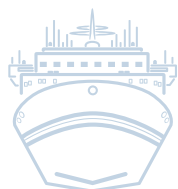
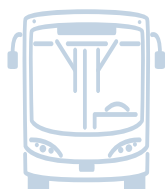
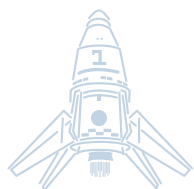




FLORIDA AIR CARGO System Plan Update

EXECUTIVE SUMMARY



2013

Introduction

Florida's air cargo system spans a wide variety of airports in the state, ranging from major international gateways such as Miami International Airport (MIA) to remote airports such as Key West International where air cargo is a critical component to the business community. In fact, even a number of Florida's general aviation airports are used for the transport of air cargo where small aircraft carry medical supplies, bank materials, and critical manufacturing components. On an annual basis, over 2.5 million tons of air cargo are accommodated at Florida's airports – enough to fill over 60 Boeing 747 freighters per day. This cargo is transported in and out of the state to other airports in the U.S., as well as Latin America, the Caribbean, Europe, and Asia. Through a combination of integrated express carriers such as FedEx, UPS, and DHL; all-cargo carriers such as China Airlines and AmeriJet; and commercial passenger carriers such as Delta, American, and Lufthansa, Florida's



airports directly serve 41 domestic and 94 international destinations with either dedicated all-cargo or wide-body passenger aircraft.

In addition to the air cargo industry's reliance on numerous supporting airports, the industry also relies on a vast roadway and highway network to transport cargo to customers and consumers in-state, as well as beyond its borders. On a daily basis, integrated express companies such as FedEx, DHL, and UPS transport packages, parcels, and pallets bound for awaiting cargo aircraft at Florida's airports. Additionally, air cargo for export arrives at MIA on trucks that originate as far away as New York, Chicago, and Los Angeles. Every morning, flowers imported from Columbia arrive at the MIA and are trucked to nearby processing warehouses before being loaded onto specially equipped trucks bound for grocer and floral distribution centers throughout North America.

Airports With Scheduled Service Cargo Activity

While many airports in Florida can accommodate air cargo activity to a certain degree, there are 15 airports in Florida that have scheduled air cargo service supporting business and industry throughout the state. For purposes of this study, these airports are divided into two categories: Strategic Intermodal System (SIS) Tier One Airports and Tier Two Airports. It is important to note that, since the 2008 economic downturn, the global air cargo industry has been negatively impacted both domestically and internationally. Tier Two airports can be, and often are, used to move cargo traffic to larger SIS airports and airports outside of the state. In addition to the seven Florida SIS (Tier One) airports, this study examined the cargo capacity available at all Tier Two airports.



Source: CDM Smith

Airport Cargo Lift

As a system, Florida's SIS airports handled 2,494,400 tons of air cargo during 2011, a decrease of 2 percent from the 2008 tonnage of 2,547,300. Additionally, the SIS airports have seen a 7 percent decline in processed air cargo since 2006 when the first FDOT Air Cargo System Plan was conducted. In total, the Florida SIS and Tier Two airports offer a total of 13.2 million pounds of air cargo lift capacity on a typical Wednesday, the busiest day in the air cargo industry workweek.

On the domestic front, cargo capacity to Memphis remains strong, as FedEx continues to expand capacity between Florida's SIS airports and their global hub in Memphis. FedEx' s capacity to its Memphis hub from Florida SIS airports grew from 494,900 in 2006 to 2,034,200 pounds in 2012. UPS activity at Florida SIS airports remains strong on routes feeding their global hub in Louisville.

The leading Tier Two airport in terms of domestic trade lane lift continues to be St. Petersburg-Clearwater International (PIE), which has sizeable scheduled domestic air cargo connections on UPS.

Overall, air cargo tonnage at Florida's seven SIS airports decreased at an average annual growth rate of -1.4

percent from 2006 to 2011.

Trucking continues be air cargo's primary competitor with freight forwarder road feeder service market share increasing about 1 percent per year since 2005. With the exception of MIA, all of these airports experienced a decline in tonnage from 2008 to 2012.

Florida's air cargo activity is heavily concentrated at MIA, which accounts for approximately 70 percent of the state's total daily air cargo lift capacity. As illustrated below, in 2012, Florida's SIS airports averaged over 6,600 daily tons of capacity, or 97.6 percent of the state's total air cargo lift capacity.



