

AIR CARGO SUPPLY CHAINS AND THE CHANGING DYNAMICS OF AIRPORTS

PROVIDING NEW PERSPECTIVES FOR INDUSTRIAL DEMAND IN CANADA



AIR CARGO SUPPLY CHAINS AND THE CHANGING DYNAMICS OF AIRPORTS

PROVIDING NEW PERSPECTIVES FOR INDUSTRIAL DEMAND IN CANADA

TABLE OF CONTENTS

At a Glance.....	3
Section 1: Introduction.....	4
Section 2: Canadian Airports and the Supply Chain Process.....	5
Section 3: Passenger and Cargo Trends at Canadian Airports.....	10
Section 4: Select Canadian Airports in Perspective.....	14
Section 5: The View Ahead.....	17
Appendix One.....	18
Bibliography.....	20

AT A GLANCE

The advancement of e-commerce and global supply chain strategies are making airports increasingly important to local economic activity and have generated new industrial real estate requirements in Canada.

The analysis of airports and their relationship to real estate has been limited however, particularly in the Canadian context. For this reason, GWL Realty Advisors (GWLRA) sought to provide greater perspective on airports, focusing on the air cargo sector and its relationship to industrial real estate demand.

Several interesting findings emerged from our research:

- Supply chain strategies are becoming increasingly complex and airports with **global access and strong passenger volumes will see the most activity**, while airports focused solely on cargo and shipping will witness limited industrial demand in Canada. This is because cargo travels on both dedicated freighter planes and on passenger flights.
- **Airports that are or have the potential to become integrated with other transportation modes such as rail, sea or road** will benefit from a clustering of complimentary industrial activity, driving new real estate demand.
- Airports in Toronto and Vancouver will continue to benefit from activities driven by US and Asia-Pacific trade respectively. However, **Calgary and Edmonton are becoming markets to watch** as real estate costs in those areas remain very competitive and investments in air and other transportation infrastructure improve.
- **China has emerged as a significant driver of air cargo demand in Canada**, owing to the import and export of manufactured goods and components in the manufacturing process. The US, although still a major air cargo market for Canada, has declined in importance, being replaced by a number of emerging markets in Europe and Asia.
- We forecast the growth of the Canadian air cargo market to be led by e-commerce and the global movement of high-value goods going forward. As such, **requirements for specialized industrial buildings such as fulfillment centres, bulk distribution and integrator sorting facilities are expected to grow** in the Canadian industrial market presenting new asset class opportunities for investors.

SECTION 1: INTRODUCTION

THE CHANGING DYNAMICS OF AIRPORTS

Over the last century, airports have emerged as integral parts of the urban economy, moving both goods and people and serving as centres for jobs and services. The last several decades in particular have accelerated the importance of airports, as globalization and technology have increased global connectivity and the need for on-demand access to cities around the world. Every day, airports move passengers and cargo at dizzying rates through complex domestic and international flight networks.

While the ongoing focus for many airports has been passenger travel, international trade has made airplane transportation crucial to global distribution networks, generating substantial industrial activity as a result. For many cities, airports have become an important economic hub, similar in function to central business districts where clusters of activity and transportation are common. Accordingly, the term “airport city” or “aerotropolis” has become commonplace in regional economic dialogue, highlighting the trend of using airports as economic-engines and transportation hubs (Kasarda & Lindsay, 2011).

AIRPORTS AND INDUSTRIAL REAL ESTATE STRATEGY

Industrial real estate strategy in Canada has traditionally been focused on capturing user-demand generated from sectors such as manufacturing or warehousing. However, with the growth of increasingly complex supply chain strategy; proximity to transportation has come to the forefront of industrial demand in Canada. Similar to rail lines, major highways and sea ports, airports are also fundamental to industrial activity, but have been traditionally under emphasized in their importance for Canadian cities compared to other transportation modes.

Accordingly, key questions posed in the report include:

- How are airports in Canada changing in function and economic scope?
- What is the global market for air cargo and how does Canada fit into the picture?
- How do air cargo supply chains work and what key industrial user groups are involved?
- What are the risks to the air cargo sector, both domestically and internationally?
- What are the specific trends occurring in major Canadian airports and what are the opportunities for real estate investors?

Research for this report was gathered from several sources, including GWLRA original research and interviews with industry experts; material and insights from consulting group InterVISTAS Consulting Inc.; trade data from Statistics Canada; academic literature; and data collected from local and national airport authorities.

SECTION 2: CANADIAN AIRPORTS AND THE SUPPLY CHAIN PROCESS

Although airports have diversified in their form and function over the last several years, industrial related-uses remain the majority of Canadian airport's non-passenger-related activity. Industrial users tied to distribution and logistics rely on the airport to provide access to regional and global shipping networks, while manufacturers – either at the beginning, middle or end of a product cycle – rely on airports to move goods along the supply chain.

While every airport is different in terms of their local economy and infrastructure, this section highlights some common characteristics and trends in today's Canadian airports.

TYPES OF AIRPORTS IN CANADA

While airports vary in size and shape across the world, those of interest from an industrial perspective are the following:

Origin-destination airports

International airports with large, global flight networks are categorized as origin-destination airports (InterVISTAS Consulting Inc., 2011). Typically, origin-destination airports are significant hubs to which people and goods originate or are travelling to. Airports such as Pearson International in Toronto are examples of origin-destination airports, as the Greater Toronto Area possesses (a) a large population of consumers (b) a substantial manufacturing/distribution base and (c) a financial sector which relies heavily on the airport for service and people delivery. Origin-destination airports can also be classified as “intercontinental” or “international” gateway airports depending on their flight network.

Hub/Distribution airports

Airports with strategic geographical locations for cargo are considered hub/distribution airports (InterVISTAS Consulting Inc., 2011). The Hamilton International Airport for example is a hub/distribution airport, as the airport serves as a specialized hub for cargo movement out of the Greater Toronto Area.

AIRPORT SUPPLY CHAINS: INTEGRATOR AND FREIGHT FORWARDING APPROACHES

Airports play a key role in the regional and global supply chain process, moving goods from market to market. Shipping by air is used for products that are either time sensitive or of high value and can justify higher transportation costs compared to other methods. Air cargo

is used regularly for the delivery of emergency parts for industrial machinery (hence the term “just in time” delivery) where on-site inventories of replacement parts are low due to high carrying costs. Other products such as seafood and pharmaceuticals, which expire quickly, also rely on air cargo to be delivered within a short time frame. Globalization and e-commerce have further generated new opportunities for the aviation sector, including a wider range of goods being shipped by air such as electronics, high fashion clothing and consumer products.

Two main types of supply chains exist in air-freight logistics today – Integrated and Freight Forwarding.

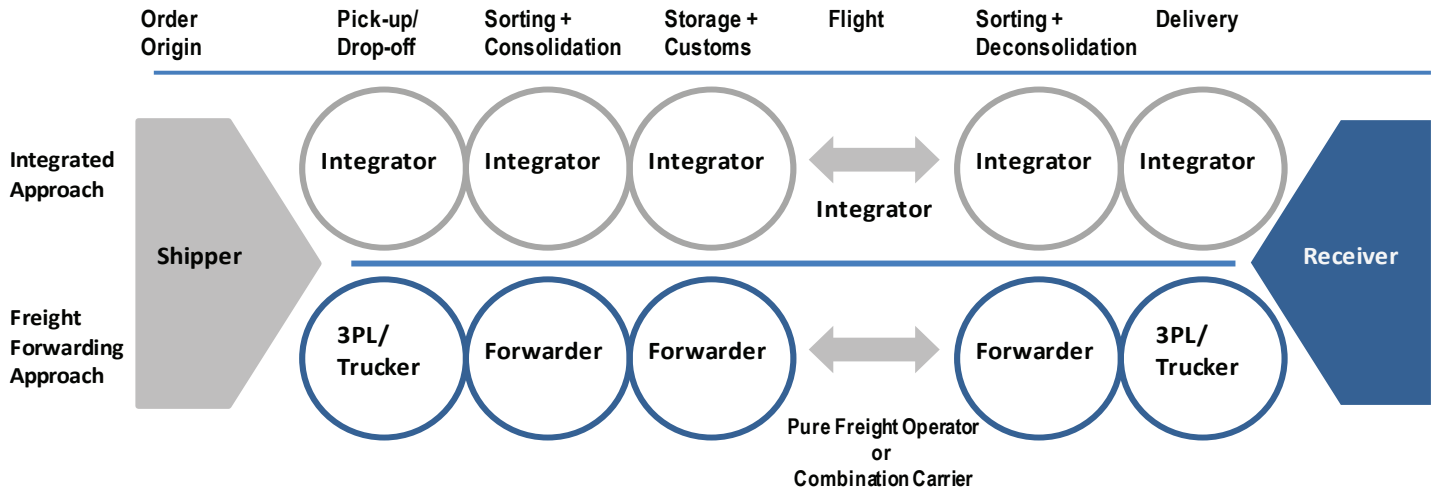
Manufacturer to consumer: The Integrated Approach

In an integrated supply chain process, a single entity is responsible for the movement of a product, starting from the shipper (consignor) and through to the receiver (consignee). The growth of firms such as FedEx, UPS, Purolator and DHL (aptly named “integrators”) and their increasingly complex air cargo supply chain strategies are examples of such an approach. Integrators have sophisticated in-house logistics platforms, ensuring a single operator is responsible for the product from pick-up through to delivery using internal truck and plane fleets.

