

# Memorandum



**Date:** January 4, 2022

**To:** Honorable Chairman Jose “Pepe” Diaz  
and Members, Board of County Commissioners

**From:** Daniella Levine Cava *Daniella Levine Cava*  
Mayor

**Subject:** Miami-Dade Aviation Department: Discussion on Cargo Capacity at Miami International Airport, Directive No. 212792

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At the November 9, 2021 Airports and Economic Development Committee (AEDC) meeting, the County Mayor or County Mayor’s designee was directed to prepare a report for placement on an AEDC agenda within 60 days that discusses how the County, through its Aviation Department (MDAD or Aviation Department), proposes to develop a robust cargo portfolio for Miami International Airport (MIA) that enhances its current status as a world class cargo hub leader and increases its cargo capacity in the near and long term. Currently, MIA ranks number one among U.S. airports in international cargo and third among U.S. airports for total cargo nationwide. MIA is also ranked ninth in international freight traffic and ninth in terms of total freight, making MIA one of the world’s top 10 international cargo hubs.

Since the onset of the COVID-19 pandemic, global demand for air cargo has grown significantly. In 2020, MIA processed approximately 2.3 million tons of cargo representing a 2.53 percent increase in tonnage volume from the previous year and is expecting to exceed 2.6 million tons in 2021. This unprecedented growth in demand has outpaced MDAD’s current Capital Improvement Plan (CIP), which provides an incremental approach (over the next 25 years) for the expansion of MIA’s cargo facilities due to the unavailability of land at MIA in the immediate future. In order for MIA to retain its status as a domestic and international cargo hub leader, it is imperative that the airport augment its cargo capacity to meet the accelerated growth in demand in the near-term. It is estimated that MIA will reach 2.7 million tons in airfreight in 2021, 3.7 million tons in 2031, and 4.9 million tons in 2041. These projected cargo volumes put MIA at risk of losing its competitive edge with other U.S. airports, for that reason, the airport must adjust, adapt and re-position itself to meet customer demand in the not-to-distant future. At this time, MIA offers a total of approximately 2.6 million square feet of dedicated cargo warehouse space for its airline customers. Following the strong growth of cargo activity during 2020 and 2021, MIA will be approaching the capacity of its cargo facilities estimated between 2.6 and 3.0 million annual tons.

Due to the precipitous growth in worldwide demand for air cargo, several of MIA’s largest air cargo carriers, FedEx Express, DHL Express, Amazon and Amerijet have just completed expanding their cargo facilities at MIA to meet the growing customer demand, and to strengthen their service capabilities to Central and South America, the Caribbean and worldwide. FedEx Express completed a \$72.2 million expansion to their main sort facility at MIA and added 138,000 square feet, bringing the facility to a total of 282,000 square feet. DHL Express invested \$78 million to renovate and expand its MIA cargo hub facility to double volume throughput. The expansion project increased the size of their operation from 125,000 to 206,000 square feet enabling DHL Express to increase its sorting capacity from 30,000 to 60,000 pieces per day. Amazon has seen a dramatic increase in its operations over the past three years, going from three (3) weekly flights to daily flights, and leasing 90,000 square feet of warehouse facilities at MIA to move the increasing volumes of

e-commerce. Amerijet moved their headquarters from Fort Lauderdale International Airport to MIA and consolidated their off-airport export warehouse with an on-airport warehouse at MIA occupying more than 250,000 square feet along with a 40,000 square foot cooler. They experienced 14 percent growth during the past year.

In response to the directive issued by Commissioner Regalado and other AEDC committee members, the Aviation Department has prepared the following comprehensive report, which discusses a number of matters related to cargo capacity at MIA including: (i) the history of cargo at MIA, (ii) cargo performance at MIA in 2020 and 2021, (iii) the role of passenger airlines and cargo airlines at MIA, (iv) MIA’s cargo competitors, (v) MIA’s competitive edge and its role as a leader in international cargo, (vi) the County’s general aviation airports, and (vii) MDAD’s Capital Improvement Plan (CIP) and potential cargo solutions.

#### History of Cargo at MIA

MIA’s history of air cargo dates to the 1930s when Pan American World Airways launched regular cargo service between Miami and Havana. MIA continued to grow throughout the 1930s through the 1940s as Pan Am expanded air service throughout the Caribbean and Latin America. During World War II, the U.S. Army Air Corp (known as the U.S. Air Force today) established an airfield on the then westside of the airport to train pilots and transport cargo to Africa, continuing to Europe in support of the allied war effort. After the war, the land was ceded to the County and over the proceeding years the two airfields were consolidated becoming MIA, as we know it today. The army installations were converted to civilian air cargo warehouses used by the airlines, which were later replaced by today’s present cargo facilities beginning in the early 1990s at a cost of \$500 million.

