AIR CARGO DEVELOPMENT -
A Strategic Plan for Erie

Eclat CONSULTING

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Executive Summary

- The air cargo market is divided into three primary segments: (1) express service by carriers such as FedEx, UPS, and DHL; (2) belly freight service by passenger air carriers; and (3) freighter service by air cargo airlines. For Erie, by far the largest and most promising of these segments is express service.

- In each of these segments, Erie faces obstacles that limit its growth. These are its geographic location in close proximity to other larger markets, its lack of runway and cargo infrastructure, its limited market size, and its perceived lack of regional economic vitality. These obstacles, however, are only backdrops for Erie's efforts. They do not mean that Erie cannot significantly increase its air cargo service over time if Erie makes air cargo development a priority.

- Because of the lower cost of trucking, air cargo carriers prefer to use trucking from their larger air collecting points whenever they can do so while still providing timely deliveries. Thus Erie's primary competitor for cargo air service is the system of trucking used to feed: (1) express carriers at Cleveland, Pittsburgh, and Buffalo; and (2) air freighters at Chicago O'Hare and New York JFK. As a practical matter, Erie will help develop its air cargo opportunities by encouraging trucking activities to develop on and near the airport.

- Despite Erie's proximity to Cleveland, FedEx is already using small aircraft to make regular drop-offs at Erie, and may increase its flight activity over time. In addition, there is reason to believe that one of the other express carriers may initiate air service to Erie. Erie should develop ongoing relationships with the express carriers to explore the potential growth opportunities.

- With regard to belly freight, the passenger airlines have been carrying less over the past several years, as the express carriers have grown. Also, the conversion from larger mainline jets to smaller regional jets has meant much less belly cargo capacity.

Erie should make sure that shippers and forwarders are aware of belly freight opportunities. However, the primary driver of future belly freight will be the type of aircraft used by Erie's passenger carriers and the destinations they serve.

- For freighter cargo, the air service for markets of all sizes is highly concentrated at the largest international gateways, such as Chicago O'Hare, New York JFK, and Miami. A market such as Erie might qualify for a rare freighter flight if it had a runway long enough to handle the flight. Also, if the connection with the Drewitz airport strengthens over time, there may be some interesting opportunities. However, in general, attracting freighter service to Erie should be considered a long-term goal with a much lower likelihood of success.

- Based on this and other background information and analysis, the report makes seven specific recommendations to help Erie attract additional cargo air service.

Air Cargo Development – A Strategic Plan for Erie

I. Introduction

This report provides a strategic plan to guide the Erie International Airport in its air cargo development efforts over the next five years and beyond. The report compares Erie's current cargo activities and infrastructure with other airports, explains the dynamics and drivers of air cargo development and their application to Erie, and makes specific recommendations to help Erie develop its air cargo business.

In view of Erie's past experience and success in the passenger air service development area, it is useful to understand the similarities and differences between passenger and air cargo development efforts. Like passenger air service development, air cargo development is an important component of regional economic development efforts. More air cargo activity means more local jobs, greater demand for facilities, and increased overall economic activity and tax revenue. Also, like passenger air service development, the cargo development process is self-reinforcing. More air cargo activity makes the region more attractive to air cargo service providers, which in turn makes the region more attractive to other businesses.

For a market like Erie, another strong similarity between passenger and air cargo development is that the main goal in both cases is to bring services home to Erie that are already being used by Erie businesses and residents but which are being provided elsewhere. In the case of passenger air service, the central issue is providing affordable and convenient air service at Erie International so that local residents fly from Erie instead of driving to Buffalo or Cleveland to fly. In the case of air cargo service, the issue is convincing freight forwarders and cargo carriers that there are alternatives to trucking virtually all Erie cargo to Cleveland, Pittsburgh, Chicago, JFK, etc.

There are also fundamental differences between passenger air service development and air cargo development. In terms of marketing, for example, passenger service is highly visible to the community and of widespread interest. The introduction of new nonstop passenger service and low fares are newsworthy events. Cargo, on the other hand, is much less visible and its economic importance is understood by a much smaller group of businesses and community leaders. As a result, the approach to cargo marketing is more concentrated.

Another fundamental difference between passenger and cargo development is that very limited cargo data is available to answer basic questions such as: “Who are the big shippers in the region?”, “What goods are they shipping?”, and “How are these goods moving today?” As discussed later, the detailed volume, fare, and itinerary data available for passenger air service do not exist for cargo and therefore different research techniques must be employed.

There are a number of other critical differences between passenger and cargo development, which are discussed in more detail in this report. Among those are: (1) The critical decision-makers for many air cargo decisions are freight forwarders and shippers, not air carriers. (2) Air cargo “doesn’t care” which airport it uses so long as it travels to and from the region in a cost-effective, timely manner. For that reason, air cargo development always requires a regional, versus an airport, focus; and (3) Passenger air service development may be frustratingly slow at times, but in general, the time required for passenger development is measured in months - to - a couple of years, while the time required for air cargo development is years - to - a decade.

Recommendations for addressing these and other cargo issues are provided in this report.

II. Air Cargo Industry Overview

The air cargo business is typically categorized by type of service provider – integrated carrier versus non-integrated carrier. The integrated carriers (commonly known as express carriers[1]), such as FedEx, UPS, and DHL, generally own or exclusively control the air and ground assets used to handle a shipment all the way from retail point-of-sale to final delivery. In contrast, non-integrated carriers, such as Atlas and Cargolux, only provide airport-to-airport transportation services after receiving their traffic from freight forwarders. For non-integrated carriers, the freight forwarders handle the retail point-of-sale and pick-up-and-delivery functions.

Passenger or combination airlines, such as Northwest and United, are sometimes put in a separate category. They may have dedicated freight aircraft or may carry freight, express packages, and/or mail only in the bellies of their passenger aircraft. As a practical matter, however, they are non-integrated carriers – and are treated as such in this report – as they do not control shipments all the way from point-of-sale to final destination.

The integrated/non-integrated carrier distinction is important because the critical decision-maker in directing cargo to non-integrated carriers is typically the freight forwarder, whose function is discussed in more detail below. The critical decision-maker in directing cargo to the integrated carrier is typically the shipper.

Another important difference between integrated and non-integrated carriers relates to the package size and delivery speed associated with each. Integrated carriers, such as FedEx, tend to carry smaller packages that require rapid delivery (although not exclusively), while non-integrated carriers, such as Atlas, carry larger shipments that may have slower delivery schedules. Of particular importance to Erie, integrated carriers operate or control aircraft fleets that include small aircraft capable of using Erie's current runway. However, non-integrated carriers operate aircraft fleets consisting primarily or solely of widebody aircraft that require a longer runway than is available at Erie.

[1] This term should not be confused with the same term sometimes used to refer to regional passenger carriers. In this report, all references to express carriers means FedEx, UPS, and DHL.

A. Integrated Carriers

Integrated carriers are primarily engaged in the handling of express traffic, with FedEx, UPS, and DHL the dominant companies. Express shipments include envelopes and small packages that weigh less than 100 pounds. Express shipments command premium rates because they are often shipped on a time-critical basis.

Integrated carriers, by definition, control both the ground and air functions of their shipments. Their door-to-door service relies on the following physical assets: (1) a ground fleet of pickup/delivery trucks; (2) terminals for sorting and processing; (3) a long-haul truck fleet for moving freight between terminals; and (4) an air fleet for moving freight between airports.