Market to market movement: The Freight Forwarding Approach

In a freight forwarding process, the resources of a variety of groups such as couriers and third-party logistics (3PL) companies are involved in the movement of goods. Typically a company specializing in logistics (a freight forwarder) arranges the pick-up, customs inspection, storage, travel, consolidation/deconsolidation and delivery of the good using external groups such as trucking companies and pure freight operators. Air cargo in this case, is one part of the supply chain process. The freight forwarding approach can ship cargo in two ways: through a pure freight operator (i.e. Cargojet), which are devoted solely to freight and have their own fleet of cargo aircrafts; and combination carriers (i.e. Air Canada) which carry cargo in the belly of passenger flights.

FIGURE 1: AIRPORT SUPPLY CHAIN PROCESS



Source: GWLRA (Adapted from Greater Toronto Airports Authority)

Shifting Supply Chain Trends

Historically, integrated carriers focused on the movement of envelopes, parcels and small packages (i.e. the stereotypical FedEx or UPS box). However, the movement of physical mail has been declining over time. Integrated carriers can now handle larger shipments and freight forwarders now offer services (such as time-definite tracking) that were previously only available from integrators.

The rise of online retailing – particularly with consumer electronics – has placed greater demand on air-freight as consumers demand quicker delivery times (Putzger, 2012). This trend has benefitted the air cargo sector, which in Canada has seen a rise in total import values for electronics and consumer goods over the last decade.

AIRPORT USER-TYPES COMMON IN THE SUPPLY CHAIN PROCESS

While it remains difficult to estimate how much direct real estate demand is generated from air cargo at Canadian airports, one cannot deny that a large proportion of industrial users located

near airports are involved in the movement of goods travelling by air. Accordingly, a variety of industrial users – from bulk distribution to cold-storage – drive activity around airports, ranging from groups that require direct runway access to those who benefit from being close to complimentary businesses and clients.

The following is a list of industrial users commonly involved in the movement of air cargo:

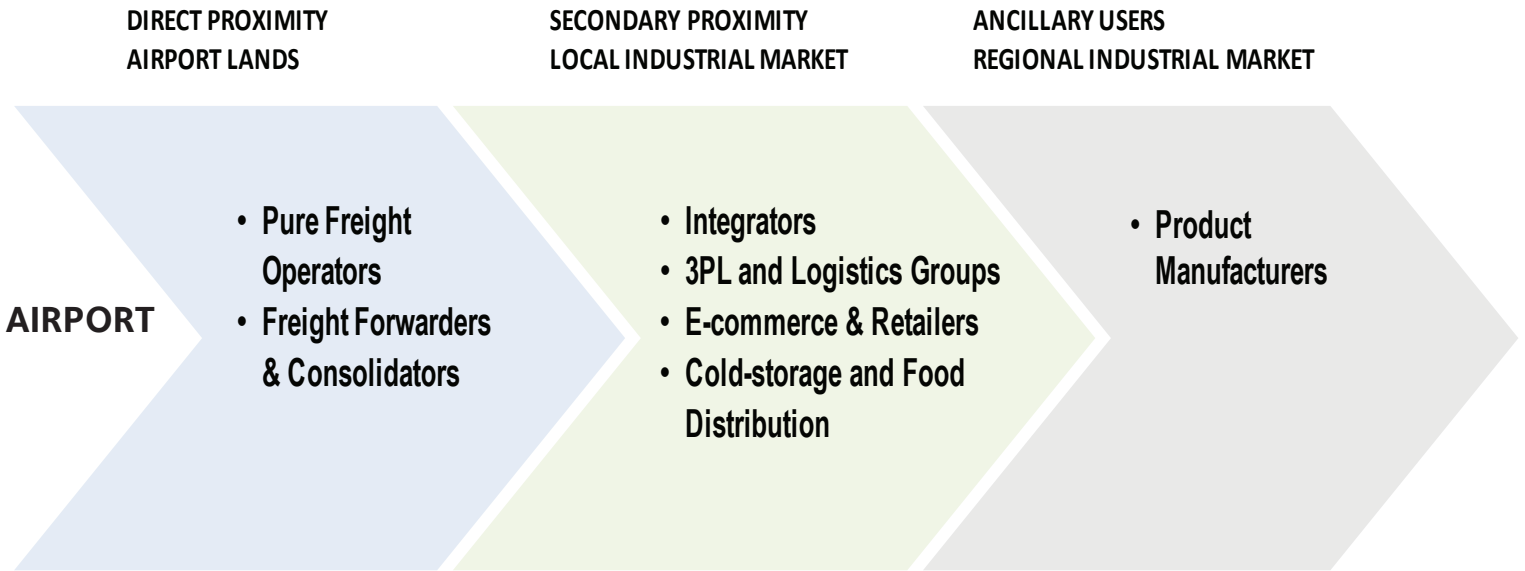
- **Integrated Carriers (UPS, FedEx)** – require large volume buildings such as bulk distribution centres, but with specialized sorting capabilities. Highway accessibility is important for these groups as air cargo often gets deconsolidated for truck delivery in local markets. Direct airport access is not always necessary, although many groups will have air-side sorting facilities.
- **E-commerce and retailers (Target, Amazon)** – require large volume buildings such as bulk distribution and fulfillment centres with substantial loading, sorting and racking infrastructure. These groups do not require direct airport proximity.

FIGURE 2: AIRPORT INDUSTRIAL PROPERTY - KEY AIR CARGO TENANTS

KEY TENANTS	SPACE REQUIREMENTS	SIZE REQUIREMENTS
Integrated Carriers	Cross-dock centres, Truck terminals, Trailer storage	Large (100,000 to 1 million SF)
3PL and Logistics Groups	Bulk warehouse and distribution	Medium-Large (50,000 to 1 million SF)
Pure Freight Operators	Bulk warehouse, Truck terminals	Medium-Large (50,000 to 1 million SF)
E-Commerce and Retailers	Bulk distribution and fulfillment centres	Large (100,000 to 1 million SF)
Cold-Storage and Food Distribution	Facilities with integrated refrigeration systems, manufacturing potential	Varies depending on operating size
Product Manufacturers	Warehouses	Varies depending on operating size
Freight Forwarders	Office space, general warehousing	Small (0 to 50,000 SF)

- **3PL and Logistics** (i.e. Kuehne + Nagel, Schenker) – require large volume buildings such as bulk distribution centres with substantial truck loading and racking capabilities. These groups do not require direct airport proximity although they tend to cluster where major transportation infrastructure is found.
- **Pure freight operators** (i.e. CargoJet) – require large volume buildings at airports to sort air cargo.
- **Cold-storage (i.e. VersaCold)** – require unique refrigerated warehouse facilities to preserve perishable food items or temperature sensitive pharmaceutical products. Some distribution capabilities required, but cold-storage facilities can be a combination of traditional warehouse with manufacturing/production space. The term “cold-chain” or “temperature controlled” logistics is commonly used to describe the movement of products that require constant air conditioning. Although not requiring direct airport proximity, cold-storage users prefer being close to airports for goods movement.
- **Product manufacturers** (i.e. machinery, electronics, pharmaceuticals, apparel) – producers of high value goods benefit from being close to airport supply chains. Product manufacturers have lower geographic constraints, especially if the product is not perishable (i.e. clothing).
- **Freight forwarders** – These firms are involved in the supply chain management of commercial goods and often have office operations or warehouses close to airports. Forwarders are mainly tasked with realizing cost-saving efficiencies by consolidating goods from a variety of different clients into single air cargo shipments, or by deconsolidating goods at the destination city for delivery by truck. Freight forwarding functions have geographic constraints related to the distance from the Airport. This is a result of customs inspections and the ability to physically inspect goods in a reasonable amount of time before being loaded on planes.