From the earliest days of aviation, MIA has always been significant in the air cargo industry due to (i) the long-established route networks to the Caribbean and Latin America, (ii) the presence of 1,500 freight forwarders, integrators, logistics companies, infrastructure (cooler space) designed to support international trade (particularly perishables), and (iii) the large number of international banks, foreign trade offices, consulates, which have all paved the way for MIA to become a full-service trade center in the Western Hemisphere. These factors gave rise to MIA’s prominence as the leading international freight cargo airport in the Americas and the highest-ranking global gateway freight hub. The airport’s growth and international standing continue to be empowered by more recent cargo services to new markets in Europe, Asia, and Africa.

Chart A, as depicted on the next page, shows that between 2011 and 2019, MIA experienced average annual growth in air freight volumes of 1.62 percent. It also illustrates how overall demand for freight cargo has been increasing for almost one decade with a record-breaking year in 2020 with 2.327 million tons, which superseded another record-breaking year in 2018 when cargo levels reached 2.305 million tons. This accelerated growth can be attributed to a rise in pharmaceutical trade and in eCommerce, which have been key drivers in cargo growth. There was a dip in cargo demand in 2015 and 2019 because of a drop in tonnage from some of MIA’s top trade partners in South America due to internal economic reasons. In 2020, air freight at MIA grew by 2.53 percent from the prior year and is poised to surpass the 2.6-million-ton mark in 2021.

Chart A.

**Total US Tons (Domestic and International)**

<b>Calendar Year</b>	<b>Arrivals</b>	<b>Departures</b>	<b>Total Tonnage</b>	<b>% Change</b>
2011	1,051,269.06	948,773.42	2,000,042.48	-
2012	1,120,955.76	971,298.15	2,092,253.91	4.61%
2013	1,162,461.86	942,659.26	2,105,121.12	0.61%
2014	1,194,070.58	980,141.27	2,174,211.85	3.28%
2015	1,234,628.95	938,047.36	2,172,676.31	-0.07%
2016	1,258,068.17	922,616.09	2,180,684.26	0.37%
2017	1,290,015.00	955,174.64	2,245,189.64	2.96%
2018	1,342,385.67	963,555.43	2,305,941.10	2.71%
2019	1,330,489.42	939,875.76	2,270,365.18	-1.54%
2020	1,347,108.05	980,639.13	2,327,747.18	2.53%

Cargo Performance at MIA in 2020 and 2021

Since the onset of the COVID-19 pandemic in early 2020 through current date, global freight has been strained by manufacturing stoppages, disruptions in established supply chains, and changes in consumer demand for certain products. The aviation industry was also impacted by the pandemic, particularly, the demand for airline travel which plummeted in late March 2020. However, despite the changes that impacted markets worldwide, the demand for air freight continued to increase at MIA, mostly, for the reasons noted below.

- In 2020, immediate and unprecedented worldwide demand for mass quantities of Personal Protection Equipment (PPE) including supply of protective masks.
- In 2020, significant shift to eCommerce shipments as most cities locked down and many businesses closed their doors. For safety reasons, customers decided to forego shopping in person and switched to eCommerce. At MIA, certain top integrated carriers posted growth percentages of 7 percent and 38 percent in 2020.
- In 2020, passenger flights also carrying belly cargo were grounded due to international flight restrictions as demand for air travel plunged. The reduction in passenger flights (particularly international) reduced cargo capacity in the global market. With the drying up of belly cargo, demand for capacity on freighter (cargo-only) airlines increased significantly. Because MIA has a high proportion of freighter airlines in operation, the airport benefited from this increased demand. Chart B, as shown on the next page, compares cargo freight growth via freighter operations (the number of flights) between 2020 and 2021. The analysis confirms that from February 2020 (pre-pandemic) to April 2020 (onset of the pandemic), freighter operations increased by 9 percent, as compared to April 2020 to October 2021 (1 year and eight months into the pandemic) when freighter flights grew by 19 percent.

Chart B.

Cargo Flight Operations

Month	Year	Ops	% Change
February	2020	4,305	
April	2020	4,679	9%
October	2021	5,581	19%

- In 2021, the mass production of COVID-19 vaccines and booster shots ready for worldwide distribution increased the demand for global air freight. It has been noted that MIA accounted for 5.7 percent of the nation’s vaccine exports during 2020, and 16 percent in the month of September 2021.
- In 2021, distressed sea freight conditions at U.S. west coast seaports have caused ships to remain out at sea unable to offload cargo in a timely manner, which has also contributed to increased demand for air freight.

