



Air Cargo Market Analysis

Central Florida Regional Freight Study

technical report



prepared for

MetroPlan Orlando

**FDOT District 5, Lake-Sumter MPO, Space Coast TPO,
and Volusia TPO**

prepared by

Aviation Analytics

Cambridge Systematics



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March 2013

Table of Contents

1.0	Introduction	1
2.0	Air Cargo Profile	2
2.1	Air Cargo Airports	2
2.2	Air Cargo Service Providers	4
	Integrated Express Carriers	4
	All-Cargo Carriers	5
	Commercial Service Passenger Carriers	5
	Freight Forwarders	6
2.3	Regional Air Cargo Facilities and Activity	8
	Air Cargo Facilities	8
	Air Cargo Activity	9
2.4	Air Cargo Commodities	10
2.5	Regional Air Cargo Airport Overview	12
	Orlando International Airport	12
	2.1.1 Access	14
	2.1.2 Service Levels	15
	Orlando-Sanford International Airport	16
	2.2.1 Access	16
	2.2.2 Service Levels	17
	Melbourne International Airport	18
	Access	18
	Service Levels	19
	Daytona Beach International Airport	20
	Access	20
	Service Levels	21
2.6	Challenges	22
	Capacity and Operational Issues	22
3.0	Air Cargo Forecast	1
3.1	Overview	1
3.2	Air Cargo Forecast Factors	1
3.3	Volume Forecasts by Airport	2
	Orlando International Airport	2

Orlando Sanford International Airport	3
Melbourne International Airport.....	4
Daytona Beach International Airport	5
3.4 Regional Forecast Summary.....	5
Forecast Summary by Market.....	6
Forecast by Direction.....	7
Forecast by Commodity.....	7
4.0 Market Opportunities	i
4.1 Opportunity Overview	i
4.2 Introduction of New Markets	i
4.3 Increased Belly Space Capacity	ii
4.4 Reduction of Cargo Leakage	ii
4.5 Utilization of GA Airports.....	iii

List of Tables

Table 2.1	Dedicated Air Cargo Facilities by Airport.....	8
Table 2.2	Customs/Foreign Trade Capabilities.....	8
Table 2.3	Air Cargo Service Providers by Airport	9
Table 2.4	2011 Air Cargo Tons by Airport and Market	9
Table 2.5	2011 Air Cargo Tons by Direction	10
Table 2.6	2011 Domestic Air Cargo Tons by Commodity	10
Table 2.7	2011 International Air Cargo Tons by Commodity.....	11
Table 2.8	2011 MCO Air Cargo Tons by Carrier and Direction	15
Table 2.9	2011 MCO Air Cargo Tons by Carrier Type and Direction	16
Table 2.10	2011 SFB Air Cargo Tons by Carrier and Direction	18
Table 2.11	2011 MCO Air Cargo Tons by Carrier and Direction	20
Table 2.12	2011 DAB Air Cargo Tons by Carrier and Direction	21
Table 3.1	Boeing Air Cargo Growth Factors (AAGR).....	2
Table 3.2	MCO Forecast Summary by Market (in tons)	3
Table 3.3	SFB Forecast Summary by Market (in tons)	4
Table 3.4	MLB Forecast Summary by Market (in tons)	4
Table 3.5	DAB Forecast Summary by Market (in tons)	5
Table 3.6	Regional Forecast Summary by Airport (in tons).....	6
Table 3.7	Regional Air Cargo Market Share by Airport (in tons)	6
Table 3.8	Regional Forecast Summary by Market & Direction (in tons).....	6
Table 3.9	Regional Forecast Summary by Market (in tons)	7
Table 3.10	Regional Forecast by Direction (in tons).....	7
Table 3.11	Domestic Air Cargo Forecast by Commodity (in tons)	8
Table 3.12	International Air Cargo Forecast by Commodity (in tons)	8

List of Figures

Figure 2.1	Central Florida Freight Study Freight Transportation Network.....	2
Figure 2.2	MCO Air Cargo Facility Location.....	13
Figure 2.3	MCO Air Cargo Access Routes	14
Figure 2.4	SFB Air Cargo Access Routes	17
Figure 2.5	MLB Air Cargo Access Routes	19
Figure 2.6	DAB Air Cargo Access Routes	21

1.0 Introduction

The air cargo element of the Regional Freight and Goods Movement Study will catalogue existing regional air cargo infrastructure, operations, carriers, markets, and shippers in order to form a baseline from which an air cargo activity forecast is conducted. Particular interest is paid to the market split (international versus domestic, and integrated express carrier versus belly freight) in order to identify the differing drivers of future regional air cargo activity. In total, this document will provide an overview of current and projected air cargo activity in the study area through an examination of the following topics:

- Identification of current and potential air cargo airports;
- Overview of air cargo service providers (carriers and forwarders);
- Overview of existing infrastructure, access, and service levels;
- Review of capacity and operational issues;
- Baseline air cargo volume by airport, market, commodity type, and direction;
- Air cargo forecast by airport, market, commodity type, and direction;
- Market opportunity analysis.

Information and data for this element of the Study has been pulled from multiple sources, including:

- Interviews and meetings with airport management, air carriers, freight forwarders, and drayage operators;
- Florida Statewide Air Cargo System Plan;
- Orlando International Airport Master Plan;
- FAA Form 5010 airport data;
- Bureau of Transportation Statistics (BTS) T-100 carrier data;
- Boeing World Air Cargo Forecast 2012;
- USA Trade Online, Harmonized System (HS) Port-level Database.

2.0 Air Cargo Profile

2.1 AIR CARGO AIRPORTS

The Central Florida study area is served by four commercial service airports with reported air cargo activity, including both dedicated all-cargo carrier operations, as well as commercial passenger carrier belly cargo. These airports include:

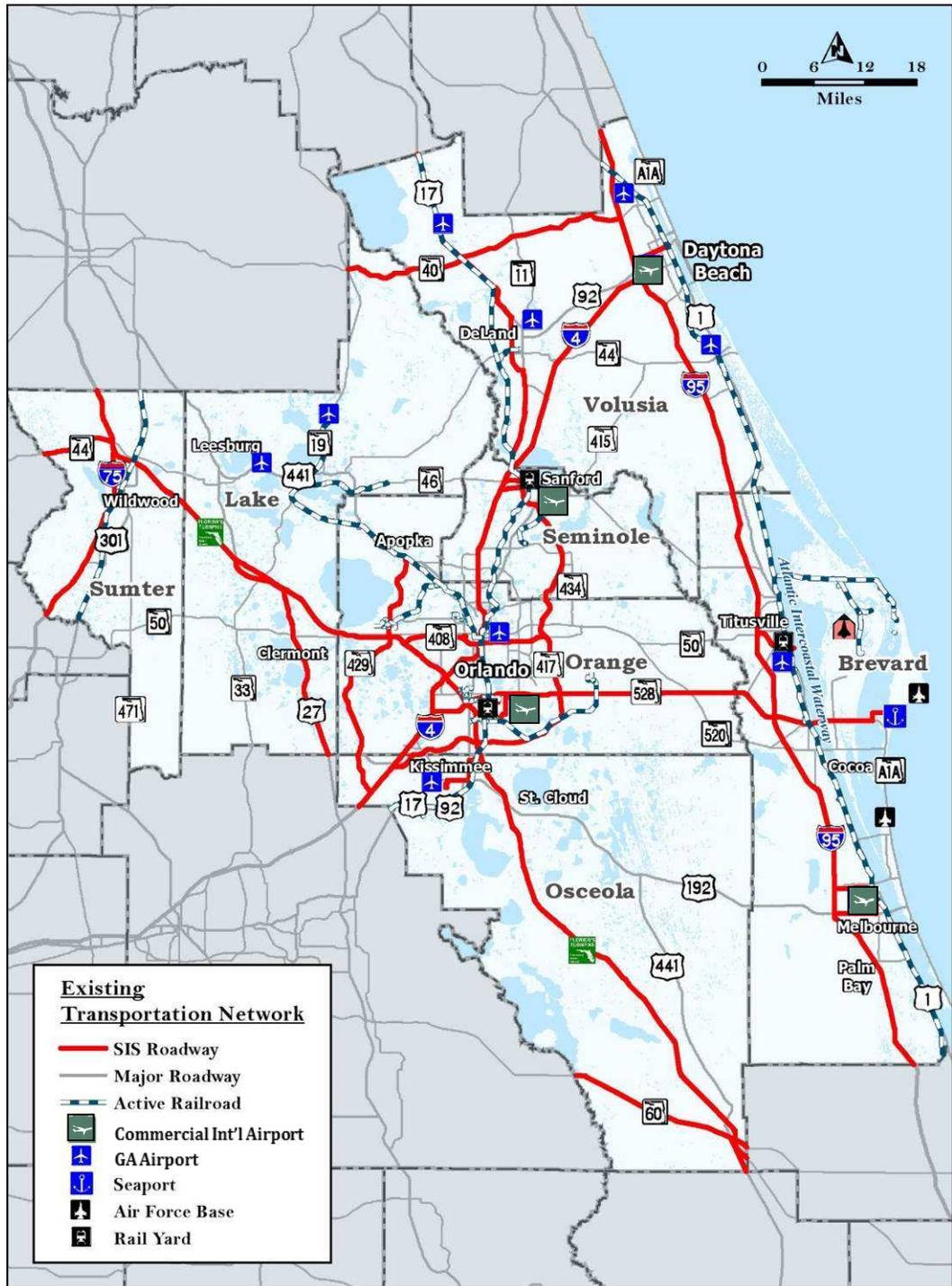
- Orlando International Airport (MCO)
- Orlando-Sanford International Airport (SFB)
- Melbourne International Airport (MLB)
- Daytona Beach International Airport (DAB)

Orlando International is a designated Florida Strategic Intermodal System (SIS) airport, while Orlando-Sanford International is classified as an Emerging SIS airport. In total, these four airports provide scheduled service to over 115 domestic and 43 international cities with direct, non-stop flights.