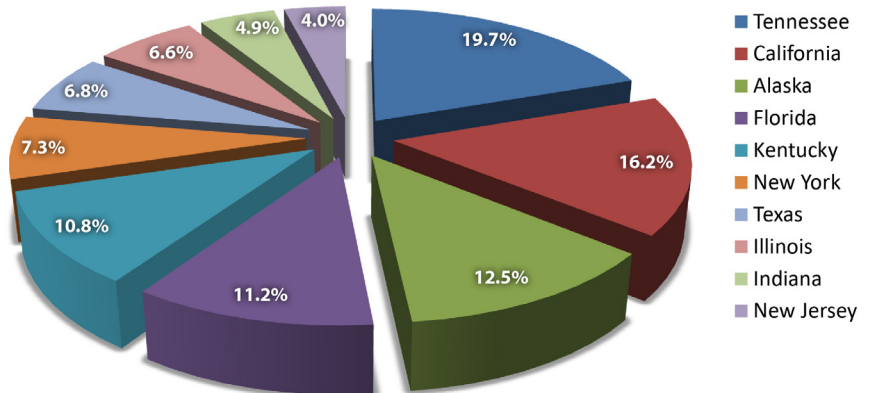
| SIS AIRPORT | AVERAGE DAILY CAPACITY (TONS) | MARKET SHARE |
|---|-------------------------------|--------------|
| Miami International | 4,691 | 69.1% |
| Orlando International | 760 | 11.2% |
| Fort Lauderdale-Hollywood International | 506 | 7.5% |
| Tampa International | 329 | 4.9% |
| Jacksonville International | 163 | 2.4% |
| Palm Beach International | 124 | 1.8% |
| Southwest Florida International | 52 | 0.8% |
| All Others | 162 | 2.4% |
| TOTAL | 6,788 | 100% |

Source: CDM Smith analysis of OAG data

Florida's U.S. Air Cargo Market Share

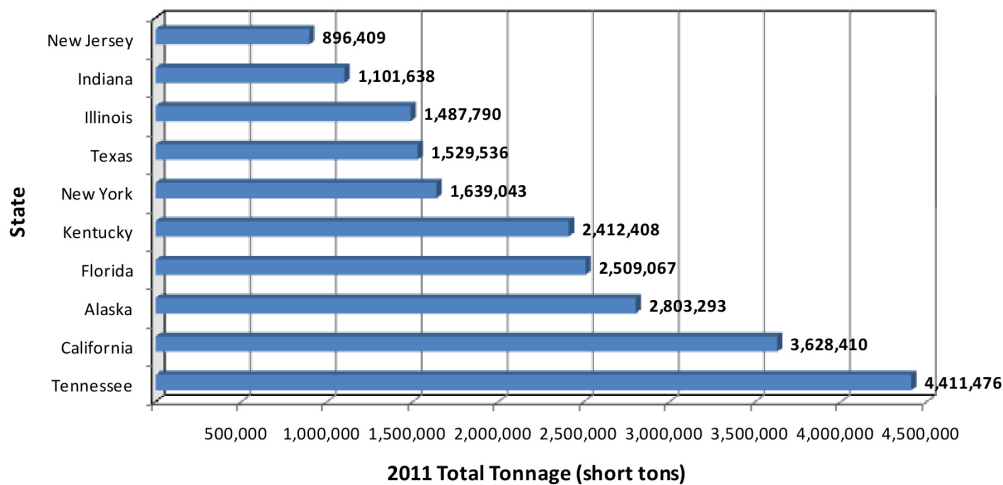
Florida ranked fourth in the U.S. in 2011 in total annual air cargo tonnage loaded and unloaded on aircraft at airports. Of the top ten states supporting air cargo volume, Florida comprises an 11.2 percent market share, representing over 2.5 million tons of annual air cargo. Tennessee, with its FedEx global hub in Memphis, dominates the state rankings, followed by California and Alaska. The California markets are home to the Los Angeles International Airport (LAX) and San Francisco International Airport (SFO) gateway airports, while Anchorage International Airport (ANC) in Alaska supports the global air cargo industry as a cargo transfer and refueling gateway.