FIGURE 3: AIRPORT TENANT PROXIMITY



SUPPLY AND DEMAND DRIVERS UNIQUE TO AIR CARGO

DEMAND DRIVERS

- **Fuel Costs** – Fuel is among the greatest costs for air-travel and has substantially increased over the last decade. Rising fuel costs make other modes of shipping more attractive especially among products with lower shipping urgency.
- **Modal Competition** – Although air transportation is more expensive relative to other modes, it provides faster shipping times, greater damage control for products and higher levels of security. However, as other modes of transportation improve on their efficiency and safety, it can affect demand for air cargo. Time definite trucking for example, has made road transport a growing air cargo competitor.
- **Global Trade and Economy** – Economic activity and consumer spending directly influences demand for air travel and global cargo volumes move fairly closely with larger economic cycles (such as GDP growth). Lower economic performance leads to lower demand for goods shipped by air. Additionally, when interest rates are low, inventory carrying costs are also lower making slower transport options more attractive. When inventory costs are high, faster modes of shipping are preferred (InterVISTAS Consulting Inc., 2011).
- **Manufacturing Network** – Companies with sudden changes in their manufacturing base either within a region or between countries can shift their distribution networks, and as a result, can increase or decrease their demand for air cargo at a particular airport. Recent on-shoring of manufacturing activities has been seen as a threat to global air cargo activity as companies move manufacturing operations to North America (including Mexico) from overseas to save on travel costs. 3D manufacturing (the process of using special printers to create mechanical parts and other goods) could also disrupt global supply chains by reducing the production and shipping needs of valuable, time sensitive products (Copeland, 2012).
- **Supply Chain Strategy** – Typically, air-travel has been used for “last-minute” or “Just in time” delivery of products, especially for personal packages or retail items. A firm’s supply chain strategy can affect demand for air cargo, depending on how they structure their inventory between their local distribution centres and product suppliers. Some firms elect to “front-end” their inventories at their local distribution centres versus relying on air-travel to make up for out of stock products, while some firms elect to “back-end” their inventories by expediting items by air based on demand.

SUPPLY DRIVERS

- **Airport Size** – The volume of passengers and cargo at an airport is an important determinant for the scale of activity around airports. The larger the airport, the greater demand for a variety of groups involved in air cargo such as integrators and freight forwarders. Airports which have a limited flight network or small passenger volumes require less diversity in terms of air cargo providers.
- **Connectivity and Multi-modal Infrastructure** – The availability and access to different transportation modes can also increase demand for air cargo. Sea-to-air and rail-to-air connections for example are methods whereby goods come off an ocean vessel or intermodal rail yard and go onto a pallet at an airport. This provides more expedient delivery than transporting strictly by sea or rail; however, it is less expensive than transporting by air only and airports can greatly benefit from these connections.
- **Capacity** – The size of airport facilities, the size of the airplanes and the infrastructure surrounding an airport are key components for airport demand. Freight often is included in passenger trips in the “belly” of planes and the increase or reduction in plane size and/or passenger capacity can affect total cargo volume.
- **Regulation and Security** – taxes, fees and security regulations for air cargo are increasingly complex, and can affect air travel. Security regulations in Canada for example have increased in line with higher security standards set by the US. Airlines, freight forwarders and shippers have had to adjust to changing trans-border security regulations post 9/11 (Putzger, 2012).

AIRPORTS AS MULTI-MODAL TRANSPORTATION HUBS AND LOGISTICS CLUSTERS

A growing focus in Canada has been the connectivity of airports to a variety of transportation modes such as rail, ocean-shipping and road transport for the movement of goods. Many Canadian airport authorities are positioning themselves for growth by developing their interconnection with other transportation modes. Many of Canada's largest airports are within close proximity to major highways or close to national rail lines and are displaying key characteristics of what we term multi-modal transportation hubs.

Key Characteristics of multi-modal transportation hubs:

- Integration of transportation modes (Air, Sea, Rail, Road)
- Ease of access to major highways and public transportation
- Clustering of complementary businesses from different industry sectors
- Interrelationship between offices, industrial, retail, hotel and other amenities
- Significant regional and international distribution and commerce network

The term **Logistics Cluster** has also been commonly used to describe industrial areas that benefit from economies of scale through the overlap of multiple transportation modes and distribution networks (Sheffi, 2013).

An airport that currently functions or has the potential to evolve into a multi-modal transportation hub is a key indicator for sustained industrial demand in the future. Airports that lack the infrastructure or base of complimentary transportation activities have less potential in attracting industrial real estate demand—**the availability of the airport alone is not enough to generate a critical mass of activity.** An airport that has good access to major highway systems and intermodal rail yards will be in demand for industrial users. Airports across Canada are expected to especially see more truck traffic, as logistics operators continue to seek better multi-modal road integration with air cargo facilities suggesting the need for more buildings with docking and truck turning access. Amazon, in its evaluation of locations for its regional e-fulfillment centres for example, look for areas that are at the confluence of road, port and airport facilities to ensure multiple delivery and receiving points for its products.

SECTION 3: PASSENGER AND CARGO TRENDS AT CANADIAN AIRPORTS

HOW PASSENGER TRAVEL IS AN INDICATOR FOR AIR CARGO DEMAND

Although industrial and distribution-related activities have grown considerably at airports over the last decade, passenger travel continues to be the largest revenue source for most major Canadian airports. Passenger travel, however, is a key driver for air cargo for the following reasons:

- Airports with high passenger volumes often are in metropolitan regions with a large population and a large distribution sector that relies on the airport to move goods.
- Cargo is often shipped in the “belly” of passenger airplanes and higher passenger volumes generate more capacity and efficiency for commercial cargo.

- Airports with high passenger volumes will often have more non-stop flights to major markets across the world and therefore shorten shipping times for cargo due to efficiencies in shared infrastructure and flight networks.

Establishing a link between passenger travel and air cargo is an important indicator for sustained industrial demand – the cost efficiencies found between the two in terms of travel and distribution networks and the fact that airports with large flight networks are typically located in large metropolitan areas – suggests that **industrial demand will continue to be in international gateway airports with global access.** Cargo-centric airports, although providing a key logistical advantage for some groups, are expected not to generate as much “spin-off” industrial activity as international gateway airports in Canada.

FIGURE 4: PASSENGER TRAVEL TRENDS - MAJOR CANADIAN AIRPORTS

Total Passengers enplaned and deplaned on selected services - Top airports								
	(millions)							
	2007	2008	2009	2010	2011	2012	% Change 2007-2012	Average % change
Toronto/Lester B Pearson Intl, Ont.	29.7	30.1	28.9	30.9	32.3	34.9	17.7%	2.9%
Vancouver Intl, B.C.	17.0	17.1	15.5	16.3	16.4	17.6	3.8%	1.5%
Montreal/Pierre Elliott Trudeau Intl, Que.	12.3	12.0	11.7	12.7	13.2	13.8	12.1%	3.4%
Calgary Intl, Alta.	11.9	12.2	11.3	11.8	12.1	13.6	14.8%	3.6%
Edmonton Intl, Alta	5.8	6.2	5.8	6.0	6.2	6.7	14.8%	4.1%
Ottawa/Macdonald-Cartier Intl, Ont.	4.0	4.1	4.1	4.4	4.4	4.7	18.3%	4.9%
Halifax/Robert L. Stanfield Intl, N.S.	3.3	3.5	3.3	3.5	3.5	3.6	7.7%	1.6%
Winnipeg Intl, Man.	3.6	3.5	3.3	3.4	3.4	3.5	-0.5%	-0.2%
St. John's Intl, N.L.	1.2	1.2	1.2	1.3	1.3	1.4	24.6%	3.9%
Quebec/Jean Lesage Intl, Que.	.9	1.1	1.2	1.3	1.3	1.3	49.3%	9.1%
Saskatoon/John G. Diefenbaker Intl, Sask.	1.0	1.1	1.1	1.2	1.2	1.3	31.1%	4.7%
Regina Intl, Sask.	.9	1.0	1.0	1.1	1.1	1.2	27.7%	4.5%
Total (Major Airports)	91.5	93.1	88.3	93.8	96.4	103.8	18.1%	2.9%
Total Canada	106.1	108.1	103.1	109.3	113.1	N/D	-	2.4%

Source: Statistics Canada (2007-2012) - "Air Carrier Traffic at Canadian Airports", * International denotes both US and Global Cargo

AIR CARGO VOLUMES: AFFECTED BY RECENT RECESSION, BUT HEALTHY OVERALL

Air cargo volumes are typically measured in total tonnes. Over the last five years of available data, the air cargo sector as a whole has been growing at a stable pace, but experienced a noticeable decline in activity driven by the latest recession. Air cargo volumes have been on a rebound however since 2009, averaging a 12.4% in total

volume growth in Canada through to 2012¹. Smaller airports such as Hamilton International, and Edmonton International have sustained tremendous growth over the last five years. Conversely, Pearson International Airport continues to command nearly half of the Canadian air cargo activity. While air cargo volumes show that domestic activity has been growing faster than international (US and Global) cargo growth², the next section will reveal that air cargo values for international trade have actually risen dramatically due over the last several years due to surging demand for high value products.