In addition to these four commercial service airports, there are several General Aviation (GA) airports that serve private and corporate aviation demand within the region. Unique among these is Leesburg International Airport (LEE), located approximately one-hour (drive-time) to the northwest of Orlando. Unlike other typical GA airports, Leesburg International Airport offers U.S. Customs and Border Protection inspections, with a U.S. Customs Officer on duty daily from 8:30am until 5:00pm. This capability allows LEE to handle both international and domestic air cargo, should demand warrant it. Currently, the Airport does not have any air cargo activity, and will not be addressed in detail in the Air Cargo Profile and Forecast sections of this report (which catalogues current and forecasted activity in the study area based on existing infrastructure and operations). However, LEE's future potential to host air cargo activity will be addressed in the Market Opportunities section relating to potential regional air cargo growth.

Figure 2.1 illustrates the Central Florida multimodal freight transportation network, highlighting commercial service international airport locations, as well as GA airport, seaport, rail yard, railroad, and highway assets.

Figure 2.1 Central Florida Freight Study Freight Transportation Network



Source: FDOT

2.2 AIR CARGO SERVICE PROVIDERS

Air cargo services within the study area are provided by a segmented group of air carriers, both all-cargo and passenger carrier, that provide differing services based upon wide ranging customer demands. The air carrier types include:

- Integrated express carriers;
- All-cargo carriers (scheduled and ad-hoc charter); and
- Commercial service passenger carriers.

The following sections will provide a brief overview of the air carrier types that provide the region's air cargo services, their approximate service levels, and markets served.

Integrated Express Carriers

Integrated express carriers move customer materials door-to-door, providing shipment pickup, transport (via air or truck), and delivery. Integrated express operators within the study area include FedEx, UPS, and DHL, and to a certain extent U.S. Postal Service (USPS). Express companies provide next day or second day, document, and small package services to the customers they serve. Integrated express carriers operate using a hub-and-spoke system similar to the passenger airline system. The hub is the focal point of the integrated express carrier network since it provides connections to each market in the integrator's system. Each day of operations, flights from around the U.S. arrive at the carrier's hub where packages are offloaded, sorted for each destination market, and then reloaded onto the appropriate aircraft. Traditional integrated express service focuses on the small-volume, infrequent shipper or higher volume shippers moving product to multiple destinations. The small shipper "retail" air cargo market includes individual, private and business-to-consumer (B-to-C) shippers. However, integrated express carriers are well established in the "wholesale" market (i.e., third party logistics), catering to larger freight movements demanded by manufacturing and distribution operations.

All integrated express air movements within the study area are conducted at MCO, and trucked or couriered to customers in surrounding counties. Each of the integrated express carriers consolidates express air cargo from the study area, which effectively constitutes the MCO catchment area for express air cargo. For FedEx and UPS, this area has been identified as:

- North to Ocala.
- South to Lake Wales.
- East to Melbourne, Cocoa Beach, Daytona Beach.
- West to Lakeland.

The DHL Worldwide Express catchment area for MCO is slightly larger due to fewer aircraft in their network, thus requiring larger catchment areas for each airport station (i.e., spoke) served. The DHL catchment area for MCO is as follows:

- Northeast to Jacksonville.
- Southeast to Melbourne/Palm Bay.
- West to Tampa.
- South to Sebring.

All-Cargo Carriers

All-cargo carriers operate both scheduled and ad-hoc (i.e., charter) cargo-only aircraft from one airport to another, and are highly reliant on the air freight forwarding industry to market, broker and handle freight off-airport. Due to their airport-to-airport service structure, scheduled all-cargo carriers are typically concentrated in large, high volume market airports; unlike the integrated express carriers, scheduled all-cargo carrier geographic coverage is limited. Note that some all-cargo carriers that operate scheduled routes do so exclusively for the integrated express carriers as either feeder routes, or in some cases, as trunk-line routes (i.e., station-to-hub routes). This is the case with MCO all-cargo carrier ABX Air, which operates a scheduled B767 to Cincinnati-Northern Kentucky International Airport, under contract with DHL.

Ad-hoc charter activity consists of unscheduled all-cargo carrier operations that move goods from airport-to-airport based strictly on shipper needs. Ad-hoc shipments tend to be oversized freight, specialized or sensitive cargo (i.e., military equipment or high value technology), or emergency supply chain shipments for just-in-time manufacturing operations. Within the study region, MLB has the highest level of ad-hoc charter operations. These freight movements include widebody charters (B747, AN225, C-5, and C-17 aircraft) driven by the Department of Defense, State Department, Dyncorp, and local technology firms (including GE, Northrop-Grumman, Rockwell Collins, Harris). These flights averaged a once a month pace in 2011 and are expected to increase to 2 to 3 per month through 2013.

Commercial Service Passenger Carriers

Commercial service passenger carriers are scheduled passenger airline operators that use cargo space in the bellies of their aircraft to move cargo airport-to-airport. An airline's aircraft fleet is a significant factor in determining the size and amount of cargo the airline can accommodate. A domestic airline with a fleet of narrow-body and regional jets cannot accommodate large, bulky shipments. However, airlines operating wide-body aircraft (typically on international or transcontinental routes), such as the B747, B777, and A340, have containerized lower decks (which allow speed in loading and offloading) and generally are

capable of handling large, bulky shipments. Simply put, the larger the aircraft on a route, the greater the capacity to move cargo; thus international routes operating wide-body aircraft tend to move the majority of commercial passenger carrier freight.

It is estimated that 50 percent of U.S. international air cargo traffic (inbound and outbound) is moved in the bellies of passenger aircraft.¹ Within the study area, this percentage rises to over 98 percent due to the high level of international wide-body capacity provided by passenger carriers out of MCO and SFB.² Commercial passenger carrier capacity, primarily to European, and increasingly Latin American destinations, drives the vast majority of the region's international air trade. Most scheduled international all-cargo flights operate from integrated express carrier hubs (e.g., Memphis, Louisville, Cincinnati) or are centered at large international gateways (e.g., Atlanta, Miami, New York).

Within the U.S. domestic air cargo market – a market dominated by the integrated express carriers – commercial passenger carriers account for only an estimated 15 to 20 percent of air cargo volume. Within the study area this percentage is even lower; domestic air cargo traveling on commercial passenger carriers equates to just over 11 percent of total domestic air cargo tonnage within the region, with nearly all of that traffic handled at MCO.

The air cargo market share of commercial passenger carriers, particularly on domestic routes, has declined significantly in the past decade due to multiple factors. Chief among these are the security measures and restrictions brought about by the September 11 terrorist attacks, and the subsequent requirement for 100 percent screening of all passenger carrier air cargo. These security regulations led to secure shipper certification requirements that effectively eliminated small and infrequent shippers from the passenger carrier cargo market, and drove them to the integrated express carriers.

The increasing use of smaller 50- and 70-seat regional jets on longer routes also served to limit the amount of belly space available on domestic routes, thus reducing system capacity. The final factor in the decline of domestic passenger carrier cargo was the awarding of USPS air contracts to FedEx, which effectively pulled most U.S. mail off passenger carriers. These three factors have combined to produce a shift of domestic air cargo away from passenger carrier capacity toward integrated express carriers, and to a certain extent, time definite trucking.

Freight Forwarders

Freight forwarding companies act as brokers, or intermediaries, between the shipper and the carrier (all-cargo, commercial passenger or ad-hoc charter). The

¹ Florida Air Cargo System Plan, 2010, Recent IATA reports.

² Bureau of Transportation Statistics T-100 data.

air carrier will provide airport-to-airport service only, with the carrier's responsibility beginning once the cargo is tendered at the origin airport, and ending once the cargo is offloaded at the destination airport. The forwarder will coordinate all other aspects of the freight movement, including pickup at the shipper's facility, securing space on an aircraft, freight consolidation (if the forwarder deems it necessary), customs and security clearance, destination airport pickup, and final delivery to the receiver. From the perspective of the air carrier, the freight forwarder is the shipper, not the actual owner of the freight (i.e., the forwarder's customer).

In addition to using air carriers to move freight from airport-to-airport (commercial passenger carriers and all-cargo airlines), freight forwarders also often rely on third-party less-than-truck load (LTL) motor carriers to move consignment airport-to-airport. This is often referred to as road feeder service (RFS). RFS from the study area is common to both Atlanta and Miami in order to take advantage of the abundant capacity available at these gateway airports.

Nearly all major international freight forwarders have a presence in the study area, with offices and warehouses centered around MCO. These international forwarders include:

- DHL Global Forwarding.
- Hellman Worldwide.
- Panalpina.
- Kuehne & Nagel.
- DB Shenker.
- Expeditors.
- Ceva Logistics.
- AIT Worldwide Logistics.

The forwarders listed above are supplemented by multiple domestic, regional, and niche forwarders. Forwarder market areas are defined by individual customers rather than large population or industrial centers. They tend to view their market area on a large regional basis versus a specific metro area, and thus all the air transportation asset in a region are utilized based on cost, availability, and origin-destination points. In the case of Orlando area forwarders, these air assets include Atlanta-Hartsfield International Airport and Miami International Airport. Widebody capacity at these airports is often used by Orlando-based forwarders, and likewise, Atlanta and Miami freight may be trucked to MCO for air transit if cost and capacity warrants.

2.3 REGIONAL AIR CARGO FACILITIES AND ACTIVITY

The following sections provide an overview of the study area's four active air cargo airports, and include summaries of:

- Air cargo facility inventory.
- Air cargo activity synopsis (volume and direction).
- Air cargo commodity summary.

The specific activity at each airport will be discussed in individual airport profiles presented later in this chapter.

Air Cargo Facilities

As detailed in Table 2.1, the region's air cargo airports have 24 on-airport buildings and warehouses dedicated to air cargo operations with over 800,700 square feet of space for sort and consolidation activity. These buildings boast 282 truck docks that facilitate the efficient pickup and delivery of air cargo. Adjacent to these buildings, is over 316,500 square yards of dedicated air cargo ramp space. With the recent shutdown and conversion of MCO's perishable center (refrigerated facility) to a warehouse, only SFB has perishable storage capabilities.

