: Please attach your files in the proper sequence. See the appropriate Agency Guidelines for details.

1) Please attach Attachment 1	Attachment 1_Project Narrativ	Add Attachment	Delete Attachment	View Attachment
2) Please attach Attachment 2	Attachment 2_BCA and BCA App	Add Attachment	Delete Attachment	View Attachment
3) Please attach Attachment 3	Attachment 3_Commitment Lett	Add Attachment	Delete Attachment	View Attachment
4) Please attach Attachment 4	Attachment 4_Tenant Support I	Add Attachment	Delete Attachment	View Attachment
5) Please attach Attachment 5	Attachment 5_Stakeholder Supp	Add Attachment	Delete Attachment	View Attachment
6) Please attach Attachment 6	Attachment 6_AQI Summary & T	Add Attachment	Delete Attachment	View Attachment
7) Please attach Attachment 7	Attachment 7_Project Schem	Add Attachment	Delete Attachment	View Attachment
8) Please attach Attachment 8	Attachment 8_PortMiami 2035 P	Add Attachment	Delete Attachment	View Attachment
9) Please attach Attachment 9	Attachment 9_Perishables Stat	Add Attachment	Delete Attachment	View Attachment
10) Please attach Attachment 10	Attachment 10_2017 Economic	Add Attachment	Delete Attachment	View Attachment
11) Please attach Attachment 11	Attachment 11_Sign In Sheet.1	Add Attachment	Delete Attachment	View Attachment
12) Please attach Attachment 12		Add Attachment	Delete Attachment	View Attachment
13) Please attach Attachment 13		Add Attachment	Delete Attachment	View Attachment
14) Please attach Attachment 14		Add Attachment	Delete Attachment	View Attachment
15) Please attach Attachment 15		Add Attachment	Delete Attachment	View Attachment