While the demand for cargo operations grew at MIA in 2020 and continues to grow in 2021, from a historical perspective, MIA has been experiencing cargo growth for the past decade. The airport’s extensive air route network which was built over many years, its large number of carriers, and its aggressive air service development program, have all worked together to produce a steady stream of new carriers serving new markets, which contribute to MIA’s ability to thrive and to grow its cargo operations. It is noteworthy to point out that as demand for cargo at MIA continues to grow and exceed 2020 levels (2.3 million tons), it is estimated that the airport will process a total of more than 2.6 million tons in 2021.

MIA’s Passenger Airlines and Freighter Airlines

Passenger airlines have also contributed to the cargo growth at MIA as they have always been part of the mix. Belly cargo, which is carried on the underside of a passenger aircraft, provides additional revenue opportunities for airline carriers. MIA’s unique standing as a cargo hub provides this additional benefit for airlines to derive revenues on their routes, supplementing traditional passenger airfare revenues. Historically, MIA transports approximately 80 percent of its total air cargo via freighters, while nearly 20 percent is transported in the belly of passenger flights. This business model does not occur at most other major airports in the world, where the cargo mix is the inverse, with 80 percent of cargo transported via belly passenger flights and 20 percent via freighter aircraft. The importance of being a *freighter friendly* airport, as MIA is frequently referred to in the industry, should be underscored by the fact that MIA’s 43 cargo-only airlines provide service to 101 destinations worldwide.

MIA’s Cargo Competitors

MIA’s freight cargo is predominately international. In 2020, only 18 percent of MIA’s cargo was domestic, the remaining 82 percent was international. In 2020, MIA handled 85 percent of all air imports as well as 80 percent of all air exports between the United States and the Latin American and Caribbean Region. MIA is regarded as the “Number One” U.S. airport for international cargo, its main global competitors are other major international gateways that have multiple cargo operators with access to large commercial international trade markets as MIA does, and more importantly, they

have tonnage volumes comparable to that of MIA’s, they include: Los Angeles International Airport (LAX) with a total of 2.46 million tons of cargo, Chicago O’Hare International Airport (ORD) with 2.21 million tons, and John F. Kennedy International Airport (JFK) with 1.22 million tons. These tonnage volumes were reached in 2020 and are similar to MIA’s 2.36 million tons of total cargo.

MIA’s regional competitors in the southeast United States, as defined by tonnage volumes include Dallas Fort Worth International Airport (DFW) with 872,000 tons of total cargo, Hartsfield-Jackson Atlanta International Airport (ATL) with 661,000 tons, and Houston Intercontinental Airport (IAH) with 499,000 tons. These airports have substantially smaller international operations and market access.

According to Airports Council International (ACI) Report – 2020 North American Airport Traffic Summary (Cargo), MIA was the highest ranked US airport for international cargo. Although LAX was behind MIA in international tonnage in 2020, it experienced greater growth in 2020 than MIA with a growth rate of 7.7 percent. ORD also experienced significant growth in its international freight in 2020 with a 12.4 percent growth rate, while JFK, DFW and ATL all experienced a significant drop in their international freight volumes, that is, -24.4 percent, -21.2 percent, and -19.3 percent, respectively.

It should be noted that both DFW and ATL have been very aggressive in recent years with air service and marketing efforts in an effort to penetrate the Latin American market, particularly with perishables product, which is the main export commodity from Latin America. While MIA has built up substantial infrastructure to support the perishables trade, the other airports noted above do not have the infrastructure on such a large scale to handle perishables and maintain the logistics cool chain, which yields success in attracting new businesses and airlines to an airport. Another issue that faces DFW and ATL along with other major U.S. gateways, is that they have limited return cargo as compared to MIA’s ability to consolidate exports at MIA and ship directly back to Latin America and Caribbean markets. Moreover, there are operational costs associated with longer flight times for further distance or inland U.S. airports that yield MIA a competitive advantage.