Depending on the distance from origin to destination, the day shipped, and the service selected, a shipment may or may not travel by aircraft. Because the cost of ground transport is substantially less than the cost of air transport, trucks are preferred whenever sufficient time is available. The integrated carriers' systems, however, are designed to be capable of meeting customer requirements for next-day morning deliveries.

Air shipments typically pass through two or three airports on their journey; one near the origin, one near the destination, as well as a hub for shipment consolidation. As discussed later, FedEx has regional hubs, a national hub, and its Memphis world hub. UPS has regional hubs and its Louisville world hub.

Integrated carriers prefer to establish hubs at less congested airports in areas with major freight activity. In the past, integrated carriers have established major hub operations at "non-traditional" cargo airports like Ontario, California (UPS) and Wilmington, Ohio (DHL). Likewise, the spokes of integrated carriers can often be located at non-traditional airports, as in the case of Norfolk (Navy) Airport in Virginia and Mather Air Force Base in Sacramento.

B. Non-Integrated Carriers

Non-integrated carriers are typically engaged in the movement of heavyweight traffic – shipments weighing 100 pounds or more. The non-integrated carriers serve two basic functions: First, carriers like Cargolux, NCA, and Evergreen provide scheduled service between major international gateways, which can be used by shippers or forwarders. Second, carriers like Atlas – with an all-747 fleet - carry freight for freight forwarders on a contracted basis and also provide outsourced air freight capacity for other carriers.

As noted, passenger air carriers also carry air cargo – either in their own freighters or as belly freight. It has been estimated that belly lift makes up 40-50% of global intercontinental air cargo capacity, although that percentage is expected to decline over time as more freighter capacity is added. A majority of belly cargo is carried in widebody aircraft, and the world's freighter capacity consists almost entirely of widebody aircraft.

In the non-integrated carrier segment of the cargo business, the freight forwarding companies act as middlemen between shippers and airlines. Freight forwarders are wholesale purchasers of airline capacity. They sell door-to-door transportation services to shippers, but operate only the ground portions of those movements. They also provide specialized support services (e.g., assistance in clearing customs and inspections) and frequently assist their customers with warehousing, order fulfillment and other types of logistical support.

Freight forwarding is a competitive, volume driven business where scale is extremely important. In 2006, it is estimated that the top 15 forwarders handled 61% of all international air freight and the top 15 cargo carriers transported 64% of the world's air freight. (Source: MergeGlobal 2006 estimate.) Forwarders are especially prominent in the vicinity of the major international gateway airports such as New York's JFK, Chicago's O'Hare, Los Angeles, and Miami.

In selling their services to all types of shippers, the freight forwarders inevitably handle many small shipments. Individually, these small shipments would be assigned a low-priority and a high shipping rate by air carriers. However, by consolidating many small shipments into larger ones, forwarders can get higher priority and lower rates from airlines. Moreover, forwarders can realize even lower rates by consolidating at large gateway airports where multiple carriers serving numerous destinations compete against each other.

While there is a natural tendency to focus on the "air service" portion of air cargo shipments, the importance of trucking cannot be overlooked. As noted, extensive use of trucks makes it possible to consolidate many small shipments leading to greater buying power for the freight forwarder. In addition, since the flight portion of the freight shipment is the most expensive mode, the greater the portion of the shipment moved via surface transportation, the lower the total cost of the shipment.

The use of gateway airports is one of the most basic and entrenched dynamics in the air cargo industry - particularly in international markets. With a limited number of high volume gateways, it is clear that just as passenger airlines use hub and spoke systems to move passengers, so too do air freight forwarders operate hub and spoke networks that use trucks to feed air freight to consolidation gateways.

Few non-gateway airports have overcome this dynamic to successfully attract quality air freight carriers. Airports that have succeeded in recent times (like Nashville and Huntsville) had fairly unique circumstances (i.e., large air cargo intensive business clusters) that helped drive cargo services their way. Most other airports do not have the local or regional freight volumes to support cargo services or simply cannot overcome the strength of the established gateway system.

As Erie looks to develop the air freight market in the region, it must look beyond airlines and airplanes to freight forwarders and trucks. The reality is that most freight from the region will be trucked, not flown, to the consolidation point; and the majority of the shipments will be controlled by freight forwarders, not airlines.

C. Mail Shipments

Unlike freight and express shipments, mail shipments are controlled by the U.S. Postal Service, which contracts out the necessary air service to a number of air carriers. Local communities and businesses are unlikely to have any influence on this activity and consequently this report will not address mail shipments.

III. Air Cargo Data

A fundamental challenge in dealing with air cargo issues is obtaining a clear picture of traffic flows and volumes. Two national databases are commonly used for air cargo-related statistics. First, the U.S. Department of Commerce tracks *exports* by air and sea for each Port, U.S. Customs District, and State. "Port" is defined to mean the last port of exit from the U.S. With regard to *import* data, the same information is tracked for each Port and Customs District, but not for each state. (When you read air cargo import statistics by state, you are reading statistics produced by someone who has taken the nationwide and Customs District results and made their own estimates of imports by state.)

Not surprisingly, the data for the Port of Erie shows very little activity. And the data that is reported is of questionable value. In 2006, the U.S. Department of Commerce reported that Erie had $1.35 million in air cargo exports and $1.18 million in air cargo imports. The largest *imports* were medical optics and the largest country of import was the U.K. Since Erie has no direct service from the U.K., the only possible explanation for this discrepancy is that some imports do not clear customs until reaching Erie. Since this is not the case with most imports, the available statistics for the Port of Erie and other Ports are incomplete at best. For Erie, the largest category of *exports* is labeled "aircraft" and the largest destination country is Canada. Again, this data should not be relied on in any way.

With regard to data at the Customs District level, Erie is in the Cleveland Customs District, which includes Cleveland, Cincinnati, Columbus, Dayton, Indianapolis, Akron, Louisville, and other cities, such as Wilmington, Ohio - one of DHL's hubs. Because the Cleveland Customs District includes so many high volume air cargo airports, the Customs District data does not provide any insights about the level or type of exports from Erie.

Finally, as noted, export data is available for the state of Pennsylvania. Again, because of the large volume of cargo exported from places like Pittsburgh and Philadelphia, the statewide data does not provide any insights about the level of exports from Erie.

The second database used for air cargo-related statistics is the U.S. DOT T-100 database, which is also used for passenger air service research. This database tracks air cargo boarded (by weight) on direct flights. It is more useful than the Department of Commerce database in that it tracks with a high degree of accuracy the air cargo that is on direct flights to and from Erie. For Fed Ex, which operates flights between Erie and Cleveland, and between Erie and Indianapolis, this database permits us to track flight activity and cargo weight. One quirk of the T-100 data is that express shipments are not treated uniformly among Fed Ex and UPS. In one case, the shipments are classified as mail, and in the other as air cargo, so conventional treatment of T-100 data is simply to combine the cargo/mail categories for analytical purposes.

The limitation of the DOT T-100 data source, however, is precisely that it tracks only the cargo on direct flights to/from Erie. Take, for example, an air freight shipment from London to Erie that is flown from London to New York JFK and then trucked to Erie. Only the air portion of the trip is reported, so the shipment will be reported as a London-New York shipment, not as a London-Erie shipment. Any portion of the itinerary that moves by truck will not be included in the T-100 data or in any other available database relating to air freight shipments.