FIGURE 5: CARGO VOLUME TRENDS - MAJOR CANADIAN AIRPORTS

TONNES OF CARGO LOADED AND UNLOADED ON MAJOR SCHEDULED SERVICES AND MAJOR CHARTER SERVICES							
		(thousands)					% change
		2008	2009	2010	2011	2012	
Calgary International	Domestic	28.7	32.4	36.7	38.7	38.5	34.1%
	International	45.7	40.4	43.8	44.8	43.4	-5.2%
Edmonton International	Domestic	13.6	14.6	16.6	16.2	17.7	30.6%
	International	3.7	4.9	6.3	6.7	7.8	110.1%
Halifax International	Domestic	16.1	21.2	23.6	23.7	27.0	68.1%
	International	4.8	5.5	4.3	1.7	3.1	-36.4%
Hamilton International	Domestic	68.1	64.1	70.8	66.4	69.5	2.0%
	International	10.1	9.7	10.7	18.8	20.0	98.6%
Montreal/Mirabel International	Domestic	19.2	30.2	34.2	28.4	33.1	72.0%
	International	40.7	29.5	35.2	38.5	36.7	-9.8%
Montreal/PET International	Domestic	16.6	11.7	12.4	11.8	11.5	-30.3%
	International	60.3	54.6	64.8	64.9	67.0	11.1%
Ottawa International	Domestic	7.9	6.6	7.3	6.8	7.7	-2.7%
	International	4.3	2.2	4.7	3.5	2.9	-32.6%
Toronto International	Domestic	50.4	58.5	66.4	64.4	67.2	33.4%
	International	271.9	232.1	274.1	274.6	278.6	2.5%
Vancouver International	Domestic	67.0	70.2	79.4	77.4	78.9	17.7%
	International	107.0	98.3	117.5	109.0	114.5	7.0%
Winnipeg International	Domestic	46.2	47.1	53.9	58.1	59.8	29.5%
	International	8.7	6.4	7.1	7.1	8.8	1.4%
TOTAL CANADA	Domestic	394.8	428.1	478.2	470.1	492.4	24.7%
	International	563.4	490.9	574.0	574.1	584.4	3.7%
TOTAL CANADA	All Cargo	958.2	919.0	1,052.2	1,044.2	1,076.8	12.4%

Source: Statistics Canada (2007-2012) - "Air Carrier Traffic at Canadian Airports", * International denotes both US and Global Cargo

¹ Note: 2012 is the most recent year for air cargo volume data from Statistics Canada.

² It should be noted that discussions with interVISTAS suggests that the methodology acquiring information on cargo volumes differs by airport and between countries. The data accordingly, should be interpreted with discretion.

FIGURE 6: INTERNATIONAL / TRANS-BORDER TRADE BY AIR

CANADIAN AIRPORTS: IMPORT/EXPORT GROWTH (\$ MILLIONS)							
AIRPORT	AIR CARGO VALUE	% GROWTH		AIRPORT	AIR CARGO VALUE	% GROWTH	
Exports from 2001 to 2011	2001	2011	% CHANGE	Imports from 2001 to 2011	2001	2011	% CHANGE
Toronto Intl Airport	\$14,242	\$30,414	114%	Toronto Intl Airport	\$21,690	\$35,949	66%
Montreal-Mirabel	\$8,640	\$5,275	-39%	Montreal-Dorval/PET	\$10,601	\$7,727	-27%
Montreal-Dorval/PET	\$5,314	\$5,430	2%	Hamilton Intl Airport	\$1,723	\$3,934	128%
Vancouver Intl Airport	\$1,708	\$1,949	14%	Vancouver Intl Airport	\$3,301	\$3,732	13%
Calgary Intl Airport	\$1,144	\$1,227	7%	Calgary Intl Airport	\$2,518	\$2,735	9%
Ottawa Intl Airport	\$1,068	\$339	-68%	Montreal-Mirabel	\$2,185	\$2,698	24%
Edmonton Intl Airport	\$242	\$157	-35%	Ottawa Intl Airport	\$2,704	\$1,363	-50%
Halifax Intl Airport	\$202	\$315	55%	Winnipeg Intl Airport	\$1,291	\$1,035	-20%
Winnipeg Intl Airport	\$113	\$419	270%	Edmonton Intl Airport	\$765	\$800	5%
Hamilton Intl Airport	\$106	\$162	52%	Halifax Intl Airport	\$364	\$230	-37%

Source: Statistics Canada

AIR CARGO DRIVEN BY GLOBAL DEMAND

While a majority of goods moving within North America are predominantly on trucks, air transport plays a vital role in the movement of international goods, accounting for over 22.5% of all non-US imports/exports in Canada by value (Transport Canada, 2011).

Canadian import/export (trans-border and international) cargo values through airports have grown considerably over the last several years, averaging 32% across Canada from 2001 to 2011 and 21.5% from 2006 to 2011 (Figure 6). Looking at Figure 6, Hamilton International had the highest percentage growth in total cargo value, while Toronto International had the overall highest value of total goods in both 2001 and 2011. Based on an analysis of air cargo export and import activity, the following trends are evident:

- Goods being shipped today through airports have a much higher “value to weight ratio” and include goods such as precious metals and stones, consumer electronics, luxury

goods and pharmaceutical products¹. Other smaller but rapidly growing product segments include pharmaceutical products, perishable foods such as fruits, nuts, prepared grain products and animal fats, as well as seeds and natural oils.

- The US remains the largest international air cargo market for Canada on both import and export value and represents 30%-40% of Canada’s total trans-border cargo activity (Appendix One: Figure 9 and 10). However, China has grown to become one of Canada’s major import partners over the last decade, while the United Kingdom recently surpassed the US as the largest export partner.
- Imports through Canadian airports continue to grow in value, particularly for electronics, machinery and precious stones and metals, while exports continue to stagnate.

Appendix One provides more detail on import / export activity at Canadian airports.

¹ Trade Data is based on HS Codes, which is an internationally recognized coding system for goods. For more information go to: <http://www.tradecommissioner.gc.ca/eng/canadexport/document.jsp?did=139565>. For example electronic goods typically fall under HS Code 84 (Machinery, boilers, mechanical appliances, engines, parts thereof) and 85 (Electrical machinery; sound recorders).