**U.S. Air Cargo Market Share
(Top 10 States)**



Source: Airports Council International-North America 2011 cargo data

**Top 10 Air Cargo States by
Total Annual Tonnage**

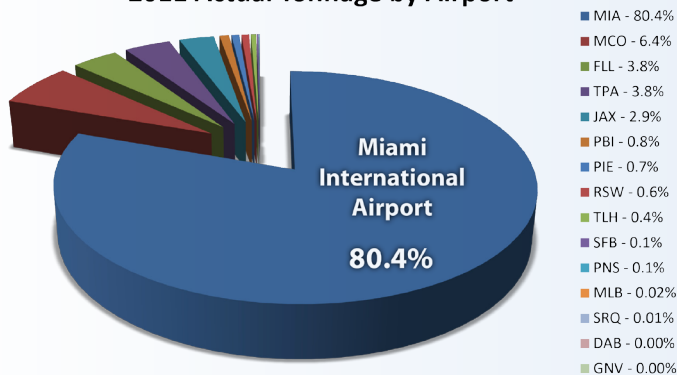


2011 Total Tonnage (short tons)

Source: Airports Council International-North America 2011 cargo data

Of the top ten states supporting air cargo volume, Florida comprises an 11.2% market share, representing 2.5 million tons of annual air cargo.

2011 Actual Tonnage by Airport



Source: ACI-NA, Airport Records

Within Florida, the air cargo landscape is driven by MIA, which represents over an 80 percent air cargo tonnage market share of all Florida airports with scheduled air cargo service. Orlando International Airport (MCO) comes in at a distant second with 6.4 percent of the statewide market share. MCO is then closely followed by the Fort Lauderdale-Hollywood International (FLL), Tampa International (TPA), and Jacksonville International (JAX) with 3.8, 3.8, and 2.9 percent market shares, respectively.

International Trade Lanes

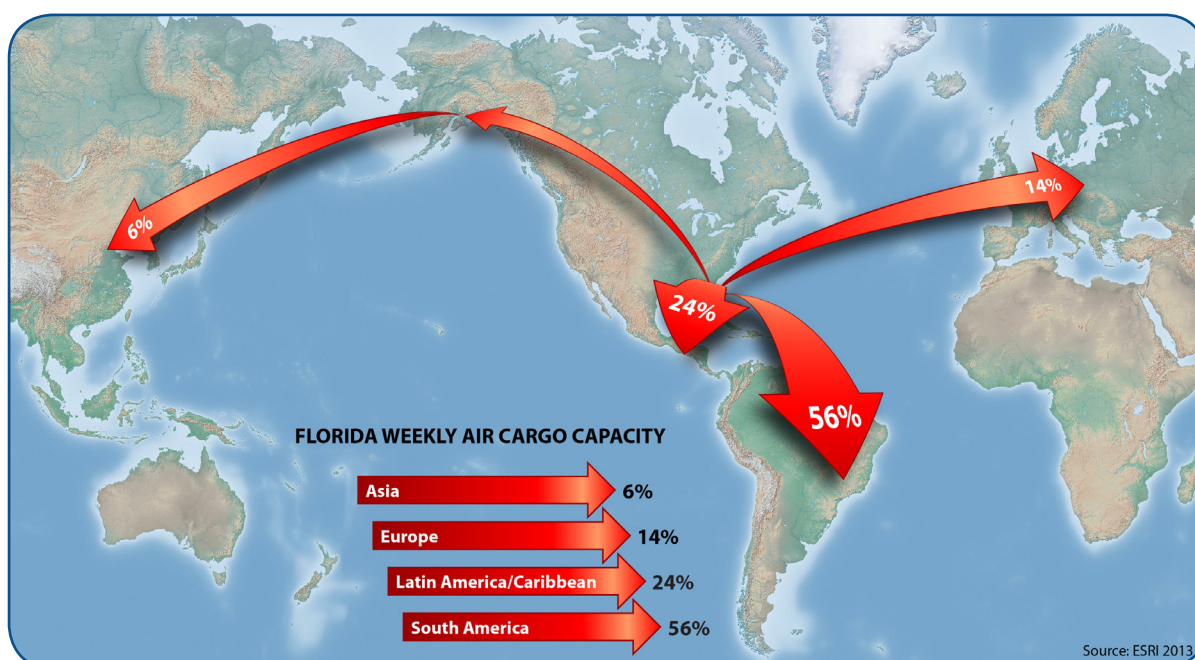
Florida's global reach is extensive, with passenger airlines and all cargo companies providing significant cargo lift to four regions of the world.

LATIN AMERICA/CARIBBEAN: MIA is the world's largest gateway to Latin America and the Caribbean, with over 75 routes to Central America and the Caribbean. Handling 83 percent of all air imports and 81 percent of all exports from the Latin American/Caribbean region, MIA serves as the hub for distribution of perishable products, hi-tech commodities, telecommunications equipment, textiles, pharmaceuticals, and industrial machinery. Other airports with air cargo flights to the Caribbean include Fort Lauderdale with six routes, and the Palm Beach International (PBI) and MCO with one cargo route each. Additionally, Jacksonville International Airport has a UPS cargo route to and from San Juan, Puerto Rico.