Because the air freight market lacks the analytical data necessary for basic air cargo market planning studies, it is important to develop local knowledge of the air freight business. This is likely to reside in the largest freight forwarders, shippers, and logistics companies in the area. For Erie, as for other communities, obtaining a reasonably accurate picture of local air cargo demand will be an ongoing challenge.

IV. Comparing Erie with Other Regional Markets

The table below focuses on comparable markets in the region surrounding Erie and shows the number of flights by the scheduled cargo carriers – primarily Fed Ex, UPS, and DHL – and the domestic air cargo they carried in 2006. In addition, the table shows the amount of air cargo carried as belly freight by the passenger carriers.

Air Cargo Carried – 2006

		Scheduled Cargo Carriers						Scheduled Passenger Carriers			
Airport		Departures			Freight+Mail (Tons)			Freight+Mail (Tons)			Total
Code	Name	Inbound	Outbound	Total Ops	Inbound	Outbound	Total	Inbound	Outbound	Total	Cargo
CLE	Cleveland	1,663	2,356	4,019	43,260	47,542	90,802	6,194	3,709	9,903	100,705
PIT	Pittsburgh	3,047	3,081	6,128	47,264	39,277	86,541	4,229	2,052	6,281	92,822
LCK	Columbus (Rickenbacker)	1,613	2,498	4,111	43,608	28,372	71,980	-	-	-	71,980
BUF	Buffalo	1,641	1,619	3,260	27,794	24,724	52,518	1,694	1,420	3,114	55,632
SYR	Syracuse	1,844	2,058	3,902	27,924	21,210	49,134	580	212	792	49,926
MDT	Harrisburg	1,903	1,701	3,604	21,971	25,275	47,246	171	77	248	47,494
ROC	Rochester	1,725	1,790	3,515	20,866	21,749	42,615	853	213	1,066	43,681
ABE	Lehigh Valley	466	710	1,176	6,494	6,881	13,375	28	9	37	13,412
DAY	Dayton	465	453	918	5,867	5,491	11,358	441	255	696	12,054
CRW	Charleston, WV	757	4	761	1,435	-	1,435	128	24	152	1,587
SCE	State College	718	752	1,470	634	845	1,479	9	33	42	1,521
ERI	Erie	876	-	876	618	-	618	23	44	67	685
AVP	Wilkes-Barre/Scranton	246	255	501	83	136	219	3	36	39	258
BGM	Binghamton	-	-	-	-	-	-	8	5	13	13

What the above table shows is the huge difference in the volume of domestic air cargo carried at the region's airports. Cleveland, Pittsburgh, and Columbus Rickenbacker (a DHL hub) are the three major regional cargo centers. Even excluding these airports, we see that Rochester, Harrisburg, Syracuse and Buffalo carry 30 times the cargo volume of airports like State College and Charleston, W.Va. And Erie and Wilkes-Barre, for reasons discussed elsewhere, carry even less.[2] Even on a per flight basis, Erie generates 0.71 tons per trip as compared with 1.0 ton per trip at State College and 1.89 tons at Charleston.

The above table also shows that the scheduled cargo carriers are responsible for 90% or more of the air cargo at virtually all of the region's airports. (More detailed flight information about each of these markets is provided in Appendix 1.) Within the category of scheduled cargo carriers, FedEx is by far the largest, followed by UPS, and then DHL. The only other scheduled cargo carriers that appear in the DOT statistics for the region are Arrow and Tradewinds. See the breakdown by carrier shown below.

Flights and Cargo by Air Cargo Carrier at the Above Airports (2006)

	Flights	%	Tons	%
FedEx	24,641	72%	289,300	62%
UPS	6,129	18%	155,632	33%
DHL (Airborne)	3,403	10%	21,745	5%
Arrow Air	64	0%	2,563	1%
Tradewinds	4	0%	160	0%

Some belly cargo is carried by most airlines, depending on the cargo capacity available after passengers and bags.[3] At airports the size of Erie, State College, Syracuse, and Rochester, the largest amount of belly freight is carried on flights from major hubs. Using Syracuse as an example, the table below shows that most belly freight comes from New York JFK on JetBlue, from Atlanta on Delta, and from Charlotte and Philadelphia on US Airways. A total of five passenger airlines carry air cargo between Syracuse and 11 airports.

[2] Binghamton carries the least of all as it has no service by any of the overnight express carriers.
[3] Typically, the airlines carry a substantial amount of belly cargo on their widebody international flights. Therefore, very substantial amounts of belly cargo are carried to/from the major international gateways, such as JFK, ORD, LAX, and MIA.

Air Cargo by Carrier at Syracuse (2006)

Airport Code	Name	Carrier	Freight+Mail (Tons) Inbound	Outbound	Total
JFK	New York Kennedy	jetBlue	215	35	250
ATL	Atlanta	Delta	148	96	244
CLT	Charlotte	US Airways	108	24	132
PHL	Philadelphia	US Airways	67	20	87
DTW	Detroit	Northwest	21	1	22
MCO	Orlando	jetBlue	-	16	16
CVG	Cincinnati	Delta	2	11	13
PIT	Pittsburgh	US Airways	3	1	4
EWR	New York Newark	Continental	-	4	4
DCA	Washington National	US Airways	3	1	4
LGA	New York LaGuardia	US Airways	1	-	1

Despite this broad range of air cargo service, the total air cargo carried by the passenger airlines at Syracuse is very small – amounting to less than 2% of Syracuse's total air cargo volume. The express carriers (UPS, FedEx, and DHL) carry the remaining 98% of Syracuse's air cargo – a pattern that is very common particularly at airports in the region surrounding Erie.

Benchmarking air cargo activity to determine how much freight should be moving by air is difficult and subject to many variables. However, a simple test, based strictly on population, suggests that Erie should have more air cargo activity than it does. Over 450,000 people live within a one-hour drive from Erie[4], compared with 367,000 for State College, 1.1 million for Rochester, and 1.0 million for Syracuse. Yet Erie carries far less air cargo than these airports and has far less air cargo per capita.[5] There is no reason to believe that Erie's reliance on air imports/exports or on express shipments is substantially different from these peer cities as to account for the huge differences shown in the table below.

[4] Population within 1-hour drive time as calculated by Microsoft MapPoint 2006, based on 2004 population estimates.

[5] Erie carries more air cargo than Binghamton, however, which lacks air service from any of the overnight express carriers. Binghamton has significant disadvantages to Erie in terms of having a smaller population, a location suitable to trucking, and a smaller economy.

Air Cargo Tons/Thousand People

Erie vs. Peer Markets

City	Population (000)	Cargo Tons	Tons/ Thousand People
Erie	456.5	685	1.5
Binghamton	386.1	13	0.03
State College	367.2	1,521	4.1
Rochester	1,126.6	43,681	38.8
Syracuse	1.022.8	49,826	48.8

A significant factor contributing to the disparities between Erie and peer markets is Erie's location between the larger cargo markets of Cleveland, Pittsburgh, and Buffalo. Erie's location, along with its infrastructure constraints (primarily its runway length and the limited cargo capacity of the aircraft currently serving Erie), means that relatively little air cargo – even overnight packages – is flown to and from Erie. Two interstate Highways (I-90 and I-79) provide easy access to Erie from three large markets – Cleveland, Pittsburgh and Buffalo. The airport-to-airport mileage from Erie to either Cleveland or Buffalo is 107 miles, with a drive time of slightly less than two hours.[6] Pittsburgh is about 30 miles farther at 140 miles and a 2 hour and 22 minute drive time. Because all three large markets are within reasonable driving time/mileage from Erie, low-cost trucking becomes the preferred method of transportation from these larger markets.