THE ROLE OF E-COMMERCE IN DRIVING INDUSTRIAL DEMAND AT AIRPORTS

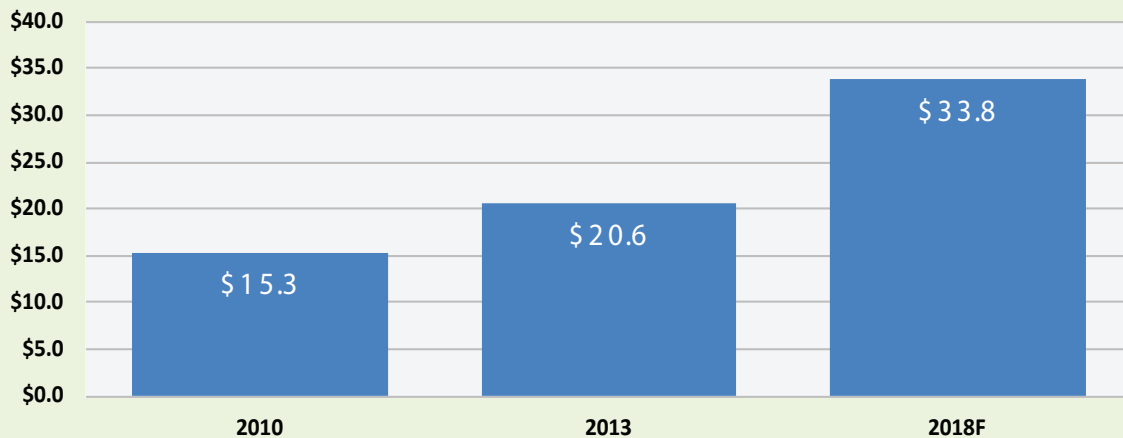
With the growth in demand for online products, as well as the provision of increasingly rapid delivery times, **e-commerce is expected to play a larger role for the air cargo sector in Canada.** A growing number of retailers are now offering faster (sometimes 24 - 48 hour) delivery times, suggesting that airplanes will continue to fill a niche segment for catch-up shipments for regional fulfillment centres. Global manufacturing activity driven by e-commerce activities is also expected to increase, placing additional importance for air cargo moving products internationally.

IMAGE 2: DISTRIBUTION AND FULFILLMENT CENTRES ARE EXPECTED TO GROW IN NUMBERS IN CANADA



FIGURE 12: CANADIAN ONLINE RETAIL SALES EXPECT TO GROW

Canadian Online Retail Sales (\$ Billions)



Source: Forrester Research (2013)

We expect **requirements for specialized industrial buildings such as fulfillment centres, bulk distribution and integrator sorting facilities to grow in Canada,** creating new real estate opportunities around airports. While much of the market focus has been on the growth of direct industrial demand from retailers such as Amazon and Target, other groups involved in e-commerce, such as **3PLs and integrators, are also expanding their presence in local industrial markets.** Firms such as FedEx, UPS and Purolator all have expansion plans in Canada and are looking to bolster their local distribution networks around their air cargo activities (The Canadian Business Journal, 2011; Hoffman, 2012). Canada Post Corporation for example, is also shifting its real estate strategy around e-commerce and expedited parcel delivery in reaction to declining letter mail demand. The completion of a new 700,000 SF sorting facility at Vancouver International Airport and a new 250,000 sorting facility at Winnipeg International Airport are examples of the growing connection between air cargo and e-commerce for Canada Post Corporation.

SECTION 4: SELECT CANADIAN AIRPORTS IN PERSPECTIVE

TORONTO PEARSON INTERNATIONAL AIRPORT (YYZ): CANADA'S TRUE "GLOBAL" AIRPORT

Pearson International Airport serves as a major international gateway for goods entering Eastern Canada and is among the busiest airports globally in terms of overall air traffic movements. The airport also continues to be a major centre for the export of manufactured goods to the US and internationally due to large base of manufacturers in the Greater Toronto Area.

Pearson International Airport continues to benefit from being the largest airport in Canada – the volume of passenger and cargo activity is nearly twice that of the second largest airport, Vancouver International Airport. As such, the sheer size of the airport's cargo activities and the region's well-established industrial base will continue to make Pearson International a key market for global trade. Pearson also benefits from a well established distribution sector, with virtually all major retailers having regional distribution hubs out of the Greater Toronto Area.

INDUSTRIAL REAL ESTATE TRENDS

- Air cargo activity at Pearson International is expected to generate new sources of real estate demand, particularly firms involved in logistics and distribution. While a majority of the activity has been centred on bulk distribution and large-scale logistics, smaller groups, such as couriers and local 3PL companies involved in the freight forwarding process are also expected to provide a baseline of market demand.
- Integrators, in response to growing population growth in the Greater Toronto Area and growing shipping demand brought on by e-commerce are also expected to expand their local real estate requirements. Several international freight forwarders and 3PL groups also have regional distribution facilities near Pearson International, including Agility, DHL Global Forwarding, Kuehne + Nagel, UPS Supply Chain Solutions and Schenker.
- One challenge continues to be the availability of large parcels of industrial land around Pearson International limiting prospects for the development of large format industrial facilities with airport proximity. A source of new supply could come in the form of lands owned by the Greater Toronto Airport Authority (GTAA),

who have been making strategic acquisitions of undeveloped land around the airport to increase the development potential of aviation and commercial/industrial operations (InterVISTAS Consulting Inc., 2011).

VANCOUVER INTERNATIONAL AIRPORT (YVR): GATEWAY TO THE ASIA-PACIFIC

Vancouver International Airport is Canada's second largest airport (based on passenger volumes) and serves as a major international gateway for the Pacific Rim. Vancouver International Airport has supplanted itself as a main point of entry for manufactured goods from Asia, particularly electronics and machinery from China. Both Boeing and the Centre for Aviation forecast that the North America-Asia trade route will be the fastest growing air-cargo segment globally, with a majority of the activity centred on Chinese-based exports to Canada and the US (Boeing, 2013; Centre for Aviation, 2013). This trend is expected to drive long term demand for air cargo at Vancouver International.

INDUSTRIAL REAL ESTATE TRENDS

- An expanding regional logistics and distribution sector is expected to benefit the air-cargo sector, through better sea and rail intermodal connections with Port Metro Vancouver, as well as the continued expansion of distribution hubs in surrounding industrial areas such as East Richmond and Delta.
- The Vancouver Airport Authority (VAA) is expected to dedicate significant capital towards expanding air cargo capacity at the airport, including seeking strategic partnerships with integrators and freight forwarders to provide greater air cargo services. The VAA is looking to intensify industrial uses by clustering a majority of these air cargo operators in several strategic parcels at the airport. One particular area for industrial development has been along the northern portion of the airport, where UPS has their 125,000 SF airside facility and where Canada Post Corporation recently built a 700,000 SF sorting facility (InterVISTAS Consulting Inc., 2011).

- One key challenge for Vancouver International Airport going forward will be capacity. The airport's island location and relatively developed surrounding area restricts future development of both air cargo and related industrial uses, suggesting high barriers to entry for development and land acquisitions.

HAMILTON INTERNATIONAL AIRPORT (YHM): STRATEGIC CARGO HUB FOR EASTERN CANADA

Hamilton International Airport is located 60 km west of Toronto Pearson International Airport and is managed by TradePort International Corporation. Over the last several years, Hamilton International has emerged as a key air cargo airport, serving as an Eastern Canadian distribution hub for both CargoJet and Purolator and as a regional distribution point for both UPS and DHL. Although a quarter of the size of Pearson International Airport (based on air cargo volumes), Hamilton continues to be a strategic gateway for a number of goods entering Canada and Ontario.

INDUSTRIAL REAL ESTATE TRENDS

- To further support air cargo growth, federal and provincial-led investments in expanding capacity at Hamilton International are underway, including the development of new air cargo and cold storage facilities on airport lands. The City of Hamilton is also seeking private interest in a 1300 acre Aerotropolis-style development surrounding the Airport, formally called the Airport Employment Growth District (City of Hamilton, 2013).
- While it is currently less expensive for Purolator and CargoJet to operate their main air-cargo activities out of Hamilton International, the gap in airport charges for freighter aircraft is narrowing between Toronto Pearson International according to InterVISTAS. If this trend continues, the threat to relocate integrator operations to Pearson International could become quite real.
- Most of the local industrial development has been towards the central and northern sections of the municipality, foremost along the Queen Elizabeth Way 400-series highway and near the Port of Hamilton, suggesting that Hamilton International may face challenges securing industrial demand in the immediate vicinity. The nearby Toronto West industrial market also provides substantial competition for local industrial tenant demand.

CALGARY INTERNATIONAL AIRPORT (YYC): MAJOR WESTERN DISTRIBUTION HUB

Calgary continues to emerge as a major distribution hub for Western Canada, benefitting from trade activities in both Vancouver and Edmonton. The diversity of domestic and international flights through Calgary International Airport also makes the city an attractive logistics hub for manufacturers based in Edmonton shipping oil and gas products internationally.