Table 2.1 Dedicated Air Cargo Facilities by Airport

Airport	Air Cargo Ramp (Sq. Yards)	Air Cargo Buildings	Air Cargo Building (Sq. Feet)	Air Cargo Building Truck Docks	Refrigerated Storage (Sq. Feet)
Orlando International	237,450	20	630,440	253	-
Orlando-Sanford International	34,580	1	45,000	9	6,000
Melbourne International	44,500	2	120,000	19	-
Daytona Beach International	-	1	5,300	1	-
Total	316,530	24	800,740	282	6,000

Source: Airport Provided Data, Florida Air Cargo System Plan.

Table 2.2 presents the U.S. Customs and USDA clearance services available at each airport. All airports have onsite customs capabilities and Foreign Trade Zones, while only MCO has onsite USDA inspection capabilities.

Table 2.2 Customs/Foreign Trade Capabilities

Airport	Foreign Trade Zone	Onsite U.S. Customs	Onsite USDA
Orlando International	Yes	Yes	Yes
Orlando-Sanford International	Yes	Yes	No

Melbourne International	Yes	Yes	No
Daytona Beach International	Yes	Yes	No

Source: Airport Provided Data, Florida Air Cargo System Plan.

The air cargo service providers by type for each airport are presented in Table 2.3. Only MCO offers air cargo capacity from each distinct type of carrier; integrated express, all-cargo, ad-hoc/charter, domestic, and international passenger carriers.

Table 2.3 Air Cargo Service Providers by Airport

Airport	Integrated Express	Scheduled All Cargo	Charter All Cargo	Domestic Passenger	International Passenger
Orlando International	Yes	Yes*	Yes	Yes	Yes
Orlando-Sanford International	No	No	No	Yes	Yes
Melbourne International	No	No	Yes	Yes	No
Daytona Beach International	No	No	No	Yes	No

Source: Airport Provided Data, BTS T-100 Data.

Note: *Scheduled all-cargo carriers operate contract routes for integrated express carriers.

Air Cargo Activity

Table 2.4 and Table 2.5 presents the 2011 air cargo tonnage by market (domestic versus international) and direction (outbound versus inbound). As expected, MCO air cargo volume constitutes the vast majority of tonnage moved at the region's airports. This is due to the operation of all three integrated express operators at the Airport, coupled with the large amount of international widebody capacity.

Table 2.4 2011 Air Cargo Tons by Airport and Market

Airport	Domestic	International	Total	Percent of Total
Orlando International	142,839	44,228	187,067	98.1%
Orlando-Sanford International	-	3,022	3,022	1.6%
Melbourne International	99	430	529	0.3%
Daytona Beach International	108	-	109	0.1%
Total	143,046	47,680	190,726	100%
Percent of Total	75.0%	25.0%	100%	

Source: Airport Provided Data, BTS T-100 Data.

As illustrated in Table 2.5, the study area, in total, is an inbound (or import) market. Just over 57 percent of total air cargo traffic is inbound.

Table 2.5 2011 Air Cargo Tons by Direction

Airport	Outbound	Inbound	Total	Percent of Total
Orlando International	79,512	107,555	187,067	98.1%
Orlando-Sanford International	1,319	1,703	3,022	1.6%
Melbourne International	303	226	529	0.3%
Daytona Beach International	59	49	108	0.1%
Total	81,193	109,534	190,727	100%
Percent of Total	42.6%	57.4%	100%	

Source: Airport Provided Data, BTS T-100 Data.

2.4 AIR CARGO COMMODITIES

The following tables present the commodity types moved in and out of the study area by market (domestic versus international). Table 2.6 details 2011 domestic air cargo tonnage by commodity using STCC2 codes. Due to the heavy level of domestic integrated express carrier traffic, it is not surprising that mail and express traffic accounts for over 54 percent of total domestic air volume.

Table 2.6 2011 Domestic Air Cargo Tons by Commodity

STCC2	Commodity	Tons	Percent of Total
43	Mail, Express or Other Contract Traffic	77,574	54.2%
46	Miscellaneous Mixed Shipments	16,385	11.5%
28	Chemicals or Allied Products	14,950	10.5%
35	Machinery, excluding Electrical	8,160	5.7%
37	Transportation Equipment	5,943	4.2%
36	Elec Machinery, Equip, Supplies	4,997	3.5%
27	Printed Matter	2,764	1.9%
1	Farm Products	2,494	1.7%
39	Misc Products of Manufacturing	2,206	1.5%
34	Fabricated Metal Products	2,071	1.4%
20	Food and Kindred Products	1,170	0.8%
26	Pulp, Paper or Allied Products	987	0.7%
32	Clay, Concrete, Glass, Stone Prod	869	0.6%
38	Instruments, Photo/Opt Goods, Etc	747	0.5%
23	Apparel or Fin Textile Products	696	0.5%
30	Rubber or Misc Rubber Prods	363	0.3%
9	Fresh Fish	307	0.2%
33	Primary Metal Products	160	0.1%

25	Furniture or Fixtures	67	>0.1%
22	Textile Mill Products	61	>0.1%
24	Lumber or Wood Products	48	>0.1%
31	Leather or Leather Products	15	>0.1%
29	Petroleum or Coal Products	11	>0.1%
Total		143,046	100%

Source: TRANSEARCH, Cambridge Systematics.

International air cargo tonnage by commodity and direction is presented in Table 2.7. This data was pulled from USA Trade Online, Harmonized System (HS) Port-level Database provided by the U.S. Census Bureau, and presented in NAICS codes (North American Industry Classification System). The top-five international air trade commodities transiting the region's airports (machinery, fish, optic/medical instruments, vegetables, and electronics) account for nearly 52 percent of the total.

The total value of air imports into the region for 2011 is estimated to be \$932.0 billion, while air exports are estimated at \$833.2 billion. This equates to an average value of \$32,707 per import ton, and \$43,437 per export ton. Additional detail is included in the Current Year Commodity Flow Profile report. This report identifies regional commodity flows for all freight modes, including air cargo.

Table 2.7 2011 International Air Cargo Tons by Commodity

NAICS Commodity	Import	Export	Total	Percent of Total
84 Machinery, Nuclear Reactors, Boilers, Etc.; Parts	7,037	3,517	10,554	22.1%
03 Fish, Crustaceans and Aquatic Invertebrates	4,154	111	4,265	8.9%
90 Optic, Photo Etc, Medic Or Surgical Instrments Etc	1,872	1,819	3,691	7.7%
07 Edible Vegetables and Certain Roots and Tubers	2,647	835	3,482	7.3%
85 Electric Machinery Etc; Sound Equip; Tv Equip	1,458	1,206	2,663	5.6%
04 Edible Animal Prods, Dairy Prods Nesoi	1	2,185	2,185	4.6%
87 Vehicles, Except Railway Or Tramway, and Parts	1,444	681	2,125	4.5%
06 Live Trees, Plants, Bulbs Etc.; Cut Flowers Etc.	57	1,924	1,981	4.2%
30 Pharmaceutical Products	1,185	509	1,694	3.6%
39 Plastics and Articles Thereof	620	806	1,427	3.0%
38 Miscellaneous Chemical Products	446	603	1,050	2.2%
73 Articles Of Iron Or Steel	512	444	956	2.0%
98 Special Classification Provisions, Nesoi	834	5	838	1.8%
27 Mineral Fuel; Bitumin Subst; Mineral Wax	447	198	645	1.4%
40 Rubber and Articles Thereof	489	126	614	1.3%

NAICS Commodity	Import	Export	Total	Percent of Total
29 Organic Chemicals	218	356	574	1.2%
33 Essential Oils Etc; Perfumery, Cosmetic Etc Preps	254	318	572	1.2%
94 Furniture; Bedding Etc; Lamps Nesoi Etc;	366	86	452	0.9%
62 Apparel Articles and Accessories, Not Knit Etc.	422	23	445	0.9%
49 Printed Books, Newspapers Etc; Manuscripts Etc	170	202	372	0.8%
69 Ceramic Products	306	62	368	0.8%
01 Live Animals	300	29	329	0.7%
83 Miscellaneous Articles Of Base Metal	175	145	319	0.7%
61 Apparel Articles and Accessories, Knit Or Crochet	183	131	314	0.7%
36 Explosives; Pyrotechnics; Matches; Pyro Alloys	297	5	303	0.6%
All Others	2,604	2,857	5,461	11.5%
Total	28,497	19,183	47,680	100.0%
Percent of Total	59.8%	40.2%	100.0%	

Source: USA Trade Online, Harmonized System (HS) Port-level Database; Airport Analytics.

2.5 REGIONAL AIR CARGO AIRPORT OVERVIEW

The following sections provide a more detailed overview of the current air cargo facilities, access, and service levels of each of the four commercial service airports in the study area.

Orlando International Airport

There are four separate areas on the Airport which accommodate air cargo activity. These areas are: the passenger airline cargo facility located off Cargo Road and Bear Road on the north side of the Airport, the two areas on the west side of Runway 36L along Tradeport Drive (which include UPS and DHL), and the FedEx and USPS facilities located on the west side of the end of Runway 36L on the south portion of Tradeport Drive. These areas along Tradeport Drive constitute the Orlando Tradeport. Figure 2.2 illustrates the location of each of these facilities.