Erie's scheduled air cargo service is provided entirely by FedEx, which flies from Cleveland and Indianapolis to Erie. FedEx usually operates four flights per day to Erie four days a week (from Tuesday through Friday). Three of the flights are from Cleveland, and one is from Indianapolis. As discussed subsequently, FedEx does not provide outbound air service from Erie, relying instead on a trucking operation.

[6] Drive times as estimated by Microsoft MapPoint; actual drive times may be different.

In addition to the FedEx flights, the T-100 information shows minor amounts of cargo carried as belly freight on Northwest to Detroit, on US Airways to Philadelphia and Pittsburgh, and on Delta to Cincinnati, Chicago, and Milwaukee. (Because Delta has no nonstop fights from Erie to Chicago or Milwaukee, what the T-100 data is capturing is cargo on one-stop direct flights to those cities through Cincinnati.)

Air Cargo by Carrier at Erie (2006)[7]

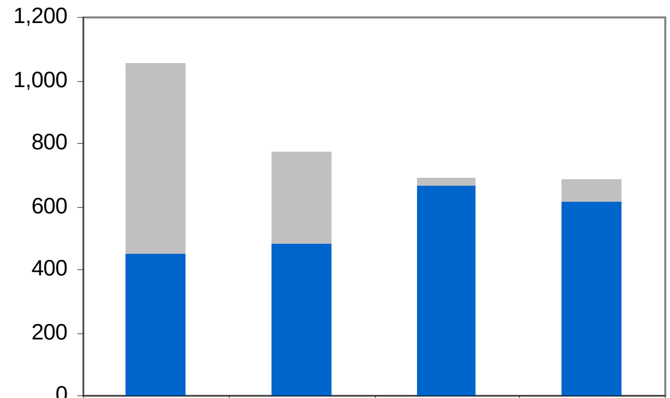
Airport			Freight+Mail (Tons)		
Code	Name	Carrier	Inbound	Outbound	Total
CLE	Cleveland	FedEx	495	0	495
IND	Indianapolis	FedEx	123	0	123
CVG	Cincinnati	Delta	3	23	26
ORD	Chicago O'Hare	Delta	0	19	19
DTW	Detroit	Northwest	13	0	13
PHL	Philadelphia	US Airways	4	2	6
MKE	Milwaukee	Delta	2	0	2
PIT	Pittsburgh	US Airways	1	0	1

One other subject of interest to Erie is the trend in air cargo carried over the past several years. From 2003 to 2006, Erie's air cargo carried by FedEx grew by 37 percent, while its air cargo carried as belly freight on the passenger airlines declined by 89%. The increase by FedEx was not sufficient to make up for the decline by passenger carriers, resulting in total Erie air cargo declining by 35 percent during the period. See graph below.

[7] In addition to the scheduled air cargo service listed above, the T-100 database lists a total of 4 metric tons of air cargo arriving or departing Erie in 2006 on a non-scheduled basis. Three tons were carried by Ameristar Air Cargo from Charleston, S.C. and one ton was carried by USA Jet Airways to Laredo.

Cargo Tons Shipped By Cargo Carriers vs.

Passenger Carriers at Erie



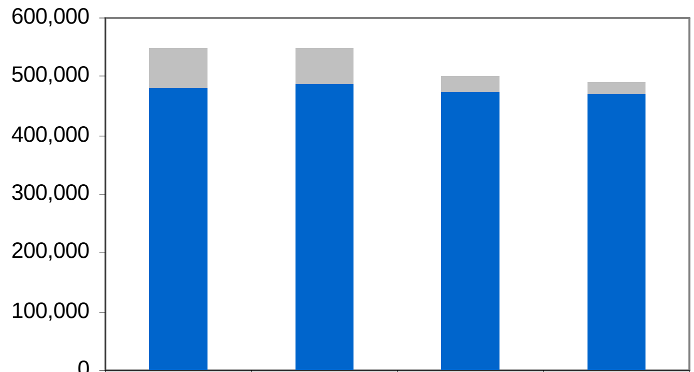
	2003	2004	2005	2006
Passenger	605	295	26	67
Cargo	452	481	664	618

Most non-gateway airports in the U.S. have experienced declining passenger carrier belly freight as the express carriers have continued to increase their overall market share. In the region surrounding Erie, all of the comparison markets have lost belly freight – with the 2003-2006 drop ranging from 38% at Cleveland to 99% at Lehigh Valley.

Some of the greatest declines in belly freight have occurred at airports such as Erie where the passenger carriers have substituted smaller regional aircraft in place of mainline aircraft. In addition to Lehigh Valley, for example, Wilkes-Barre experienced a 98% decline in passenger belly freight, and State College experienced an 86% decline in belly freight from 2003-2006. See Appendix 2 for information on other airports in the region.

For the Erie region as a whole, even air cargo carried by the express carriers has not grown, reflecting the lack of growth of the region's economy as well as the heavy reliance on trucks. The chart below shows total domestic air freight at the airports in the region[8] by year from 2003-2006, divided into belly cargo and scheduled air cargo carrier cargo.

Cargo Tons Flown By Cargo Carriers vs. Passenger Carriers at Airports in the Erie Region

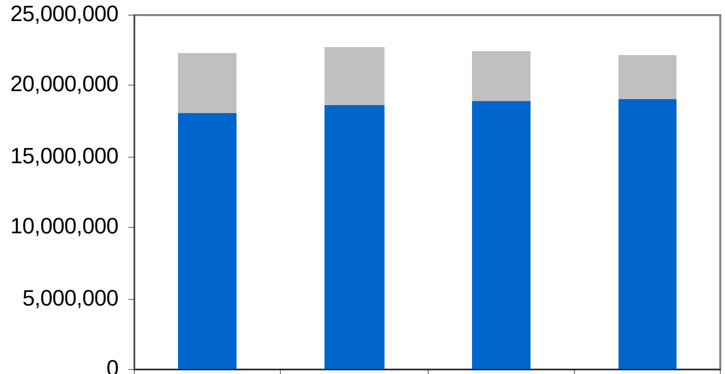


	2003	2004	2005	2006
Passenger	67,179	61,651	27,110	22,437
Cargo	481,729	487,986	473,312	469,320

Finally, comparing domestic cargo flown by air in the region with that for the entire U.S., we see that cargo flown by cargo carriers has increased by about 5% in total from 2003-2006, while cargo flown by passenger carriers has decreased by about 25%.[9] The modest increase in cargo flown by the air cargo carriers reflects the transfer of some shipments to truck-only service as these carriers continue to experience volume increases in the range of 6% per year. With regard to the 25% decrease in belly cargo during this period, that decrease is smaller than experienced at Erie or in the region – and the reason, as mentioned, is that most belly air cargo continues to fly in widebody aircraft. That belly freight has not suffered from the down-sizing of aircraft that has occurred at the regional airports.

[8] The airports included are, Buffalo, Charleston, WV, Cleveland, Dayton, Erie, Harrisburg, Lehigh Valley, Pittsburgh, Rickenbacker (Columbus), Rochester, State College, Syracuse, Wilkes-Barre/Scranton.
[9] Source U.S. DOT T-100. Note also that the FAA reports that domestic air cargo revenue ton miles *on passenger carriers* declined by an average of 5.1% per year from 2000-2006, while domestic air cargo revenue ton miles *on cargo carriers* increased by 3.3% per year during this period. Source FAA Aerospace Forecast Fiscal Years 2007-2020, table 19.