INDUSTRIAL REAL ESTATE TRENDS

- Calgary's growth as a western distribution hub has created new demand from major retailers and has led to significant demand from transportation and logistics users around the airport. Calgary's competitive cost advantage compared to other western North American locations and convenient access to other growing markets continues to make it a good location for logistics operations requiring multi-modal access.
- Recent shifts toward larger distribution and logistics uses in the Northeast sector are also complimenting activities at Calgary International Airport. Investments by retail groups such as Walmart and Target to build major warehouse facilities near the airport in Calgary are further indicators of the market's shift toward distribution uses.
- Calgary International Airport is also in the process of having a third parallel runway developed on the eastern portion of the airport with completion scheduled for 2014, and is expected to create new capacity for both passenger and air cargo activity. In addition, UPS recently expanded its presence in the Calgary market by opening a \$30 million, 150,000-square-foot facility at Calgary International Airport's YYC Global Logistics Hub located northwest of the main terminal.

EDMONTON INTERNATIONAL AIRPORT (YEG): STRATEGIC MANUFACTURING MARKET

Edmonton international is strategically located as the closest airport to the resource-rich area of Northern Alberta and serves as a major import and export market for products related to the Alberta energy sector. Edmonton International Airport also serves as a special export market for oil and gas machinery to a number of markets including UAE, Australia, Oman and Thailand.

INDUSTRIAL REAL ESTATE TRENDS

- Despite healthy growth in air cargo volumes over the last decade, Edmonton International Airport has not been successful in attracting dedicated freight forwarding services. While integrators such as FedEx and UPS have regional operations out of Edmonton International, Calgary and Vancouver continue to capture a large share of Edmonton's international distribution activities. Freight forwarders in Edmonton generally truck goods to load at either Calgary International Airport or Vancouver International Airport, due in part to a larger network at those airports as well as relatively competitive trucking costs. Conversely, Edmonton Airport is looking to counteract this by adding on more non-stop routes across North America and internationally to expand air cargo capacity.
- Local authorities are proposing several major airport-related development projects in the immediate area, including the 1400 acre Port Alberta intermodal initiative as well as the 350 acre Leduc Aerotropolis concept in an attempt to stop air cargo leakage to Calgary.
- The Edmonton International Airport is also undergoing its Airport Expansion Project, which comprises the extension of their south terminal, development of hangar spaces and expansion of airplane facilities including a new "Cargo Village". The expansion effort is aimed to ensure that the airport is ready to accommodate forecasted cargo growth— which is expected to grow exponentially over the next several years.

MONTREAL PIERRE ELLIOTT TRUDEAU INTERNATIONAL AIRPORT (YUL): EASTERN CANADA GATEWAY

Montreal benefits as being a major gateway for eastern North America with a majority of its international air cargo trade coming from the US. The city is located along the Quebec City-Chicago commercial corridor and is also strategically located near New York and other eastern American cities. Montreal is also located on the shortest air-freight traffic route between Europe and central North America.

INDUSTRIAL REAL ESTATE TRENDS

- Montréal has two international airports: Montréal-Pierre Elliott Trudeau International Airport (YUL) and Montréal-Mirabel International Airport (YMX). Pierre Elliott Trudeau International mainly

operates as a regional hub for passenger travel and air-freight while Mirabel operates as a specialty cargo hub. It is envisioned by the Aéroport de Montréal that Pierre Elliott Trudeau International will continue to be the focal point for international passenger travel while Mirabel will develop into an aerospace and logistics hub.

- The ability to diversify import and export activity away from the US will be a driver for future industrial growth at both of Greater Montreal's airports. US based air cargo imports have declined by more than 53.4% over the last decade at Pierre Elliott Trudeau, resulting in a notable drop in total air cargo traffic. Conversely, at YMX, exports to the US have declined by nearly 53.1%. While some signs of increased air cargo demand from countries such as Japan and Germany are beginning to emerge, total cargo from those countries is still a small fraction of the total US air cargo activity for both Airports.

WINNIPEG JAMES ARMSTRONG RICHARDSON INTERNATIONAL AIRPORT (YWG): STRATEGIC DOMESTIC AIR CARGO HUB

Winnipeg James Armstrong International Airport (Winnipeg International) is strategically located near the geographic centre of Canada and North America and is the primary overnight hub for Purolator and Cargojet. The airport is equipped to accommodate any size aircraft, and has 24-hour Canadian and U.S. customs on site allowing freighters to have more flexible schedules. Additionally, Winnipeg International currently has no curfews for flight times, making it one of the most in-demand airports for pure-freight operators in Canada.

INDUSTRIAL REAL ESTATE TRENDS

- Winnipeg International has aggressively sought increased air cargo traffic for more than a decade and although it acts primarily as a domestic cargo connecting point for a number of air carriers, it has been unable to attract a substantial number of international flights reducing cargo movements internationally.
- A major 20,000 acre inland port development called Centre-Port is adjacent to the northwest boundary of Richardson International Airport, and offers significant greenfield opportunities for distribution, warehousing and manufacturing uses. Several tenants are already located there, including Boeing, Standard Aero of Dubai and Bristol Magellan.

SECTION 5: THE VIEW AHEAD

From a consumer who has just purchased a last-minute gift online to a hospital awaiting the delivery of medicine produced overseas, airports play a key role in the global supply chain process. Similar to sea ports and intermodal rail facilities, airports generate significant industrial activity in their immediate vicinity. This activity includes firms tied to the movement of air cargo such as integrators and freight forwarders as well as those who serve ancillary purposes. Most need industrial real estate to operate. For investors, therefore, major airports across Canada should be seen as drivers of economic activity and should not be overlooked.

The air cargo sector in Canada continues to grow at a stable pace, having recovered from the 2008 recession. While it remains difficult to forecast domestic air cargo activity over the short term, in general, the air cargo sector is expected to remain stable and grow in-line with national and global economic performance. E-commerce and ongoing trade diversity with China, U.S. and Europe in particular is expected to provide long-term stability to the Canadian air cargo sector generating new sources of industrial demand as a result. Nevertheless, there are many challenges to the health of the air cargo sector that investors cannot ignore, including policy changes to air cargo security, competition from other shipping modes as well as rising fuel prices which make up a large proportion of air cargo costs.

REAL ESTATE OUTLOOK

Large, global airports such as Toronto Pearson International Airport and Vancouver International Airport will continue to be attractive markets for industrial activity driven by the fact that these markets have large international flight networks, strong passenger volumes, growing regional populations and strong trade sectors. While industrial growth around these airports is expected to be slower due to land constraints, they will nevertheless be among the most well performing airport markets in Canada with good prospects for a variety of industrial users. Calgary International Airport, although not the same size as Toronto Pearson International and Vancouver International, continues to evolve toward becoming another global distribution hub.

Airports with growing air cargo volumes such as Edmonton International provide good development prospects for investors, although low barriers to entry will make some investors cautious while a lack of complimentary industrial activity may limit demand from tenants in the short term. For smaller airports across Canada, longer time horizons are required for investors to see significant market demand; as mentioned, airports benefit from indirect industrial activity and a “clustering effect” is a key indicator for sustained demand around these nodes. One trend we do expect to see throughout all major airports in Canada is better integration with other transportation modes, either through large multi-modal transportation initiatives or through logistics firms which provide seamless air, rail, road and sea connections.

Ultimately, transportation infrastructure continues to be a critical factor in analyzing industrial real estate opportunities, with airports as a key consideration.

Figure 7: Combined Export/Import Air Cargo Values - Top 5 Canadian Airports (\$ Millions)
 Source: Statistics Canada

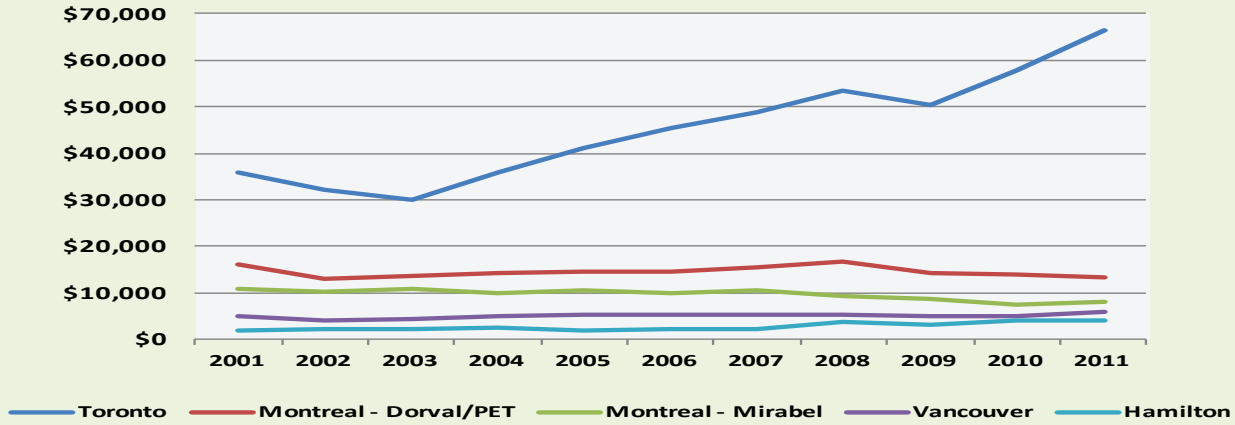


Figure 8: Major Canadian Air Cargo Export Partners (\$ Millions) - All Airports
 Source: Statistics Canada