Figure 2.2 MCO Air Cargo Facility Location



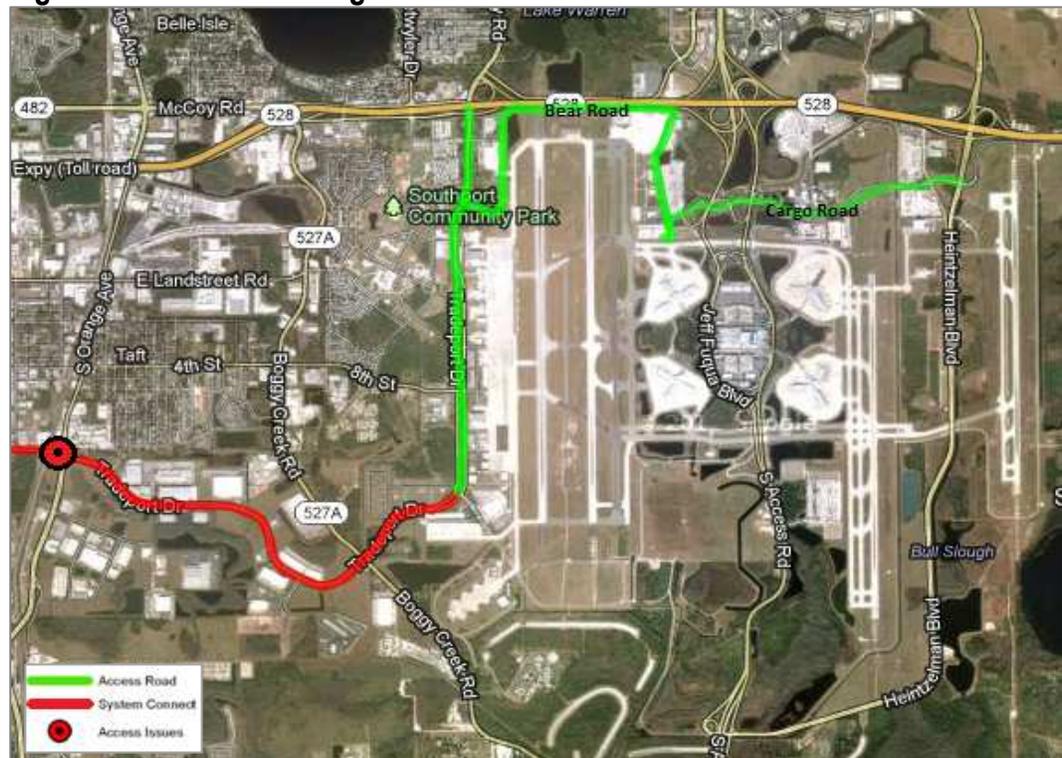
Source: GOAA, Ricondo & Associates, Inc.

Orlando Tradeport, a 1,400 acre fully integrated cargo center located on Airport property, is a master planned facility with design criteria geared toward intermodal transportation capacity and direct airside access. The Tradeport provides 140 acres of cargo ramp that can be accessed directly by truck (through-the-fence access), or via truck dock through air cargo sort/staging facilities. There is currently over 500,000 square feet of cargo warehouse space, with aircraft parking available for up to 27 all-cargo wide body aircraft parked in two rows. Additionally, Orlando Tradeport offers a 205-acre Foreign Trade Zone #42. In total, the Airport has 14 cargo buildings with 253 truck docks, providing access to 630,440 square feet of building space and 237,450 square yards of dedicated air cargo ramp.

2.1.1 Access

MCO is surrounded by SR 528 to the north, which connects to the Florida Turnpike to the west and SR 417 to the east and south of the Airport. There are several roadways providing access to the Airport's air cargo areas from these thoroughfares. Tradeport Drive is a north-south four lane road, on the western most edge of Airport property that provides access to FedEx, UPS, DHL, and several commercial passenger carrier cargo facilities. Jeff Fuqua Boulevard is the main loop road to the passenger terminals, and connects to SR 436 at the junction of the SR 528. Bear Road connects Jeff Fuqua Boulevard with Tradeport Drive and parallels SR 528. As illustrated in Figure 2.3, Tradeport Drive, Cargo Road, and Bear Road provide the primary access to MCO's air cargo facilities.

Figure 2.3 MCO Air Cargo Access Routes



Source: Florida Air Cargo System Plan, FDOT, Cambridge Systematics.

Air carriers and freight forwarders that were consulted with as a part of this Study typically rated access to MCO cargo facilities as very good to excellent, particularly when compared to their experience with congestion at Miami International and Atlanta-Hartsfield International. Primary issues arise once drivers leave the immediate Airport environs, and these include:

- Westbound access to I-4 via Tradeport Drive and Taft Vineland Road: Taft Vineland narrows from a four lane thoroughfare to a two lane roadway. In addition, an at grade railroad crossing can hinder traffic flow.

- SR 528 toll booth near the junction of SR 436 contributes to traffic congestion at peak times. However, this toll booth is scheduled to be demolished in 2014.
- SR 417 does not have an interchange with the Florida Turnpike. An interchange at this location is currently in the design phase.

2.1.2 Service Levels

In 2011, 27 separate airlines, providing direct service to 84 domestic destinations and 34 international destinations, reported air cargo activity at MCO. Table 2.8 details the airline, airline type, and tonnage by direction with a summary by airline type in Table 2.9.

Table 2.8 2011 MCO Air Cargo Tons by Carrier and Direction

Airline	Airline Type	Outbound	Inbound	Total	Percent of Total
FedEx	All-Cargo Scheduled	29,574	36,590	66,164	35.4%
United Parcel Service	All-Cargo Scheduled	14,880	25,517	40,397	21.6%
Virgin Atlantic	International Passenger	6,997	12,580	19,577	10.5%
ABX Air (DHL)	All-Cargo Scheduled	7,855	7,988	15,843	8.5%
TAM Brazilian Airlines	International Passenger	4,268	5,060	9,328	5.0%
British Airways	International Passenger	3,350	3,381	6,731	3.6%
Southwest Airlines	Domestic Passenger	3,016	3,108	6,124	3.3%
Lufthansa Airlines	International Passenger	1,592	3,024	4,616	2.5%
Delta Air Lines	Domestic Passenger	1,761	2,577	4,338	2.3%
ASTAR (DHL)	All-Cargo Scheduled/Charter	2,280	399	2,679	1.4%
Air France	International Passenger	696	1,353	2,049	1.1%
Continental Airlines	Domestic Passenger	508	1,470	1,978	1.1%
Aer Lingus	International Passenger	545	1,237	1,782	1.0%
Air Transport International	All-Cargo Charter	530	1,031	1,561	0.8%
U.S. Airways	Domestic Passenger	363	569	932	0.5%
Mountain Air (FedEx)	All-Cargo Schedule	359	319	678	0.4%
JetBlue Airways	Domestic Passenger	166	366	532	0.3%
Evergreen International	All-Cargo Charter	187	279	466	0.2%
Frontier Airlines	Domestic Passenger	273	77	350	0.2%
United Airlines	Domestic Passenger	47	181	228	0.1%
Alaska Airlines	Domestic Passenger	45	158	203	0.1%
Air Canada	International Passenger	115	30	145	0.1%
Sun Country Airlines	Domestic Passenger	16	101	117	0.1%
National Air Cargo	All-Cargo Charter	4	88	92	>0.1%

Airline	Airline Type	Outbound	Inbound	Total	Percent of Total
Capital Cargo International	All-Cargo Charter	62	29	91	>0.1%
American Airlines	Domestic Passenger	5	35	40	>0.1%
Martinair Holland	All-Cargo Charter	18	8	26	>0.1%
Total		79,512	107,555	187,067	100%

Source: Greater Orlando Aviation Authority, Airport Analytics

Table 2.9 2011 MCO Air Cargo Tons by Carrier Type and Direction

Airline Type	Outbound	Inbound	Total	Percent of Total
All-Cargo Scheduled	54,948	70,813	125,761	67.2%
International Passenger	17,563	26,665	44,228	23.6%
Domestic Passenger	6,200	8,642	14,842	7.9%
All-Cargo Charter	801	1,435	2,236	1.2%
Total	79,512	107,555	187,067	100%

Source: Greater Orlando Aviation Authority, Airport Analytics

Orlando-Sanford International Airport

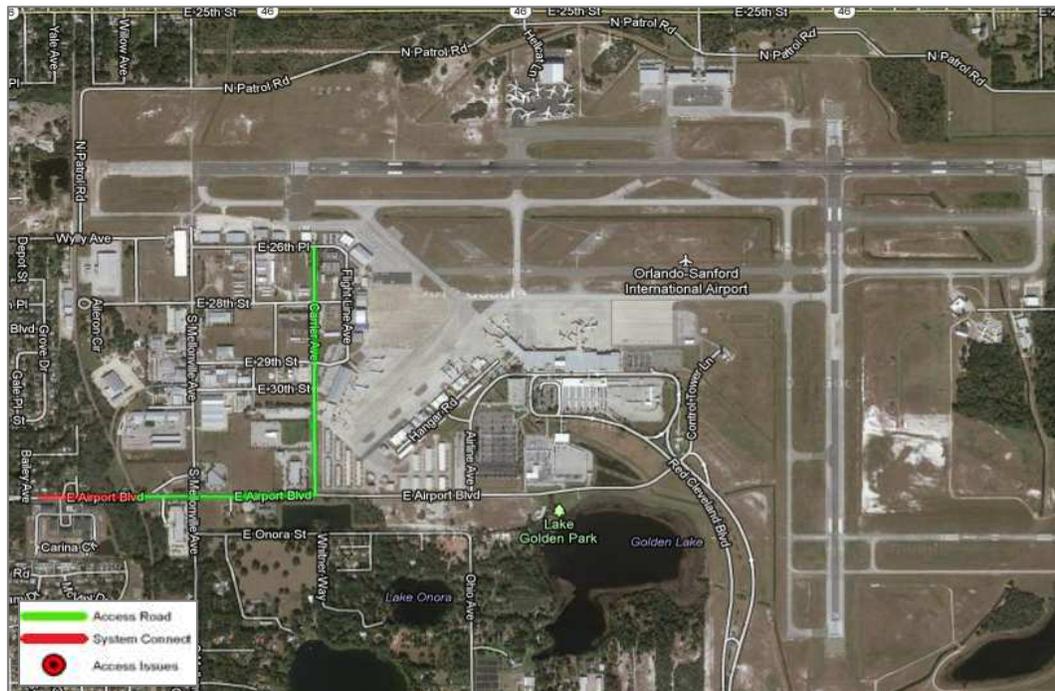
SFB has one dedicated 45,000 square foot air cargo building with nine truck docks; it is 60 percent occupied. Within the air cargo building is a 6,000 square foot refrigeration unit for the handling of perishables; it is the only permanent on-airport perishable facility in the study region. The building can be expanded by an additional 20,000 square feet, should demand warrant. There are 34,500 square yards of combined dedicated air cargo and multi-use ramp space that can be used for air cargo operations. The Airport operates the cargo facility and handles all cargo as a service for the carriers; the cargo facility does not make money for the Airport.