Domestic Cargo Tons Flown By Cargo Carriers vs. Passenger Carriers at U.S. Airports



	2003	2004	2005	2006
Passenger	4,194,890	4,079,244	3,547,672	3,158,192
Cargo	18,096,258	18,667,620	18,861,680	19,001,216

The above analysis, while somewhat discouraging, provides a platform to help Erie prioritize its efforts. In terms of priorities, Erie should focus first on express service (by FedEx, UPS, and DHL) as the most promising area for additional air cargo service. The second priority should be on increasing awareness of belly freight capabilities. Any significant freighter service is many years away.

V. Erie Facilities

Erie's facilities reflect the very minor role of cargo at the airport. In essence, Erie has no dedicated cargo facilities. By way of comparison, the table below shows the amount of cargo space at several other airports. Note that there tends to be a ratio of about 1-2 sq ft of warehouse space per annual cargo ton at the airports in the sample below.

Airport	Carriers		Cargo Space (sf)		Reported
	Passenger	Cargo	Ramp/Tarmac	Warehouse	Cargo Tons
Albany	17	3	200,000	53,000	26,100
Stewart	1	4	120,000	60,000	23,303
Dayton	11	1	4,356,000	800,000	370,510
Harrisburg	6	6	229,344	72,000	47,494
State College	4	2	3,370	0	1,521

Erie's relatively short runway length also limits the type of air cargo activities possible at the airport. Erie's current 6,500 ft. runway length compares with the following runway lengths in the region. Only Charleston, WV has a shorter runway than Erie.

Runway Lengths at Peer Airports

(Feet)

Airport	Runway Length
Rickenbacker	12,102
Pittsburgh	11,500
Dayton	10,900
Harrisburg	10,001
Syracuse	9,003
Cleveland	9,000
Buffalo	8,828
Rochester	8,001
Lehigh Valley	7,600
Wilkes-Barre/Scranton	7,501
Binghamton	7,100
State College	6,701
Erie	6,500
Charleston, WV	6,302

As discussed subsequently, most mainline all-cargo aircraft require 8,500 ft. runway lengths, with some widebody freighters requiring 10,000+ ft. runway lengths when the planes are fully loaded. There are some exceptions for smaller mainline aircraft that are used for limited range flights.

VI. Interviews with FedEx, UPS, and DHL

As part of the research for this report, detailed telephone interviews were conducted with integrated carriers FedEx and UPS. A brief telephone interview was also conducted with DHL headquarters staff – with Erie airport management following up with regional DHL management. For both FedEx and UPS, an initial call was held, after which the carrier did additional internal research on the Erie market, and a second call was held. In response to the question of how to increase air service to Erie, each carrier stressed the challenges associated with Erie's proximity to much larger markets and the relatively modest volume of overnight parcel shipments.

A. FedEx

FedEx said that, typically, its use of air service, instead of trucking, to a market such as Erie is driven by the delivery requirements of a large customer. Although FedEx did not specifically identify General Electric, it is likely that General Electric's contract with FedEx requires overnight deliveries to be made by a certain time each morning, and that the only way to meet that requirement is for FedEx to use air service to Erie. Evening outbound shipments can go by truck from Erie, instead of air, because there is sufficient time to truck those shipments to Cleveland to be flown on a large FedEx plane. FedEx said that without the customer requirement for early delivery, it would probably rely on trucks to handle both inbound and outbound shipments.

FedEx also described the air service "hierarchy" if Erie's air express volume grows. Today, FedEx's service to Erie is provided using small aircraft – Caravans – with three daily flights originating in Cleveland and one in Indianapolis. FedEx does not operate the flights itself, but contracts for air service with Mountain Air Cargo. As demand increases, the next step would be to increase the size of the aircraft to ATR-42s or ATR-72s. If demand increases further, additional flights would be added from Indianapolis, Cleveland, Pittsburgh or other nearby connecting points within the FedEx system.

As noted previously, FedEx has different hubs designed for different connecting roles. Memphis is FedEx's largest hub and offers worldwide connecting options. Indianapolis is a growing hub with nationwide service, but lacking international service. Newark is a regional hub that serves the Northeast as well as a connecting point for European operations. Cleveland, Pittsburgh, and Buffalo all have FedEx service with mainline jets and serve as connection points to smaller markets.

When asked why FedEx's use of air service for early morning deliveries would not create a need for UPS to respond by doing the same in order to remain competitive, the FedEx representative suggested that the volume of business may not support a second carrier's use of air service. In other words, the volume in the Erie market that requires early morning deliveries may be sufficient to support air service only by a single company. The remaining volume of time-sensitive business may not support the additional costs associated with using air to bring in the early morning parcels.

B. UPS

UPS generally confirmed FedEx's explanation of the air service/trucking decision-making criteria, and emphasized that it prefers to operate trucks that feed its larger markets whenever it can do so and still meet delivery time requirements. To the extent UPS needs to be competitive, it will do so. But having early morning delivery capability may not always be necessary.

Within UPS, the service hierarchy depends on market size, and ranges from 1) truck feeders for smaller markets that are within range of regional hubs, to 2) feeder flights to regional hubs, using smaller aircraft such as Caravans or ATR's, which are flown by third-party carriers under contract with UPS, to 3) service with "brown tails" which are larger aircraft operated by UPS.

To put UPS' fleet in perspective, in 2006, UPS operated 282 "brown tails", ranging in size from a B-727 to a B-747. It also contracted with other carriers for the operation of

325 aircraft – typically much smaller aircraft – that were used to provide feeder flights to UPS.

In general, UPS focuses on the largest air cargo generating city in a region, and that becomes its location for "brown tail" air service and a major sortation facility. For the Erie area, the nearby larger air cargo centers are Cleveland, Buffalo, and Pittsburgh – which all have air service with UPS aircraft. If Erie's express volume increases, it is likely that UPS would continue to rely on trucking as the most efficient mode of transportation to a nearby air connecting point.

Today, most of UPS' Erie express shipments are directed to Cleveland. UPS said that that if volume grows at Cleveland – either because Cleveland cargo is growing or because truck traffic to Cleveland is growing – it can simply substitute larger aircraft there. With a fleet ranging from B-727's to B-747's, there is ample flexibility to adjust aircraft size. Should Cleveland reach the point where its air capacity is strained, UPS would begin trucking most of Erie's air cargo to and from Pittsburgh or Buffalo, in addition to Cleveland.

In discussions with UPS, the company did not suggest that it was considering initiating air service at Erie. In fact, the UPS representative pointed to Rochester as an example of a much larger market that had lobbied for air service, but had not been able to justify it. As with Erie, Rochester's location works against it, as it is located between two cities – Buffalo and Syracuse – that currently have "brown tail" service. Thus, trucking to one of these cities is more economical than adding new flying to Rochester.

C. DHL

DHL's initial response to the team's questions was similar to UPS, i.e., that trucking was the primary transportation mode for Erie. DHL management noted, however, that they expected to see their cargo activity increase in the Erie area, perhaps significantly, as a result of obtaining new national contracts. One such contract is believed to be with Dell

Computers. They suggested that this new work could affect their future plans with regard to Erie. They suggested that further discussions be held with their regional office, located in Allentown, as well as with local DHL staff to get the clearest picture of where Erie stands in DHL's plans for future service.