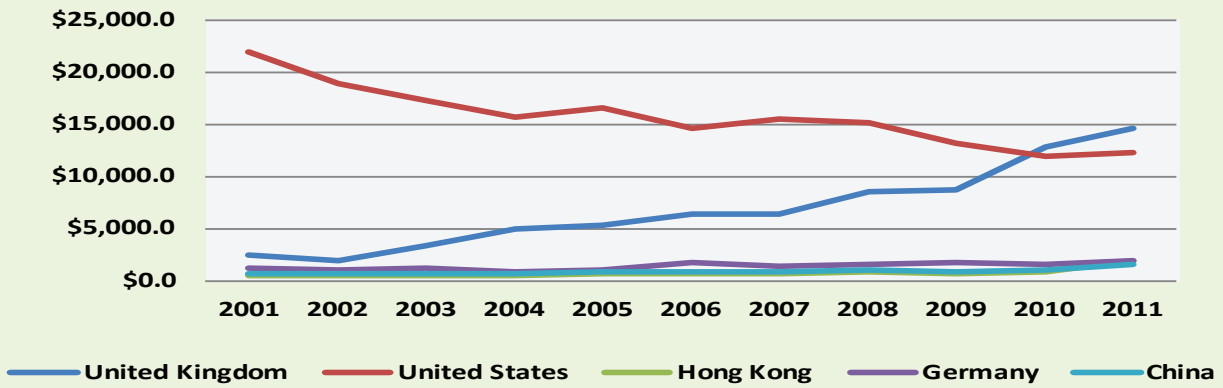


Figure 9: Major Canadian Air Cargo Import Partners (\$ Millions) - All Airports
 Source: Statistics Canada

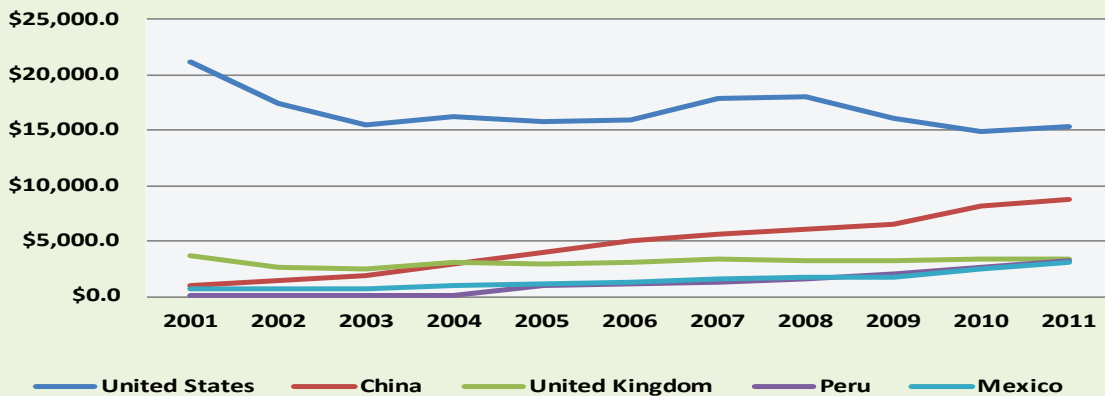


Figure 10: Top 5 Canadian Air Cargo Exports - All Airports (\$ Millions)

Source: Statistics Canada - Based on HS Codes

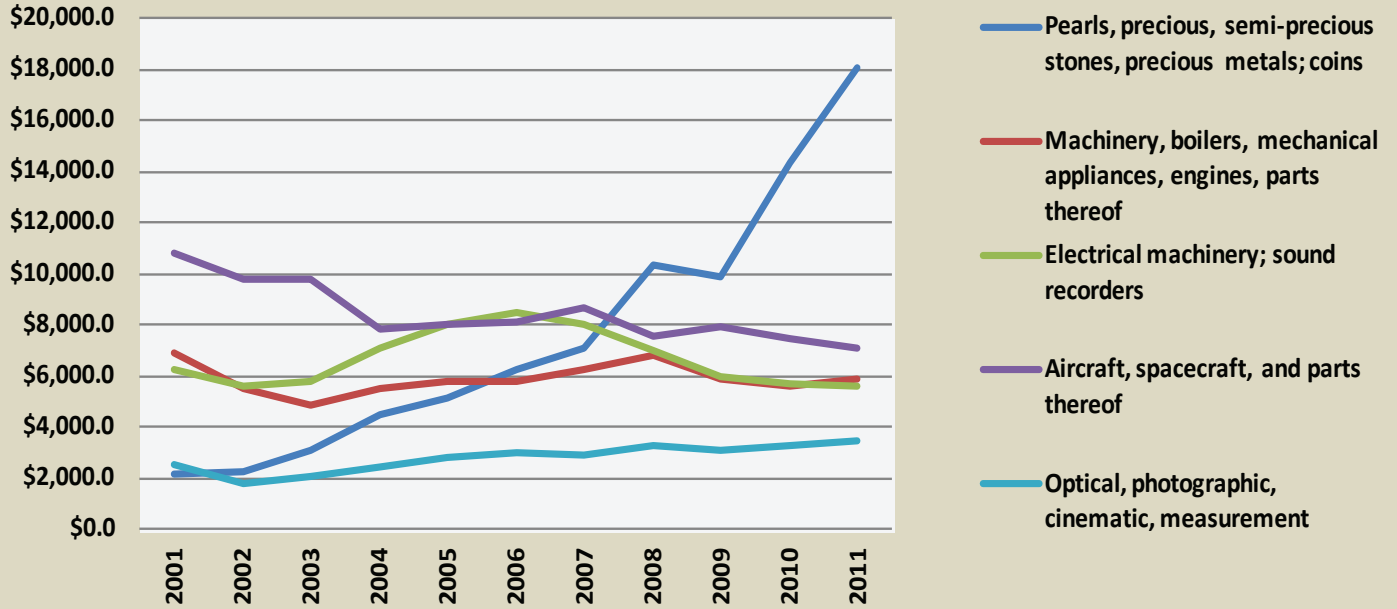
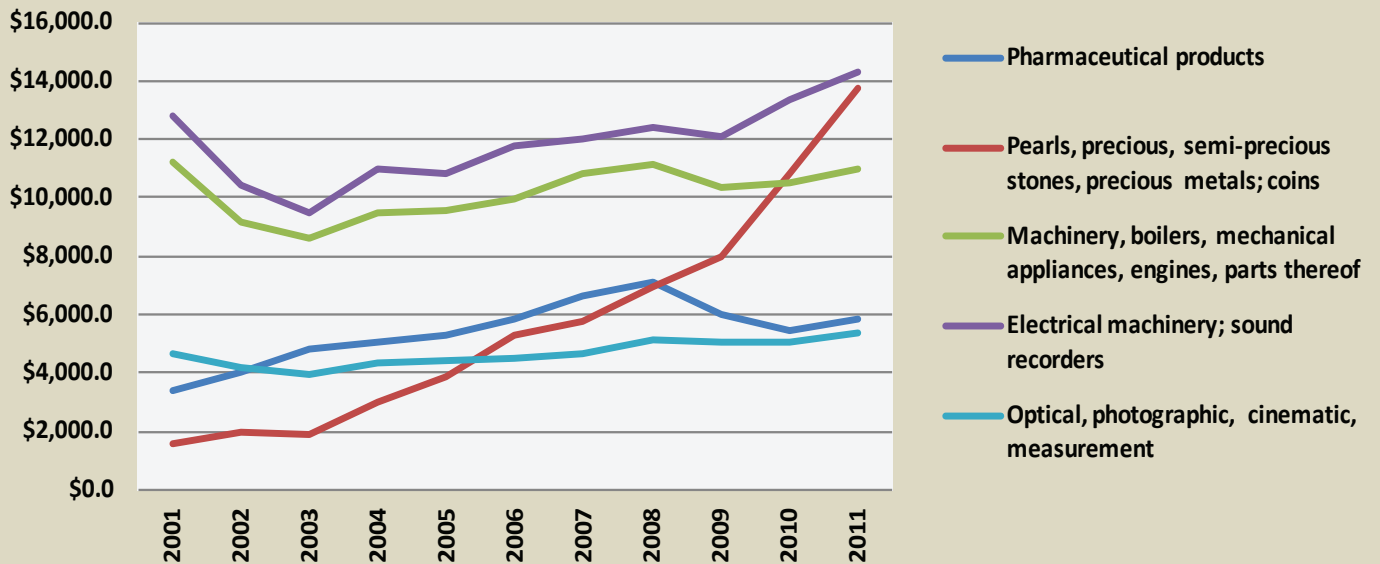