2.2.1 Access

The cargo facility is located on Carrier Avenue and is accessed primarily from East Jeff Fuqua Boulevard, and does not interfere with any passenger terminal vehicular traffic. Officials at SFB are satisfied with the current road configuration and access to the cargo facility; they did not identify any current areas of concern. As illustrated in Figure 2.4, East Jeff Fuqua Boulevard connects with SR417 to the west.

Figure 2.4 SFB Air Cargo Access Routes

Source: Florida Air Cargo System Plan, FDOT, Cambridge Systematics.



Note: No access issues were identified in the Florida Air Cargo System Plan at this location

2.2.2 Service Levels

All cargo activity at SFB is handled by the international passenger carriers that operate at the Airport. These carriers are charter operations and operate on a seasonal basis, thus cargo volume is cyclical, mirroring passenger flows. Seasonal peaks start in early July, and extend through October; there is limited international traffic December through April. Marketability of cargo service suffers due to peaks and ebbs of passenger service; the schedule inconsistency of widebody flights makes it difficult for forwarders to plan regular moves from the Airport.

Table 2.10 details the airline, airline type, and tonnage by direction. Note that all traffic in 2011 was international traffic with over 99 percent of the Airport's air trade to-and-from Europe, and USA Jet providing ad-hoc service to Canadian destinations.

Table 2.10 2011 SFB Air Cargo Tons by Carrier and Direction

Airline	Airline Type	Outbound	Inbound	Total	Percent of Total
Britannia Airways	Passenger Charter	512	1,169	1,681	51.4%
Thomas Cook Airlines	Passenger Charter	757	496	1,252	45.5%
Icelandair	Passenger Charter	51	21	71	2.7%
USA Jet Airlines	All-Cargo Charter		18	18	0.4%
Total		1,319	1,703	3,022	100%

Source: Orlando-Sanford International Airport, BTS T-100 Data, Airport Analytics

Melbourne International Airport

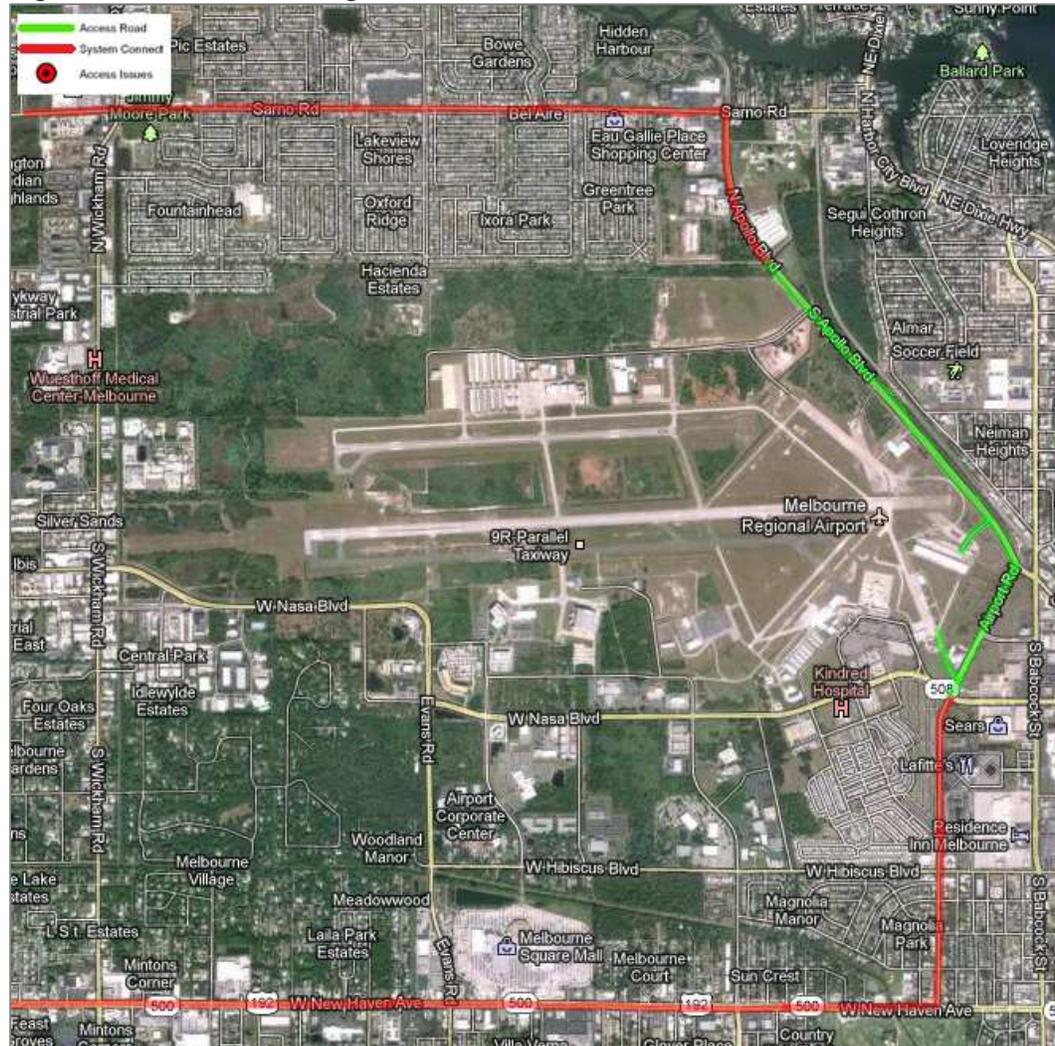
There are two air cargo buildings at MLB totaling 120,000 square feet. The smaller of the two is approximately 15,000 square feet with seven truck-docks and is located on the air cargo ramp east of the passenger terminal. Delta Airlines is the primary tenant of this building. The larger of the two is approximately 105,000 square-feet with 12 truck-docks and is also located to the northeast of the passenger terminal. This building does not sit directly on the air cargo ramp; it is connected to airside via an access road. MLB's air cargo ramp is 44,500 square yards and is located to the east of the terminal, south of the approach end of Runway 27L.

Liberty Aerospace, Inc. (U.S. subsidiary of the European manufacturer of the Liberty XL2 general aviation aircraft) leases approximately one third of MLB's larger air cargo building for its North American headquarters. The building is also home to several trucking companies and a freight forwarder.

Access

The smaller air cargo building is located on Ed Foster Road accessed via Airport Boulevard. The larger air cargo building is located on Air Cargo Place and is accessed via Apollo Boulevard. Trucks arriving and departing to the south will co-mingle with passenger traffic on Airport Boulevard until they reach NASA Boulevard where passenger traffic will turn east to the Airport terminal entrance. However, truck traffic is not considered heavy enough to cause congestion issues. Traffic arriving and departing to the north will use Apollo Boulevard. Airport management pointed out that much of the truck traffic to and from the Airport is not air cargo related, but driven by the businesses operating on the Airport. I-95 is approximately 5-miles to the west of the airport and is accessed by U.S. 192 to the south, or Sarno Road to the north. Figure 2.5 illustrates the primary access to MLB's air cargo facilities.

Figure 2.5 MLB Air Cargo Access Routes



Source: Florida Air Cargo System Plan, FDOT, Cambridge Systematics.

Note: No access issues were identified in the Florida Air Cargo System Plan at this location

Service Levels

MLB has limited scheduled cargo capacity (passenger carrier or all-cargo). Delta operates an MD-80 narrowbody to Atlanta, and U.S. Airways operates regional jets to Charlotte. Both aircraft types have limited belly capacity. There is, however, a considerable amount of widebody ad-hoc charter activity (B747, AN225, C-5, and C-17 aircraft) driven by DoD, State Department, and local technology firms (including GE, Northrop-Grumman, Rockwell Collins, Harris). B747 activity averages one flight every 2 months, but is ramping up to 2 per month, while an AN225 (a Russian built and operated widebody cargo aircraft) is operating at the Airport once every 2 months. Private cargo on Military aircraft will occasionally use MLB versus nearby Patrick AFB due to operating efficiencies at the Airport.

Table 2.11 details the airline, airline type, and tonnage by direction. Note that over 81 percent of MLB cargo is international due to all-cargo charter activity.