Summary of Interviews

Depending upon the discussions with DHL, it seems most likely that only FedEx will provide air service to Erie, with UPS and DHL relying on trucking to a nearby air connecting point. Moreover, since FedEx and UPS together account for 90% of the flights and 95% of the tons carried at the region's airports, our conclusion is that, after FedEx, UPS would be the next most-likely to provide air service at Erie. DHL is of course the "wild card" and if its new time-sensitive air volume requires air service, that would be a quantum leap for Erie's cargo development activities.

Based on DHL's expressed interest in the Erie airport, it should be a priority for Erie airport management to have ongoing discussions with local management of all three express carriers – FedEx, UPS, and DHL. It is important that Erie airport management understand what is being shipped to/from Erie both by air and truck, determine how local cargo carrier management views the Erie market, and watch for opportunities to encourage new air service or establish an airport connection with the trucking operation.

FedEx and UPS reported that they make market decisions differently. UPS makes local service decisions based heavily on the recommendation of local field management. DHL appears to operate much the same as UPS, relying heavily on local and regional management for strategic direction. FedEx, on the other hand, relies more heavily on headquarters staff to make market decisions – although it closely coordinates with local staff. At DHL, local management is clearly interested in exploring the economics of moving its current operation.

VII. Interviews with Local Freight Forwarders and Logistics Plus

As part of the analytical process, interviews were conducted with several key transportation firms in the Erie area: Carver International (freight forwarder specializing in export shipments and agent for DHL); Dodsworth Trucking; Hosford International (customs broker); Logistics Plus (GE outsourced logistics provider/other logistics and freight forwarder). The firms had different areas of concentration, including those specializing in import shipments, export shipments, logistics and trucking. The information gleaned from particular interviews was to be kept confidential, and therefore, only highlights of the discussions are set forth here.

The objective of the interviews was to gain a broad understanding of the Erie market, with particular emphasis on how well the market is served today, and on potential opportunities for local air cargo service.

There was a clear consensus among the interviewees that the Erie market is well served today with trucking service to major gateways. As discussed subsequently, the factors accounting for today's good service are hurdles for future air cargo services. For example, Erie's location allows expedited truck service to three major markets (Cleveland, Pittsburgh, and Buffalo) as well as one-day service to two major airports with global operations – New York's JFK and Chicago O'Hare. But the salient point is that there is not unmet demand and there was no mention of unsatisfactory service.

On the question of the opportunities for air cargo service, it was clear that from the shipper's perspective any new service would need to be competitive in terms of quality and price with the service they have today. If local shippers had a choice of a nonstop flight anywhere, they would choose Chicago O'Hare – which is a major entry point for air shipments from China – but they would not pay a premium to use that service. The current alternative of trucking the freight to/from the larger airports works fine.

Going one step further, the interviewees were skeptical of the need for and viability of local air cargo service. One of the more positive comments focused on the relationship with the German airport at Drewitz, and suggested that a niche market might be available for cargo flights between the two airports. Other than this comment, there was little enthusiasm for local air cargo service.

At first glance, the results of the freight forwarder and shipper interviews might seem discouraging. However, the interviews were useful in focusing sharply on the practical obstacles that need to be overcome to attract more air cargo service. Going forward, these interviews helped to focus attention on the most critical challenges and to assure that all involved are aware of how difficult they are to overcome.

VIII. Issues

Before making recommendations, it is useful to set out the basic issues that Erie faces as it moves forward with a cargo development program. Those issues fit generally within four categories: (1) geography; (2) market demand; (3) regional economic vitality; and (4) infrastructure constraints. The first two issues were clearly highlighted in the interviews with leading transportation users in the area.

A. Geographic Location

Erie's close proximity to three larger airports (Cleveland, Buffalo, and Pittsburgh) is a clear liability in its efforts to develop cargo service. The following table outlines the mileage and drive time[10] between Erie and these three markets.

Erie To:	Miles	Drive Time
Cleveland	107	1:52
Buffalo	107	1:54
Pittsburgh	140	2:22

[10] Drive times as estimated by Microsoft MapPoint; actual drive times may be different.

When comparing Erie's air cargo volume with other airports in the same region, the other airport with particularly low air cargo volume is Wilkes-Barre/Scranton. Not coincidentally, Wilkes-Barre/Scranton is also within close driving range of JFK, Newark, Philadelphia, and Stewart – all larger cargo centers.

Prior sections of this report have pointed out that both the air freight and overnight express segments must consolidate goods for shipment and that it is more economical to truck goods to major consolidation points than to move goods by air. The fact that there are three larger markets within a 2 hour drive means that Erie must generate a substantial volume of either freight or express shipments to justify having cargo air service as compared to trucking to/from one of these three points.

Erie's location not only facilitates trucking of express and belly freight shipments to one of the three nearby larger airports, it also allows a one-day transit time for shipments to the major consolidation points for all-cargo flights with freighters. Erie is equidistant between New York and Chicago. The road mileage to both is listed at 455 miles, with the trip taking about 7-1/2 hrs. Both New York (JFK) and Chicago (O'Hare) are consolidation points for all-cargo flights operated with widebody freighters. Thus air cargo shipments to/from Erie can reach all the major world markets with only a one-day transit (truck) time to the gateway. With convenient access to multiple major gateways, it is difficult to make an economically sound case for "traditional" air freight flights from Erie – even assuming that the runway would support such flights.

With "traditional" air freight flights looking problematic, an option for Erie is to concentrate on serving niche, or specialty markets. For example, if the venture with the German airport – Drewitz – develops, and there is a commercial link between firms located near the airports in Erie and Germany, then shipments specific to firms in these two areas could be flown to/from Erie. However, for this niche strategy to become a reality, there would need to be a significant volume of commerce between the two points, or a shipper with sufficient business to justify direct flights between Erie and Drewitz. Without significant volume or a shipper large enough to command air service, the economics associated with consolidating shipments are such that it would be very difficult to justify a stand-alone service between Erie and Drewitz.

B. Market Demand

Discussions with major Erie forwarders as well as management personnel at both UPS and FedEx all echoed the same theme – the Erie market is well served today. There were no complaints or observations citing the need for more service, either by air or truck. If the volume at DHL increases significantly as a result of its new contracts, that carrier might be a source of additional air service.

Some of the larger shippers were asked, “What would it take to get shippers to support new service from Erie?” Their response was “service and price.” The service would need to be at least as good as provided today and the prices would need to be competitive as well. In the absence of evidence that the Erie market needs more service, the only way to attract customers who will support new service is to offer them better service or lower prices. Anything short of this will not be successful.

C. Regional Economic Vitality

It is much easier to develop a successful air cargo marketing strategy within the context of a strong and growing regional economy. If future air cargo demand can be accommodated within the current transportation infrastructure, there is no reason to expand service.

A recent edition of *Inside Erie*[11] painted a very bleak picture of the economic development activities in Erie and Erie County. To summarize the article, in 2002, the Mayor and County Executive talked about a combined effort on the part of the city and the county to cooperate in economic development activities to forge a new Erie. For a number of reasons, this never came about. The article points out that Erie today looks

[11] May 3, 2007

much the same as in 2002. No progress has been made. “We are back to the old silos that are typical in Erie and communities like it across the state. Each town and city works on its own – largely independent of each other’s interests and goals.”