SOUTH AMERICA: MIA supports 25 wide-body passenger routes and 62 scheduled freighter routes to South America. MIA also has seven outbound routes to South America operated by integrated express operators: UPS, DHL, and FedEx. MCO provides wide-body belly cargo lift on passenger routes to Columbia, as well as Rio de Janeiro and São Paulo, Brazil, while Orlando Sanford International Airport (SFB) provides cargo lift to Rio de Janeiro and São Paulo, Brazil on passenger aircraft.

EUROPE: There are six [FLL, MIA, SFB, MCO, Southwest Florida International Airport (RSW), TPA] airports in Florida that offer nonstop service on wide-body passenger aircraft with containerized belly cargo capacity to Europe. MIA has over 20 non-stop routes to Europe on passenger wide-body aircraft and freighters. At Miami, Aeroflot Russian Airlines offers three weekly nonstop flights between Miami and Moscow as does Transaero. MCO provides wide-body belly cargo lift to Dublin, Paris, London, Glasgow, and Manchester. SFB provides cargo lift to Cardiff, Wales, Glasgow, Scotland, London-Gatwick, Manchester, England, Newcastle, England, Amsterdam, and Reykjavik, Iceland. Southwest Florida International Airport offers three frequencies a week to Dusseldorf, Germany, on Air Berlin, while FLL has passenger aircraft belly capacity to Frankfurt. TPA provides wide-body passenger aircraft with belly capacity to London.

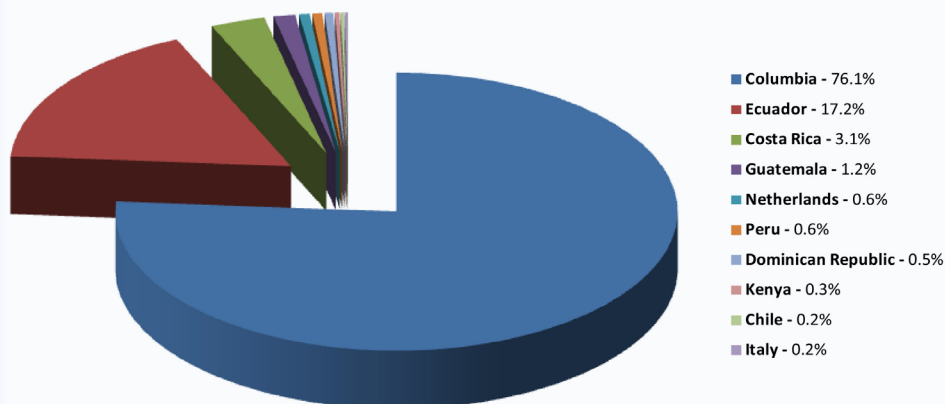
ASIA: MIA is the only international airport in Florida with scheduled air cargo freighters to and from Asia. Approximately 6 percent of Florida's international lift is bound for Asia with most of these routes stopping in Anchorage for refueling. Airlines with successful track records in Asia air cargo services provide the service to their respective hubs. These are Korean Airlines from Seoul, China Airlines from Taipei, and Cathay Pacific from Hong Kong. Growth in frequencies between MIA and these markets doubled between 2009 and 2010 as a result of these carriers collaborating with MIA's extended Latin American air cargo carrier base, which carriers transferred cargo to points south.



Flower Industry's Reliance on Air Cargo

Fresh-cut flowers are the number one perishable import through Miami International Airport. On a daily basis, approximately 32,000 boxes of flowers arrive at Miami International Airport. Flower imports at MIA are dominated by the countries of Columbia and Ecuador, with 76 percent and 17 percent, respectively, of all flower imports into the airport.

Flower Imports Market Share



One of the world's top flower growing regions in the world is found in the Bogota Plateau of Colombia. Situated at an elevation of 9,000 feet, the plateau offers rich volcanic soil, near-ideal climate conditions for growing flowers, a substantial laborforce, and infrastructure for transporting flowers to retail markets worldwide. In fact, flights from Columbia to Miami International Airport are only three hours on average.