Table 2.11 2011 MCO Air Cargo Tons by Carrier and Direction

Airline	Airline Type	Outbound	Inbound	Total	Percent of Total
Delta Airlines	Domestic Passenger	61	29	90	17.0%
U.S. Airways	Domestic Passenger	0.1	9	9	1.7%
Kalitta Air	All-Cargo Charter	148	188	336	63.5%
Antonov Company	All-Cargo Charter	94	-	94	17.8%
Total		303	226	529	100%

Source: Melbourne International Airport, BTS T-100 Data, Airport Analytics

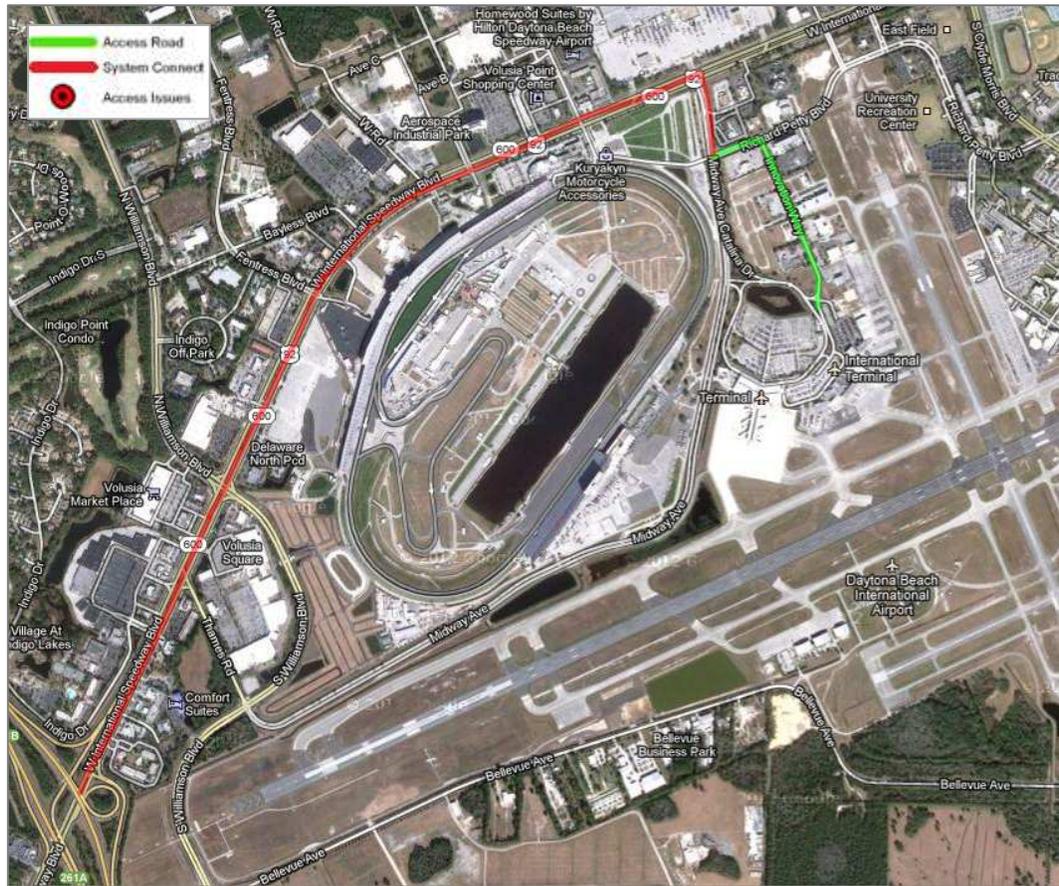
Daytona Beach International Airport

DAB has a 5,300 square foot cargo building, of which Delta currently occupies 2,300 square feet. The Airport does not have any dedicated ramp space for cargo operations, but there is multi-use ramp space available for ad-hoc cargo operations if needed.

Access

The DAB cargo facility is accessed from Richard Petty Boulevard to Coral Sea Avenue, and maintains a separate route from passenger traffic. As illustrated in Figure 2.6, I-95 is located just to the west of the Airport and is connected via U.S. 92.

Figure 2.6 DAB Air Cargo Access Routes



Source: Florida Air Cargo System Plan, FDOT, Cambridge Systematics.
 Note: No access issues were identified in the Florida Air Cargo System Plan at this location

Service Levels

As detailed in Table 2.12, Delta Airlines moves over 95 percent of the Airport’s air cargo, with U.S. Airways accounting for the rest. There is no reported all-cargo charter activity.

Table 2.12 2011 DAB Air Cargo Tons by Carrier and Direction

Airline	Airline Type	Outbound	Inbound	Total	Percent of Total
Delta Airlines	Domestic Passenger	58	45	103	95.20%
U.S. Airways	Domestic Passenger	1	4.2	5	4.80%
Total		59	49	108	100%

Source: Daytona Beach International Airport, BTS T-100 Data, Airport Analytics

2.6 CHALLENGES

Air cargo demand in the region is adequately met by current infrastructure and capacity. Access to the airports is reported to be very good to excellent, particularly when compared to competing gateway airports, Atlanta-Hartsfield International and Miami International.

Capacity and Operational Issues

- Both MCO and SFB freight forwarders, as well as airport officials, report excellent working relationships and responsiveness of the U.S. Customs service. While direct service to Europe via MCO and SFB commercial passenger carriers drives the region's international traffic, capacity to Latin American markets is minimal (though growing), and direct Asia/Pacific Rim traffic is currently non-existent. MCO is currently targeting Asian and Middle-Eastern markets for direct service, and is directly marketing to several carriers, including: China Air, ANA, Japan Airlines, China Eastern, Cathay Pacific, Air China, Qatar Airways, and Emirates.
- Freight Forwarder traffic originating or destined for the study area often transit Atlanta-Hartsfield International and Miami International Airport versus the region's airports due to several factors, including:
 - Greater range of destinations, frequency, and capacity at the competing airports;
 - Block space arrangements with carriers (i.e., guaranteed pre-purchased space on aircraft);
 - Greater concentration of support services; and
 - Less seasonality/fluctuations of widebody capacity.

Despite the use of alternate gateways for study area air cargo, MCO forwarders and cargo handlers report that the Airport's available capacity is well utilized. SFB reports that their capacity is underutilized, primarily due to the seasonal nature of their operations. The primary themes encountered during consultation with the regions' airports, air cargo carriers, and forwarders include:

- I-4 congestion near tourist attractions and north to SFB.
- Westbound egress from Tradeport Drive constricts to two-lanes at Taft Vineland Road prior to reaching the Florida Turnpike. Note that Orange County has a current capital project for widening Taft-Vineland Road between Orange Avenue and Orange Blossom Trail. The project is 95 percent

designed and funded for right-of-way acquisition over the next five fiscal years. Construction is estimated to be completed in 2020/2021.

- The TSA is discussing possible restriction of through the fence operations at MCO (i.e., disallowing direct truck access to the aircraft ramp). This would impact UPS operations and would mean a full unload, tug to cargo building, and through the building reload of cargo onto drayage and courier trucks. A full redesign/rebuild of the cargo building would be required, and cost time and operational efficiency.
- New shipping and import/export regulations are increasingly burdensome to freight forwarders and are hampering the efficiency of their operations.
- Security regulations and secure shipper requirements are driving smaller and infrequent shippers from commercial passenger carriers to the integrated express carriers.
- Outbound capacity to Latin American destinations (particularly Brazil) is limited; tourists returning to Latin America purchase significant amounts of consumer goods in Orlando that occupies much of the belly space on return flights.
- Seasonality of widebody flights³, coinciding with tourist traffic, affects the ability to market air cargo capacity, particularly out of SFB.

³ This relates to heavier traffic during the summer months, largely related to charter services, and without those services, air traffic can drop off dramatically.

3.0 Air Cargo Forecast

3.1 OVERVIEW

The primary objective of the air cargo volume forecast effort is to define the magnitude of change that can be expected over this Study's forecast period (2011 through 2040). Because of the cyclical nature of the economy, fuel price volatility, and modal shifts, it is virtually impossible to predict with certainty year-to-year fluctuations in activity when looking 30 years into the future. However, a trend can be established that characterizes long-term growth potential based on macro-level economic, population, and industry development trends. While a single line is often used to express the anticipated growth, it is important to remember that actual growth may fluctuate above and below this line. Forecasts serve only as guidelines and planning must remain flexible to respond to unforeseen air cargo demands within the region. It should also be noted that the air cargo industry is in continuous change and evolution. For example, an air cargo industry merger, proposed security regulations, or new carrier entrants to the market during the planning period could have substantial volume and operations implications in any given market area that could not be reasonably predicted or reflected in a forecast exercise.

An individual forecast for each of the four commercial service airports within the study is presented. Each forecast is conducted independently in order to account for the differing levels of service, markets served, and carrier types at each airport. The individual airport forecasts are then merged to present an aggregate study region forecast for total air cargo volume.

3.2 AIR CARGO FORECAST FACTORS

Three separate air cargo growth forecasts were examined as the potential basis for providing the individual airport forecasts. These forecasts, which provide average annual growth rates (AAGR) for air cargo development over the forecast period, consist of the following:

- Boeing World Air Cargo Forecast, 2012/2013
- FAA Aerospace Forecasts, Fiscal Years 2012-2032
- Airbus Global Market Forecast, 2012

Each of these forecasts identifies major air cargo trends for both domestic and international markets, and present similar annual average growth rates over the forecast period. However, of the three, the Boeing air cargo forecast is the most

detailed in terms of market analysis and breakdown by world region and market. For this reason, the Boeing forecast factors are used in this Study's projections of air cargo activity.

Data for the Boeing World Air Cargo Forecast is compiled from multiple sources, including the Air Cargo Management Group, the Air Transport Association (ATA), the Association of Asia-Pacific Airlines, (AAPA), the Association of European Airlines (AEA), Boeing Foreign Trade Database (TRADE), Global Insight, the International Air Transport Association (IATA), International Civil Aviation Organization (ICAO), and U.S. Department of Transportation (DOT).

Table 3.1 details the air cargo volume growth rate for each world region as presented in the Boeing World Air Cargo Forecast.

Table 3.1 Boeing Air Cargo Growth Factors (AAGR)

Market Pair	Outbound/ Export	Inbound/ Import
Domestic/North America	2.2%	2.2%
US-Europe	3.3%	3.6%
US-Latin America	6.0%	5.6%
US-Asia	6.0%	5.7%

Source: Boeing World Air Cargo Forecast, 2012

3.3 VOLUME FORECASTS BY AIRPORT

The following sub-sections provide the 2011 through 2040 air cargo forecasts for each of the commercial service airports within the study area. The market specific AAGR (i.e., world region AAGR) provided by the Boeing World Air Cargo Forecast is applied to the 2011 baseline air cargo at each airport, and is projected forward to 2040.

Orlando International Airport

The 2011 through 2040 air cargo forecast for Orlando International Airport is presented in Table 3.2. The air cargo volume forecast for MCO accounts for the following Airport air cargo operations assumptions through the forecast period:

- MCO will continue to operate as the primary integrated express carrier airport for the study area through the end of the planning period (FedEx, UPS, DHL).
- Number of integrated express cargo carriers will remain constant.
- MCO international traffic will continue to move exclusively via commercial passenger belly-space.
- No new international markets will be added during forecast period; existing markets will remain constant.
- Projections are unconstrained; airport infrastructure and services will remain sufficient to meet demand.