Assuming the article is accurate, the lack of a coordinated economic development effort throughout the region will be a liability to any cargo development strategy. Shippers and express operators see the region as well served today. Without the prospect of growth, they will see little reason to expand.

As pointed out, air cargo development is a long-term project; and a successful economic development program is a critical element if this strategy is to succeed.

D. Infrastructure

The current runway length of 6,500 ft is not long enough to handle most all-cargo aircraft. The table below lists the required runway length for various aircraft in UPS’ fleet at maximum take-off weight. UPS’ fleet was used because it contains a wide range of air cargo aircraft. Although it may not be necessary to operate at maximum take-off weight, the table provides a good sense of why major cargo airports have much longer runways.

Required Runway Lengths for Fully Loaded Cargo Aircraft

Aircraft Type	Engine	Temp (F)	Length
DC-30CF	CF6-50C	75	14500
727-200 Standard or Advanced	JT8D-9	84	12750
DC-10CF	CF6-6D1	75	12500
DC-30CF	CF6-50C1	75	12000
747-200F	CF6-50E2	86	11350
727-200 Advanced	JT8D-15	84	11250
747-200F	JT9D-7R4G2	86	10900
MD-11F	CF6-80C2-B-1F	86	10850
727-200 Advanced	JT8D-17	84	10750
747-200SF	JT9D-7Q	86	10550
727-200 Advanced	JT8D-17R	84	10250
747-100SF	JT9D-7A	86	10100
DC-8-73F	CFM56-2-C1	59	10000
767-300 Freighter	RB211-524H	86	9950
MD-11F	PW4460	86	9800
777 Freighter	GE90-110B1L	86	9800
MD-11F	CF6-80C2D1F	86	9725
MD-11F	PW4462	86	9460
747-400 Freighter	RB211-524G-T	86	9350
767-300 Freighter	CF6-80C2B7F	86	9300
747-400 Freighter	CF6-80C2-B1F	86	9250
747-400 Freighter	PW4056	86	9250
767-300 Freighter	PW4062	86	9000
DC-8-71F	CFM56-2-C1	59	9000
757-200 Freighter	PW2037	86	8950
727-100, -100C	JT8D-7	84	8750
727-200 Standard	JT8D-7	84	8750
727-100, -100C	JT8D-9	84	8250
757-200 Freighter	RB211-535E4	86	7100

Source: Boeing

There are plans underway to lengthen the runway by 1,900 feet with the estimated completion date in the 2010-2011 period. Even at this length – 8400 feet – there would be constraints on the use of some aircraft at maximum gross take-off weight. However, as a practical matter, the longer runway would be able to accommodate a 757 freighter, which would provide Erie with the ability to handle some freighter operations.

A second infrastructure issue relates to the lack of cargo facilities at the airport. This issue is easier and less costly to address than the runway extension project. As noted in the recommendations section, the airport has been working for several years to develop a cargo facility at the airport.

IX. Recommendations

To be successful, Erie's air cargo development strategy must address three of the four issues outlined above. Erie must demonstrate that the local market can support additional air cargo service and that there are benefits to the carriers in providing more local service. Erie must show that its economic development efforts are concrete and coordinated. And Erie must address its infrastructure limitations. With regard to Erie's geographic location, that is simply a fact of life that Erie needs to recognize as it moves forward.

Our specific recommendations are as follows:

1. Establish relationships with FedEx, UPS, and DHL to monitor developments, understand how they view the Erie market, and determine what it would take to increase express air service at Erie. We will be glad to make introductions to corporate staff, but believe that the most important relationships will be at the local level.

2. Create an Erie Air Cargo Coalition to: (1) increase awareness of the economic importance of air cargo; (2) encourage maximum use of local air cargo-related resources of all types, whether trucking, warehousing, logistics support, or air; (3) collect air cargo information about Erie; and (4) ultimately achieve greater participation by Erie in the region's air cargo business.

   Careful thought should be given to the composition of the Coalition. The scope and focus of the activities must be regional, not local. Additionally, the efforts of the coalition must be closely aligned and coordinated with economic development activities in the region. This assumes that there is on ongoing economic development program at the regional level, and that transportation would be a major plank in any economic development platform.

Ideally, this should be a small group, but should include the largest shippers, the major freight forwarders, Logistics Plus, and key economic development leaders. The coalition members should have a vested interest in seeing the project succeed.

The group needs to be focused on achieving the goals outlined above. The first step in the process is educating the civic and business leaders in the region as to the benefits stemming from this project. If the newspaper article cited previously is accurate, this could be a formidable task. To the extent that the group needs specific goals that are attainable to launch this project, the first two goals should be to see that the proposed airport trade center is built and that the runway extension moves forward.

The information gathering responsibility of the Coalition should not be underestimated. The best information about Erie air cargo will not be provided by outside consultants but by a local individual or group that continually seeks out information about major shippers, where their shipments are going to and coming from, how are those shipments moving, and growth trends. This type of information is important as Erie makes a case for greater participation in the air cargo business.

3. From our interviews, it appears that GE is the "elephant in the room," which imports very large and growing amounts of air cargo from many countries including China, India, Italy, Germany, Poland, Sweden, Czechoslovakia, France, Brazil, U.K., Russia, and others. However, GE – like other globally competitive businesses – must strive for the lowest costs consistent with time and reliability requirements. The goal with regard to Erie should be to maximize Erie's involvement in the air cargo business, whether through local warehousing, consolidation, or trucking. It is not likely that there will be any significant direct air shipments in the short term. Logistics Plus – GE's logistics provider – is an active member of the Erie business community and an important resource – whose first duty is to achieve the favorable economics that GE requires. However,

should issues or opportunities arise where it would be mutually beneficial for GE and the cargo project to achieve the same result, GE's leverage in situations like this could be very valuable.

4. Continue efforts to build a cargo center at the airport. Keep in mind that many airports have built cargo buildings that do not initially involve air service. The air cargo center should be developed as soon as it makes economic sense to do so. As explained in the report, Erie is a long way away from attracting freighter service to the airport. However, over the longer term, having a consolidation point at the airport increases awareness of the Erie cargo market, as well as the likelihood that there will be air cargo service at Erie in the future.

5. As part of the air cargo center at the airport, encourage freight forwarders, customs brokers, and any firms linked to international trade to locate there. The more related businesses that locate in the center, the greater likelihood that air cargo will develop.

6. Extend the runway. Extending the runway does not guarantee that the airport will attract significantly greater cargo volumes. However, if the region does not extend the runway, it should not expect to develop its air cargo activities, as only the smallest regional cargo aircraft can be accommodated on the current runway. Without a runway extension, the future of Erie's air cargo will amount to no more than a limited number of small aircraft flying express parcels from, and possibly to, the nearest express carrier collecting point.

7. Continue efforts to establish a close relationship with the Drewitz Airport. The type of link contemplated between Erie and Drewitz is certainly uncharted territory in terms of the trade benefits of such a linkage. Nevertheless, at a minimum, it raises Erie's visibility as a participant in the international air cargo market.

Unfortunately, in a market like Erie, air cargo development will not “take care of itself.” For the reasons discussed – Erie’s geographic location, its market size, and its perceived lack of growth – Erie is not a market that naturally attracts the attention of air cargo planners. To increase air cargo business at Erie, the airport and business community must make it a priority, with clearly defined steps and goals along the way. This report is intended to point out the clear first steps in that process.