#### Can MIA Retain its Status as a Major Cargo Hub?

There are four (4) critical factors that will determine MIA’s ability to retain its status as a major cargo hub in the Western Hemisphere. First and foremost, MIA is nearing its cargo capacity with no easy way to acquire more land to expand its boundaries as the airport is landlocked. With limited available real estate within MIA’s footprint to accommodate the expansion of MIA’s cargo facilities, MDAD’s CIP relies on the occasional purchase of industrial properties westward of MIA. A demand forecast prepared by MDAD’s consultant forecasted that MIA would reach 2.7 million tons in airfreight in 2021, 3.7 million tons in 2031 and 4.9 million tons in 2041. As of 2021, MIA offers a total of approximately 2.6 million square feet of dedicated cargo warehouse space for its airline customers (including the ongoing expansion of the FedEx facility that will add approximately 140,000 square feet of warehouse space). Following the strong growth of cargo activity during 2020 and 2021, MIA will be approaching the capacity of its cargo facilities estimated between 2.6 and 3.0 million annual tons. Considering that the demand for cargo is projected to continue to increase at MIA, the limited availability of land within MIA’s footprint, and the fact that multiple on-airport site cargo facilities have reached the limit of their useful life, it is imperative that the County begin making investments in cargo solutions that are more efficient with updated technology to accommodate the projected growth in the short and long term, that is, if MIA is to retain its strong standing among leading global cargo airports over the next 20 years.

Second, MIA must uphold its strengths by maintaining its core competencies with respect to cargo. MIA is the gateway to Latin America and the Caribbean and must continue to aggressively market itself in the region. Its market share of “Total Perishables Imports” has historically been between 60 percent and 64 percent. However, during the COVID-19 pandemic, its market share increased 8 percent from 62 percent in 2019, to 70 percent in 2020. With 70 percent of all U.S. air imports of perishable products entering MIA comes the need to continue to market the cold chain infrastructure capabilities, the strong South Florida logistics community, including customs brokers and freight forwarders, and the Federal Agencies that have a large presence at MIA and facilitate the movement of cargo more efficiently than any other U.S. airport. MIA must also continue to market itself as the eCommerce hub of the Americas, the airport’s established and extensive network with the Latin American and Caribbean region is a huge advantage over other U.S. airports when it comes to cross-border eCommerce shipments to the region.

Third, MIA must continue to market itself as the MIA Pharma Hub, a premier gateway for importing and exporting pharmaceutical products. In 2016, MIA co-founded Pharma.Aero, a global association of like-minded pharma hub airport communities, airlines, ground handlers and manufacturers who have the common goal of achieving reliable end-to-end transport of pharmaceutical cargo by air. MIA has benefited by working with the association and with its member airports, and it must continue to foster these relationships globally. Pharmaceuticals have risen from being the number six export commodity by volume in 2019, to the number five in 2020. MIA has experienced strong growth in pharma exports through the third quarter of 2021, as MIA has had 13.9 million kilograms of pharma exports, compared to 11.1 million through the third quarter of 2020, which represents an increase of 25 percent by volume. The value of these pharma exports also increased by 95 percent year over year through the third quarter in 2021 to \$4.5 billion. Some of the growth in these pharma exports can be attributed to the rise in COVID vaccine exports with global vaccine distribution well underway.

Fourth, MIA must continue to actively court new entrant carriers through its air service development program to provide further global access to emerging cargo markets. The importance of MIA marketing itself to maintain its ground as the top U.S. airport for international cargo and to continue to attract new entrant carriers, however, must be balanced with adequate infrastructure to meet growing demand.

#### The County’s General Aviation Airports

MDAD has considered the option of using the County’s General Aviation Airports (GAA) as viable alternate sites for MIA’s cargo facilities or for specialized cargo facilities. After much discussion, MDAD staff concluded that the none of the sites offer the level of cargo services needed without major redevelopment as noted below.

A. Miami-Opa Locka Executive Airport (OPF) and Miami Executive Airport (TMB) are two general aviation airports that are designated relievers for MIA. As general aviation airports, they do not offer the same level of infrastructure and services that are available to the cargo operators at MIA, including but not limited to: airfield capability, enhanced landside access (e.g., viaduct), U.S. Customs and Border Protection (CBP) services and Animal and Plant Health Inspection Service (APHIS) functions, ground handling services, fumigation, and refrigerated warehouse space.

While OPF is fully developed, it does not lend itself to cargo operations without major redevelopment. Most of the activity and facilities are centered around corporate aviation activities. On April 24, 2001, the County adopted Resolution No. R-409-01 directing the County not to pursue any amendments to

the County’s Comprehensive Development Master Plan and the Aviation System Plan that would permit the use of commercial air carrier aircraft beyond those activities required by federal law or Federal Aviation Administration (FAA) requirements. It also directed the County to cease all actions directed towards the establishment of OPF as a commercial air carrier airport. In short, the Resolution restricted the types of operations that can take place at OPF. Currently, there are limited air charter cargo operations performed by a few airline companies at OPF, the major limitation is the individual airline operating certificate, which can limit the aircraft payload.