- Leakage levels to ATL and MIA will remain constant.

Table 3.2 MCO Forecast Summary by Market (in tons)

Cargo Market	2011 Outbound	2011 Inbound	2011 Total	2040 Outbound	2040 Inbound	2040 Total	Growth 2011-2040
Domestic	61,949	80,890	142,839	116,442	152,045	268,487	88.0%
US-Europe	13,180	21,575	34,755	33,793	60,171	93,963	170%
US-Latin America	4,268	5,060	9,328	23,126	24,570	47,696	411.3%
US-Canada	115	30	145	216	56	273	88.0%
Total	79,512	107,555	187,067	173,577	236,841	410,418	119.4%

Source: Airport Records, BTS T-100 Data, Boeing World Air Cargo Forecast 2012, Airport Analytics

Air cargo volume at MCO is expected to grow 119 percent by the end of the forecast period, with an Average Annual Growth Rate (AAGR) of 2.7 percent. The inbound and outbound split is expected to remain constant with 2011 levels of 42.5 percent of traffic outbound, and 57.5 percent of traffic inbound. As expected, Latin America markets are projected to see the strongest volume gains relative to their 2011 total.

Note that a separate air cargo forecast was conducted for the Orlando International Airport Master Plan in 2012. The result of the 20-year master plan forecast was compared to this Study's forecast and it was found that both efforts achieved similar results. The total tonnage projections provided in this Study for MCO are 3.1 percent higher than those provided in the master plan.

Orlando Sanford International Airport

The 2011 through 2040 air cargo forecast for Orlando Sanford International Airport is presented in Table 3.3. The air cargo volume forecast for SFB accounts for the following air cargo operations assumptions through the forecast period:

- SFB will continue to operate as an international gateway for European air cargo arriving via charter passenger aircraft.
- SFB-Latin America air cargo traffic will commence in 2013 and grow through the forecast period due to the introduction of direct SFB-Sao Paulo, Brazil flights in 2012.
- SFB will see limited domestic volume due to a lack of integrated express carrier activity. SFB's single domestic charter carrier, Allegiant, does not offer air cargo service/capacity on its aircraft.
- No new international markets will be added during forecast period; existing markets will remain constant.
- Projections are unconstrained; airport infrastructure and services will remain sufficient to meet demand.
- Leakage levels to ATL and MIA will remain constant.

Table 3.3 SFB Forecast Summary by Market (in tons)

Cargo Market	2011 Outbound	2011 Inbound	2011 Total	2040 Outbound	2040 Inbound	2040 Total	Growth 2011-2040
US-Europe	1,320	1,686	3,006	3,384	4,702	8,086	169.0%
US-Canada	0	18	18	0	34	34	88.0%
US-Latin America	0	0	0	1,383	1,486	2,869	n/a
Total	1,320	1,704	3,024	4,768	6,222	10,990	263.4%

Source: Airport Records, BTS T-100 Data, Boeing World Air Cargo Forecast 2012, Airport Analytics

Air cargo volume at SFB is expected to grow a robust 263 percent by the end of the forecast period due, in large part, to the addition of direct Latin America service in 2012. The inbound and outbound split is expected to remain constant with 2011 levels of 43.7 percent of traffic outbound, and 56.3 percent of traffic inbound.

Melbourne International Airport

The 2011 through 2040 air cargo forecast for Melbourne International Airport is presented in Table 3.4. The air cargo volume forecast for MLB accounts for the following air cargo operations assumptions through the forecast period:

- Integrated express carriers FedEx, UPS and DHL will continue to serve the Melbourne market area by truck from MCO through the end of the planning period.
- MLB domestic volume is limited due to a lack of integrated express carrier activity and limited cargo capacity on commercial passenger carriers (regional jet and narrowbody aircraft).
- International cargo volume will continue to be accommodated via widebody ad-hoc, charter aircraft.
- Projections are unconstrained; airport infrastructure and services will remain sufficient to meet demand.

Table 3.4 MLB Forecast Summary by Market (in tons)

Cargo Market	2011 Outbound	2011 Inbound	2011 Total	2040 Outbound	2040 Inbound	2040 Total	Growth 2011-2040
Domestic	61	38	99	115	71	186	88.0%
US-Europe	242	188	430	620	524	1,145	166.2%
Total	303	226	529	735	596	1,331	151.6%

Source: Airport Records, BTS T-100 Data, Boeing World Air Cargo Forecast 2012, Airport Analytics

Air cargo volume at MLB is expected to grow 152 percent by the end of the forecast period. Outbound traffic is expected to account for 55.2 percent of total MLB volume by 2040, down from 57.3 percent in 2011. Conversely, inbound

traffic is expected to reach 44.8 percent of total volume in 2040, up from 42.7 percent in 2011. US-Europe trade driven by local industry (communications, aerospace, and defense related), using ad-hoc charter aircraft, will drive volume growth through the forecast period.

Daytona Beach International Airport

The 2011 through 2040 air cargo forecast for Daytona Beach International Airport is presented in Table 3.5. The air cargo volume forecast for DAB accounts for the following air cargo operations assumptions through the forecast period:

- Integrated express carriers FedEx, UPS and DHL will continue to truck cargo from MCO to the Daytona Beach market area.
- Belly-freight will continue to constitute all of DAB air cargo volume.
- DAB domestic volume is limited due to a lack of integrated express carrier activity and limited cargo capacity on commercial passenger carriers (regional jet and narrowbody aircraft).
- DAB will see limited to no international traffic due to a lack of international passenger carrier activity.
- Projections are unconstrained; airport infrastructure and services will remain sufficient to meet demand.

Table 3.5 DAB Forecast Summary by Market (in tons)

Cargo Market	2011 Outbound	2011 Inbound	2011 Total	2040 Outbound	2040 Inbound	2040 Total	Growth 2011-2040
Domestic	59	49	108	111	92	203	88.0%
Total	59	49	108	111	92	203	88.0%

Source: Airport Records, BTS T-100 Data, Boeing World Air Cargo Forecast 2012, Airport Analytics

Air cargo volume at DAB is expected to grow a modest 88 percent by the end of the forecast period due in part to servicing the domestic air cargo market only. As previously discussed, the domestic market is mature, and its growth projections are moderate in relations to those of the international air cargo markets. The inbound and outbound split is expected to remain constant with 2011 levels of 45.4 percent of traffic inbound, and 54.6 percent of traffic outbound.

3.4 REGIONAL FORECAST SUMMARY

Combined air cargo volume for the study region is presented in Table 3.6. In total, air cargo volume is expected to grow 122 percent to nearly 423,000 tons by 2040 (190,728 tons inbound, 243,751 tons outbound). SFB volume is anticipated to grow the most due to strong international traffic to European markets, and the addition of direct widebody Latin America service to Sao Paulo, Brazil in 2012.

Table 3.6 Regional Forecast Summary by Airport (in tons)

Airport	2011		2011	2040		2040	Growth 2011-40	AAGR 2011-41
	Outbound	Inbound	Total	Outbound	Inbound	Total		
Orlando Int'l	79,512	107,555	187,067	173,577	236,841	410,418	119.4%	2.7%
Orlando Sanford Int'l	1,320	1,704	3,024	4,768	6,222	10,990	263.4%	4.6%
Melbourne Int'l	303	226	529	735	596	1,331	151.6%	3.2%
Daytona Beach Int'l	59	49	108	111	92	203	88.0%	2.2%
Total	81,194	109,534	190,728	179,191	243,751	422,942	121.8%	2.8%

Source: Airport Records, BTS T-100 Data, Boeing World Air Cargo Forecast 2012, Airport Analytics

The current and forecasted market share of the region's air cargo traffic, by airport, is presented in Table 3.7. As illustrated in the Table, MCO is expected to maintain its dominant share of the region's air cargo traffic through the forecast period. SFB's market share is expected to increase from 1.6 to 2.6 percent of traffic by 2040 due to the addition of direct Latin America service.

Table 3.7 Regional Air Cargo Market Share by Airport (in tons)

Airport	2011	2011	2040	2040
	Tons	Market Share	Tons	Market Share
Orlando Int'l	187,067	98.1%	410,418	97.0%
Orlando Sanford Int'l	3,024	1.6%	10,990	2.6%
Melbourne Int'l	529	0.3%	1,331	0.3%
Daytona Beach Int'l	108	0.1%	203	0.05%
Total	190,728	100%	422,942	100%

Source: Airport Records, BTS T-100 Data, Boeing World Air Cargo Forecast 2012, Airport Analytics

Forecast Summary by Market

Table 3.8 shows the regional forecast by market, or trade-lane. The relatively mature North American market (domestic and US-Canada air cargo) is projected to grow the least (88 percent by 2040), while Latin American traffic is expected to more than quadruple over the forecast period. The strong growth in the Latin American market can be attributed to robust projections for US-Latin American trade, coupled with the recent addition of regular widebody service between SFB and Latin America.

Table 3.8 Regional Forecast Summary by Market & Direction (in tons)

Cargo Market	2011		2011	2040		2040	Growth 2011-2040
	Outbound	Inbound	Total	Outbound	Inbound	Total	
Domestic	62,069	80,977	143,046	116,668	152,208	268,876	88.0%
US-Europe	14,742	23,449	38,191	37,798	65,397	103,195	170.2%
US-Latin America	4,268	5,060	9,328	24,509	26,056	50,565	442.1%
US-Canada	115	48	163	216	90	306	88.0%

Total	81,194	109,534	190,728	179,191	243,751	422,942	121.8%
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Source: Airport Records, BTS T-100 Data, Boeing World Air Cargo Forecast 2012, Airport Analytics

As illustrated in Table 3.9, domestic cargo is expected to shrink from its current 75 percent of total regional air cargo volume to just under 64 percent of the total projected volume in 2040. This reduction in domestic cargo market share is primarily a function of the relatively strong growth projections for the region's international air cargo markets.