Flower Processing

Cargo planes carrying flowers are typically loaded in the cool hours of the evening. At a high altitude airport like Bogota, cargo carriers tend to operate at night so that their fully loaded aircraft can achieve better aircraft performance at takeoff. The flowers arrive in Miami usually in the early morning where they are off loaded by air cargo carrier staff. They are then taken into pre-cooler warehouses where U.S. Customs and Border Protection (CBP) agency staff inspect the arriving imports. Airline staff break down flower boxes that arrive palletized on air cargo aircraft. The boxes of flowers are then sorted, stacked, and shrink wrapped onto wood pallets, which are easily handled by forklifts.

If the flowers are deemed by US CBP to be infested with insects, the U.S. Department of Agriculture (USDA) is called in to determine whether the flowers need fumigation. If flowers require fumigation, they are taken to one of two fumigation companies on the airport grounds.



Photo courtesy of Miami-Dade Aviation Department

Production and Distribution

Once the flowers have arrived at the nearby importers' warehouses, they are packed into boxes or developed into bouquets. These flowers are then sold to mass marketers and retail chains. Approximately 35 trucking lines in Miami specialize in flower transport throughout North America. Their 52-foot-long trailers are refrigerated and equipped with air-ride suspension, ethylene gas, and temperature sensors to ensure flower preservation.

Air Cargo at General Aviation Airports

Despite the fact that commercial service airports accommodate the large majority of Florida's air cargo tonnage, it is undeniable that general aviation (GA) airports play a significant role in facilitating the transport of air freight within the state and region.

Analysis of Federal Aviation Administration (FAA) data indicates that 36 airports in Florida regularly accommodate air cargo by specialized cargo carriers utilizing piston, turboprop, and corporate jet aircraft. The five busiest GA airports by operations were Orlando Executive, Opa-Locka Executive, Fort Lauderdale Executive, Craig Municipal, and Tampa Executive. The carriers that operate scheduled routes from these airports include AirNet Systems, Ameriflight, Flight Express, Mountain Air Cargo, Quest Diagnostics, and Skyway Enterprises. Flight Express, AirNet Systems, and Quest Diagnostics are the three heaviest users of all Florida GA airports by total annual operations.



The types of carriers operating at general aviation airports in Florida include those that carry medical supplies and specimens, bank materials, and specialty cargo on both a scheduled or ad hoc basis. Additionally, some carriers are contracted feeder aircraft for larger integrated express carriers such as FedEx and UPS. The aircraft that operate cargo routes to GA airports are significantly smaller and have far less capacity than the aircraft used by the major air cargo carriers at commercial service airports. These aircraft are typically single or twin engine piston, turboprop, or jet aircraft that are capable of operating on the shorter runways of GA airports and are more economical when operating on shorter routes. While large cargo aircraft payloads can range from 18,000 to 95,000 pounds for narrow-body jets and 80,000 to 240,000 pounds for wide-body jets, the capacities of cargo aircraft operating at GA airports have payloads ranging from 800 up to around 7,000 pounds.

Airport Cargo Trucking Networks

The surface transportation of air cargo represents a major component of the air cargo system in Florida. Moving freight between the point of pick-up/delivery and the aircraft involves complex coordination of truck movements between the customer-to-station, as well as station-to-airport. Integrated express carriers and air freight forwarders comprise the majority of air cargo surface transport volume and, as a result of the major role Florida plays within the air cargo industry, maintain significant/extensive operations throughout the state.

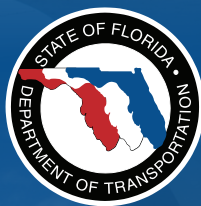
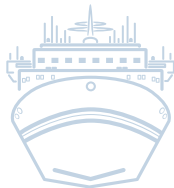
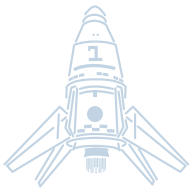
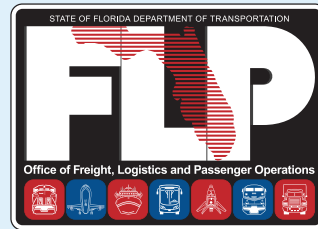


In addition to their extensive aircraft operations at Florida airports, FedEx and UPS both have significant surface transportation networks. Statewide, the two carriers combine for a total of 77 stations that have a combined area of over 4.5 million square feet of warehouse space. A total of over 2,300 truck docks and nearly 700 truck doors can be found at these stations. With a total distance of 2,833 linear miles between these stations and the airports they serve, the surface transport of air cargo utilizes all roadway types, including arterial, limited access highway, and limited access toll highway roads.

For more information on Florida's Air Cargo System,
contact Abdul Hatim at 850-414-4504,
or scan the QR code below:



<http://www.dot.state.fl.us/aviation/cargo.shtm>



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