TMB serves primarily as a recreational general aviation airport with several flight schools as well some corporate aviation traffic. The airfield infrastructure at TMB is not dimensioned to support large cargo aircraft operations as the longest runway is 6,000 feet long. Substantial airfield infrastructure improvements, such as runway extensions and widening of taxiways, would be required for large scale cargo operations at TMB.

B. Miami Homestead General Airport (X51) is a recreational general aviation airport. The airfield infrastructure at X51 is not dimensioned to support large cargo aircraft operations. Substantial airfield infrastructure improvements, such as runway extensions and widening of taxiways, would be required for large scale cargo operations. In addition, the airport is located outside of the Urban Development Boundary (UDB) with no sewer or potable water infrastructure. Development of the airport would require an amendment to the UDB as well as the installation of water and sewer extensions to the airport.

C. Dade-Collier Training and Transition Airport (TNT). Although this property is under MDAD control, the airport itself is in Collier County. The airport is located inside the Big Cypress National Preserve, as such, any development would be under the jurisdiction of the National Park Service and would require substantial development of environment impact studies to mitigate any impacts to the national parks. There is no sewer or potable water available at TNT.

#### MDAD’s CIP & Potential Cargo Solutions

To accommodate the long-term demand for air cargo at MIA, MDAD’s current CIP includes infrastructure projects that increase warehouse and aircraft apron capacity on an incremental basis over the next 20-25 years (if not more) while property is acquired at off-airport sites west of MIA. Because the expansion of MIA’s cargo facilities is dependent upon a land acquisition program, until additional land is available and successfully acquired, the only recourse available to augment MIA’s current cargo capacity is to optimize and redevelop MDAD’s aging facilities inside MIA’s footprint.

Since MDAD’s CIP does not offer a short-term cargo solution that meets the on-going growing demand for cargo, the Administration is looking to integrate infrastructure projects into MDAD’s CIP that would expedite the design and construction of additional cargo facilities along with other cargo solutions proposed by certain business partners such as Atlas Airlines and the Florida East Coast Railway, who have presented conceptual cargo master plans to MIA for review. Additionally, the Administration has placed on today’s agenda for Board approval a resolution and an agenda memorandum to negotiate the proposed construction of a modern-day multi-level vertical cargo solution, known as the “Vertically Integrated Cargo Community” (VICC) at MIA, and place on the agenda for Board approval a Master Development Lease Agreement for the development of the VICC, which would nearly double MIA’s cargo capacity in less than five years. The VICC would be similar

in concept to the two (2) state-of-the-art vertical multi-level facilities at Hong Kong International Airport (the largest air cargo airport in the world), which has successfully constructed and employed this vertical cargo concept.

### Conclusion

MIA is the world’s largest gateway to Latin America and the Caribbean and the leading international freight airport in the Americas as it controls the cargo flows north and south in the Western Hemisphere. MIA offers service to over 160 cities with freighter service to more than 100 global destinations. It is also the first airport in the Western Hemisphere and the second in the world to be designated by the International Air Transport Association as a pharmaceutical freight hub and a trusted industry leader in the transport of pharmaceuticals.

In order for MIA to preserve its rankings nationwide and worldwide it is critical that short-term cargo solutions, such as the VICC, be given serious consideration given the increasing demand for domestic and international freight cargo and the numerous challenges Miami-Dade County would face if the County were to assume the risk and the cost to expedite the design and construction of a comparable cargo solution and complete it in five years.

Pursuant to Ordinance No. 14-65, this memorandum will be placed on a Board agenda for review.

Should you have any questions or require additional information, please contact Ralph Cutié, Director, Miami-Dade Aviation Department at 305-876-7066.

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### Miami-Dade Legislative Item File Number: 212792

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<b>File Number:</b> 212792	<b>File Type:</b> Discussion Item	<b>Status:</b> Add-on
<b>Version:</b> 0	<b>Reference:</b>	<b>Control:</b> Airports and Economic Development Committee
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**Notes:**  
**Title:** DISCUSSION ITEM REGARDING CARGO

<b>Indexes:</b> NONE	<b>Sponsors:</b> Raquel A. Regalado ,Prime Sponsor
<b>Sunset Provision:</b> No	<b>Effective Date:</b> <b>Expiration Date:</b>
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**LEGISLATIVE HISTORY**

Acting Body	Date	Agenda Item	Action	Sent To	Due Date	Returned	Pass/Fail
Airports and Economic Development Committee	11/9/2021	1F1	Presented				
Office of the Chairperson	11/5/2021		Additions				

**LEGISLATIVE TEXT**

**There is no text currently available online for this item.**