Table 3.9 Regional Forecast Summary by Market (in tons)

Market	2011 Tons	2011 Market Share	2040 Tons	2040 Market Share
Domestic	143,046	75.0%	268,876	63.6%
US-Europe	38,191	20.0%	103,195	24.4%
US-Latin America	9,328	4.9%	50,565	12.0%
US-Canada	163	0.1%	306	0.07%
Sub-Total International	47,682	25.0%	154,066	36.4%
Total	190,728	100%	422,942	100%

Source: Airport Records, BTS T-100 Data, Boeing World Air Cargo Forecast 2012, Airport Analytics

Forecast by Direction

In total, inbound and outbound air cargo to the study region are projected to grow at approximately the same rate, thus maintaining the current inbound-outbound cargo split through the forecast period. Strong growth projections in European air imports to the region are offset by projections of an air trade surplus with Latin American markets (i.e., stronger growth in exports versus imports), effectively balancing regional inbound and outbound growth. Table 3.10 details the current and projected directional split for the region's air cargo.

Table 3.10 Regional Forecast by Direction (in tons)

Direction	2011 Tons	2011 Market Share	2040 Tons	2040 Market Share
Outbound/Export	81,194	42.6%	179,191	42.4%
Inbound/Import	109,534	57.4%	243,751	57.6%
Total	190,728	100%	422,942	100%

Source: Airport Records, BTS T-100 Data, Boeing World Air Cargo Forecast 2012, Airport Analytics

Forecast by Commodity

The following Tables present the current and forecasted air cargo volume by commodity type for the study area by domestic and international market. Table

3.11 details current and projected domestic air cargo tonnage by commodity using STCC2 codes. The volume ratio of commodities relative to the total is not expected to change significantly during the forecast period. Due to the heavy level of domestic integrated express carrier traffic, mail and express traffic will continue to account for over half of the region's domestic air cargo volume.

Table 3.11 Domestic Air Cargo Forecast by Commodity (in tons)

Rank	STCC2	Commodity	2011 Tons	2040 Tons	Growth 2011-2040
1	43	Mail, Express or Other Contract Traffic	77,574	144,674	86.5%
2	46	Miscellaneous Mixed Shipments	16,385	30,593	86.7%
3	28	Chemicals or Allied Products	14,950	27,888	86.5%
4	35	Machinery, excluding Electrical	8,160	15,449	89.3%
5	37	Transportation Equipment	5,943	11,143	87.5%
6	36	Electrical Machinery, Equip, Supplies	4,997	9,877	97.7%
7	27	Printed Matter	2,764	5,212	88.6%
8	01	Farm Products	2,494	4,727	89.5%
9	39	Misc Products of Manufacturing	2,206	4,140	87.7%
10	34	Fabricated Metal Products	2,071	4,528	118.7%
		All Others	5,502	10,645	93.5%
Total			143,046	268,876	88.0%

Source: TranSearch, Boeing World Air Cargo Forecast 2012, Airport Analytics

International air cargo tonnage by commodity and direction is presented in Table 1.12. Again, the volume ratio of commodities relative to the total is not expected to change significantly during the forecast period. The top-five international air trade commodities transiting the region's airports (machinery, fish, optic/medical instruments, vegetables, and electronics) will account for over half of the international volume through the forecast period.

Table 3.12 International Air Cargo Forecast by Commodity (in tons)

Rank	NAICS Commodity	2011 Export	2011 Import	2040 Export	2040 Import	2040 Export	2040 Total
1	84 Machinery, Boilers, Etc.; Parts	3,517	7,037	10,554	11,498	22,558	34,056
2	03 Fish, Crustaceans	111	4,154	4,265	363	13,316	13,679
3	90 Optic, Photo, Medic, Surgical Instr	1,819	1,872	3,691	5,947	6,001	11,948
4	07 Edible Vegetables, Roots & Tubers	835	2,647	3,482	2,730	8,485	11,215
5	85 Electric Machinery & Equip	1,206	1,458	2,663	3,943	4,674	8,616
6	04 Edible Animal Prods	2,185	1	2,185	7,143	3	7,146
7	87 Vehicles & Parts	681	1,444	2,125	2,226	4,629	6,855
8	06 Live Trees, Plants, Cut Flowers	1,924	57	1,981	6,290	183	6,473
9	30 Pharmaceutical Products	509	1,185	1,694	1,664	3,799	5,463
10	39 Plastics And Articles Thereof	806	620	1,427	2,635	1,987	4,622
	All Others	5,590	8,023	13,612	18,275	25,719	43,993
Total		19,183	28,497	47,680	62,712	91,354	154,066

Percent of Total	40.2%	59.8%	100%	40.7%	59.3%	100%
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Source: USA Trade Online, Harmonized System (HS) Port-level Database; Boeing World Air Cargo Forecast 2012

4.0 Market Opportunities

4.1 OPPORTUNITY OVERVIEW

The forecast presented in the previous section is based on the assumptions of constant market share and a stable route structure, combined with unconstrained capacity assumptions and continuity of carriers currently operating at the region's airports. In other words, the forecast assumes static market conditions through the forecast period, with projected growth being derived solely from existing markets and trade-lanes, on existing carriers, drawing cargo from current catchment areas.

However, there can be changes in the region's air cargo market that would trigger air cargo volume growth above that presented in the static market growth forecast. These growth factors include:

- The introduction of service to new international markets;
- Increased belly space capacity due to fleet mix changes;
- Reduction of cargo leakage to competing airports; and,
- Greater utilization of GA airports for cargo activity.

4.2 INTRODUCTION OF NEW MARKETS

The introduction of service to new international markets will increase forecasted cargo volume. Note that projected growth in existing markets (i.e., domestic, US-Europe, US-Latin America) already accounts for the potential addition of new routes, carriers, and/or aircraft within these trade lanes. The introduction of new markets entails the addition of a new trade lane currently not served by any of the airports in the region.

The most likely market addition during the forecast period will be US-Asia service from MCO, and the potential addition of US-Middle East service. GOAA air service marketing efforts are focused on introducing direct international passenger capacity from Pacific-rim and Middle Eastern carriers, thus presenting the opportunity to introduce new markets and trade lanes to the region. Direct presentations have been made to the following carriers:

- China Air
- ANA
- JAL

- China Eastern
- Cathay Pacific
- Air China
- Qatar Airways
- Emirates

The increase in regional cargo volume would be dependent on the frequency of operations, aircraft type (i.e., capacity), and eventual levels of utilization by the freight forwarder community. The potential for growth in these markets is high however. Air trade growth between the US and these markets is projected to be strong, the equipment used on these routes will be widebody aircraft with substantial cargo capacity, and direct capacity/flight frequency to Pacific Rim markets from the southeast US is currently limited. Note that MCO is capable of accommodating the Airbus A300 and Boeing B747-800, the largest commercial passenger aircraft in operation today. These aircraft are typically used on long-haul, intercontinental routes between high-density markets.

4.3 INCREASED BELLY SPACE CAPACITY

The overall market trends that will drive future airline fleets, as well as aircraft mix decisions specific to each airline operating at the region's airports will have an effect on available belly space capacity for cargo. Airlines are trending away from regional jets (aircraft with limited cargo carrying capacity). According to the *Boeing Current Market Outlook*, domestic air carriers are retiring smaller 50-seat aircraft at an accelerated rate and replacing them with larger 90-plus seat regional jets and narrow body aircraft. Boeing predicts that the 2030 fleet of regional jets will consist of 760 aircraft, down from 1,780 in 2010. Single-aisle narrowbody aircraft will continue to comprise the majority of the domestic fleet and will increase market share from 56 percent of the fleet in 2009 to 73 percent in 2030.

As the passenger carriers transition to larger aircraft, domestic belly-space capacity will increase. These capacity increases will be felt most at the region's smaller airports, MLB and DAB, whose scheduled carriers serve domestic markets only. The growth in domestic volume due to a change in fleet mix will likely be marginal, and dependent on the level of freight forwarder utilization (i.e., additional capacity does not necessarily ensure it will be used).

4.4 REDUCTION OF CARGO LEAKAGE

Currently, much of the region's origin and destination international air cargo volume arrives or departs from airports outside of the region. This cargo is referred to as leakage. The primary airports competing for the region's air cargo volume are Atlanta International Airport (European traffic) and Miami International Airport (Latin American traffic).

Full utilization of the region's air cargo capacity (current and projected) will lie in the ability to reduce the levels of leakage to competing airports. The key to achieving this goal is the freight forwarder community that controls the shipment of air cargo to and from the region. The greatest impediment to capacity utilization at MCO and SFB are the block space agreements that the largest of the freight forwarders have with carriers operating at Atlanta and Miami International Airports. In order to guarantee space on a given route, as well as control costs, forwarders will buy a "block" of space on an aircraft; that space is paid for whether it is used or not. Due to these arrangements, it is in the forwarders economic interest to insure all space is used by trucking in cargo from surrounding regions. Thus, often times, freight that originates or is destined for the Orlando and Space Coast area will be trucked to competing airports in order fill pre-purchased block space.

Encouraging forwarders to enter into block space agreements with MCO and SFB carriers would have the potential to reduce leakage. However, the seasonality of international widebody flights to and from MCO and SFB may prove to be an obstacle in forwarder willingness to undertake long-term block space agreements.

4.5 UTILIZATION OF GA AIRPORTS

As previously discussed, all current air cargo activity within the study region occurs at its four commercial service airports. However, there is the potential for ad-hoc air cargo activity to occur at general aviation airports based upon specific shipper demands. Typically, such air cargo activity is in support of local demand generated by time-sensitive, high-value manufacturing operations or other time-sensitive value added processes.

The City of Leesburg is currently positioning itself to attract high-value manufacturing, specifically targeting aerospace manufacturing in the form of light-sport aircraft (one of the fastest growing segments of the general aviation industry). If the City's efforts prove successful, Leesburg International Airport would be in a position to support the manufacture's ad-hoc air cargo needs. Of particular interest is the Airport's onsite customs clearance capabilities which would allow for direct shipment from international suppliers.

Though no such activity is guaranteed at any of the region's GA airports, the potential remains based on the location of the aforementioned high-value manufacturing or time-sensitive value added processes.