Appendix 1
Cargo Carriers' Departures and Tons by Airport – 2006

Airport Code	Name	Carrier	Destination	Code	Departures Inbound	Departures Outbound	Freight+Mail (Tons) Inbound	Freight+Mail (Tons) Outbound
ABE	Lehigh Valley	Federal Express Corporation	Wilkes-Barre/Scranton	AVP	1	245	1	82
			Indianapolis	IND	202	204	3022	2905
			Memphis	MEM	251	255	3410	3855
AVP	Wilkes-Barre/Scranton	Federal Express Corporation	Allentown	ABE	245	1	82	1
			Harrisburg	MDT	1	253	1	135
BUF	Buffalo	Airborne Express Inc.	Wilmington	ILN	227	224	1915	1410
		Federal Express Corporation	Indianapolis	IND	203	199	3863	3226
			Jamestown	JHW	237	229	114	61
			Memphis	MEM	249	248	4417	1816
		United Parcel Service	Philadelphia	PHL	198	190	4224	4325
			Louisville	SDF	260	260	9486	10108
			Syracuse	SYR	193	199	3608	3405
CLE	Cleveland	Airborne Express Inc.	Wilmington	ILN	230	231	1591	1283
		Federal Express Corporation	Erie	ERI	0	680	0	495
			New York Newark	EWR	155	158	2478	2762
			Indianapolis	IND	207	253	6418	7731
			Memphis	MEM	565	510	18250	17958
		United Parcel Service	Rockford	RFD	216	201	4149	4996
			Louisville	SDF	272	280	10233	11871
CRW	Charleston, WV	Federal Express Corporation	Columbus	LCK	754	3	1433	0
DAY	Dayton	Federal Express Corporation	Memphis	MEM	299	355	4198	4142
			Louisville	SDF	52	0	0	0
ERI	Erie	Federal Express Corporation	Cleveland	CLE	680	0	495	0
			Indianapolis	IND	196	0	123	0
LCK	Columbus (Rickenbacker)	Federal Express Corporation	Charleston	CRW	3	754	0	1433
			New York Newark	EWR	3	227	48	4319
			Indianapolis	IND	248	222	873	556
			Memphis	MEM	579	624	20150	14142
			Minneapolis/St. Paul	MSP	251	255	12827	266
			Pittsburgh	PIT	54	1	2	15
		United Parcel Service	Lansing	LAN	88	0	141	0
			Louisville	SDF	262	363	7428	7002
MDT	Harrisburg	Airborne Express Inc.	New York Newark	EWR	211	0	24	0
			Wilmington	ILN	232	459	2609	3631
		Federal Express Corporation	Wilkes-Barre/Scranton	AVP	253	1	135	1
			New York Newark	EWR	213	163	192	29
			Indianapolis	IND	204	206	3700	3200
			Williamsport	IPT	254	232	237	67
			Memphis	MEM	254	262	5224	6777
		United Parcel Service	Louisville	SDF	262	358	9672	11310
PIT	Pittsburgh	Airborne Express Inc.	Wilmington	ILN	232	231	1969	1421
		Federal Express Corporation	Altoona	AOO	0	263	0	173
			Cumberland	CBE	252	253	165	130
			New York Newark	EWR	207	7	3715	145
			Indianapolis	IND	208	255	6638	8592
			Johnstown	JST	243	256	235	157
			Columbus	LCK	1	54	15	2
			Memphis	MEM	586	512	18966	15402
			State College	SCE	752	713	845	634
		United Parcel Service	Philadelphia	PHL	205	205	4759	4934
			Louisville	SDF	305	258	9766	7398
ROC	Rochester	Airborne Express Inc.	Wilmington	ILN	3	226	0	1223
			Portland	PWM	228	0	37	0
		Federal Express Corporation	Elmira	ELM	458	591	367	338
			New York Newark	EWR	405	170	297	82
			Memphis	MEM	597	747	19703	19173
SCE	State College	Federal Express Corporation	Pittsburgh	PIT	713	752	634	845
SYR	Syracuse	Airborne Express Inc.	Wilmington	ILN	182	183	1769	1917
		Federal Express Corporation	Burlington	BTV	203	203	1932	6
			New York Newark	EWR	208	203	3178	529
			Memphis	MEM	259	244	7524	6098
			Plattsburgh	PLB	210	481	153	414
		United Parcel Service	Albany	ALB	201	0	2877	0
			Buffalo	BUF	199	193	3405	3608
			Philadelphia	PHL	4	201	67	3294
			Louisville	SDF	318	244	6695	4577

Note: Airborne flies as part of the DHL network

Appendix 2
Cargo Carried by Cargo Carriers and Passenger Carriers in the Region

			Weight (Tons)			Change 2003-2006		
Code	Name	Year	Cargo	Passenger	Total	Cargo	Passenger	Total
ABE	Lehigh Valley	2003	28,428	2,586	31,014			
		2004	29,746	2,312	32,058			
		2005	23,582	26	23,608			
		2006	13,375	37	13,412	-53%	-99%	-57%
AVP	Wilkes-Barre	2003	192	1,968	2,160			
		2004	198	2,020	2,218			
		2005	190	20	210			
		2006	219	39	258	14%	-98%	-88%
BGM	Binghamton	2003	1	558	559			
		2004		754	754			
		2005		12	12			
		2006		13	13	n/a	-98%	-98%
BUF	Buffalo	2003	48,539	8,222	56,761			
		2004	51,840	8,865	60,705			
		2005	52,699	3,510	56,209			
		2006	52,518	3,114	55,632	8%	-62%	-2%
CLE	Cleveland	2003	86,908	16,033	102,941			
		2004	89,849	15,426	105,275			
		2005	88,282	12,095	100,377			
		2006	90,802	9,903	100,705	4%	-38%	-2%
CRW	Charleston	2003	978	553	1,531			
		2004	1,218	760	1,978			
		2005	1,362	134	1,496			
		2006	1,435	152	1,587	47%	-73%	4%
DAY	Dayton	2003	27,504	3,426	30,930			
		2004	9,428	4,584	14,012			
		2005	8,911	951	9,862			
		2006	11,358	696	12,054	-59%	-80%	-61%
ERI	Erie	2003	452	605	1,057			
		2004	481	295	776			
		2005	664	26	690			
		2006	618	67	685	37%	-89%	-35%
LCK	Rickenbacker	2003	65,516	-	65,516			
		2004	78,506	-	78,506			
		2005	69,232	-	69,232			
		2006	71,980	-	71,980	10%		10%
MDT	Harrisburg	2003	39,492	4,502	43,994			
		2004	40,770	3,663	44,433			
		2005	43,014	394	43,408			
		2006	47,246	248	47,494	20%	-94%	8%
PIT	Pittsburgh	2003	83,042	19,876	102,918			
		2004	84,916	13,830	98,746			
		2005	86,399	7,433	93,832			
		2006	86,541	6,281	92,822	4%	-68%	-10%
ROC	Rochester	2003	49,636	5,134	54,770			
		2004	49,015	6,460	55,475			
		2005	45,788	1,506	47,294			
		2006	42,615	1,066	43,681	-14%	-79%	-20%
SCE	State College	2003	1,069	291	1,360			
		2004	1,177	408	1,585			
		2005	1,516	17	1,533			
		2006	1,479	42	1,521	38%	-86%	12%
SYR	Syracuse	2003	49,973	3,983	53,956			
		2004	50,842	3,028	53,870			
		2005	51,673	998	52,671			
		2006	49,134	792	49,926	-2%	-80%	-7%