Figure 11: Top 5 Canadian Air Cargo Imports - All Airports (\$ Millions)

Source: Statistics Canada - Based on HS Codes



BIBLIOGRAPHY

- Airbus. (2012). Global Market Forecast.
- Boeing. (2013). World Air Cargo Forecast 2012-2013.
- Calgary Airport Authority. (2008). Strategic Operating Plan 2009-2013. Calgary: Calgary Airport Authority.
- Carden, D. (2007). The Impact of E-commerce on the Airfreight Business and Implications for Small Businesses. 6, pp. 17-18.
- Centre for Aviation. (2013, August 28). As trans-Pacific passenger flights increase, hold capacity drive structural changes in air cargo. Retrieved from <http://centreforaviation.com/analysis/as-trans-pacific-passenger-flights-increase-hold-capacity-causes-structural-changes-to-air-cargo-124411>
- City of Hamilton. (2013, December 30). Airport Employment Growth District (AEGD). Retrieved from City of Hamilton: <https://www.hamilton.ca/CityDepartments/PlanningEcDev/Divisions/IndustrialParksAirportDevelopment/AirportEmploymentGrowthDistrict/>
- Copeland, E. (2012, October 9). 3D printing: the end of the globalised supply chain? Supply Chain Digital.
- Deutsche Post DHL. (2013, June 12). DHL Express Canada and U.S. Department of Commerce Launch New Trade Initiative. Retrieved from <http://finance.yahoo.com/news/dhl-express-canada-u-department-120000309.html>
- Edmonton International Airport Authority. (2010). Edmonton International Airport Master Plan. Edmonton: Edmonton International Airport Authority.
- Foreign Affairs, Trade and Development Canada. (2011). Canada's State of Trade: Trade and Investment Update 2011. Foreign Affairs, Trade and Development Canada.
- Greater Toronto Airport Authority. (2008). Taking Flight: The Airport Master Plan 2008-2030.
- Greater Toronto Airports Authority. (2009). 2009 Annual Report.
- Hoffman, A. (2012, August 23). When UPS calls, Canada delivers. Globe and Mail.
- IATA. (2011). Revenue Optimization. World Cargo Symposium.
- Inbound Logistics. (2010, October). Memphis: America's Aerotropolis. Inbound Logistics.
- InterVISTAS Consulting Inc. (2011). Canadian Airports.
- Jones Lang LaSalle. (2013). U.S. Airport Outlook 2013.
- Kasarda, J. D., & Lindsay, G. (2011). Aerotropolis: The Way We'll Live Next. New York: Farrar, Straus and Giroux.
- McCurry, J. W. (2013, September 30). What Drives Growth? Retrieved from Air Cargo World: <http://www.aircargoworld.com/Air-Cargo-News/2013/09/what-drives-growth/3015449>
- Oxford Economics. (2011). Economic benefits from air transport in Canada.
- Patridge, A. R. (2009, May). Logistics Hotspots: 2009. Inbound Logistics.
- Peterson, J. (2007). Air Freight Industry - White Paper. H. Milton Stewart School of Industrial and Systems Engineering, The Supply Chain and Logistics Institute. Georgia Institute of Technology.
- Putzger, I. (2012, December 1). Outlook 2013: Air cargo. Canadian Transportation & Logistics.
- Salin, V. (2010). 2010 Global Cold Storage Capacity Report. International Association of Refrigerated Warehouses.
- Sheffi, Y. (2013). Logistics-Intensive Clusters: Global Competitiveness and Regional Growth. Handbook of Global Logistics, 181, 463-500.
- Spencer, C. (2012). E-Commerce Fulfillment Centers and How They Do Site Selection. Development '12: The Annual Meeting For Commercial Real Estate. Washington, D.C.: NAIOP.
- Srinivas, M., V. B., Kumar, T. M., & Khattri, S. (2013). Cold Chain Management. Journal for Clinical Studies, 5(3), 50-56.
- The Canadian Business Journal. (2011, April). Purolator, Rebranding amidst expansion plans. The Canadian Business Journal, 4(4), pp. 222-225. Retrieved from http://www.cbj.ca/EMAG/April_11/CBJ.php
- The Canadian Trade Commissioner Service. (2014, January 6). The importance of air transport for Canadian exports. Retrieved from The Canadian Trade Commissioner Service: <http://www.tradecommissioner.gc.ca/eng/canadexport/document.jsp?did=143951>
- Toneguzzi, M. (2010, February 23). Distribution centre connects Calgary. Calgary Herald.
- Vancouver Airport Authority. (2007). YVR: your airport 2027 20-year master plan.
- Vancouver International Airport Authority. (2001). Airside and Non-Airside Land Management Guidelines.
- Winnipeg Airports Authority Inc. (2000). Airport Development Plan Summary. Winnipeg.

NOTES

NOTES

LIST OF OFFICES

VANCOUVER

650 West Georgia Street
Suite 3000
Vancouver, BC V6B 4N7
Tel: 604.713.6450
Fax: 604.713.3264

TORONTO

Corporate Office
330 University Avenue
Suite 300
Toronto, ON M5G 1R8
Tel: 416.552.5959
Fax: 416.552.5111

OTTAWA

255 Albert Street
Suite 502
Ottawa, ON K1P 6A9
Tel: 613.238.2333
Fax: 613.238.2006

WINNIPEG

433 Main Street
Suite 700 & 800
Winnipeg, MB R3B 1B3
Tel: 204.946.7363
Fax: 204.946.8849

CALGARY

700 – 9th Avenue SW
Suite 2700
Calgary, AB T2P 3V4
Tel: 403.777.0410
Fax: 403.269.3266

TORONTO

33 Yonge Street
Suite 300
Toronto, ON M5E 1G4
Tel: 416.359.2929
Fax: 416.359.3031

MONTREAL

2001 University Street
Suite 1820
Montreal, QC H3A 2A6
Tel: 514.350.7940
Fax: 514.350.7954

MARKHAM

11 Allstate Parkway
Suite 120
Markham, ON L3R 9T8
Tel: 905.475.1995
Fax: 905.475.3676

EDMONTON

10155 – 102 Street
Suite 208
Edmonton, AB T5J 4G8
Tel: 780.944.1222
Fax: 780.428.4047

MISSISSAUGA

One City Centre Drive
Suite 300
Mississauga, ON L5B 1M2
Tel: 905.275.6600
Fax: 905.615.8128

HALIFAX

Purdy's Wharf
220 – 1949 Upper Water Street
Halifax, NS B3J 3N3
Tel: 902.421.1122
Fax: 902.423.1894

TORONTO(MULTI-RESIDENTIAL)

200 University Avenue
9th Floor
Toronto, ON M5H 3C9
Tel: 416.552.6600
Fax: 416.552.6111

Please direct all media inquiries to:

Michele Walkau

Vice President, Corporate Resources

416.552.5143

michele.walkau@gwlr.com

AIR CARGO SUPPLY CHAINS AND THE CHANGING DYNAMICS OF AIRPORTS: PROVIDING NEW PERSPECTIVES FOR INDUSTRIAL DEMAND IN CANADA is the 18th in a continuing series of research publications by GWL Realty Advisors Inc.

Other recently-published reports include:

MYTH BUSTING: RENTERS' OWNERSHIP CAPACITY IN TORONTO, EDMONTON AND VANCOUVER, July 2011

DRIVERS OF 21ST CENTURY APARTMENT LIVING IN CANADA, July 2010

WHERE AND HOW WILL CANADIANS SHOP, LIVE AND WORK? August 2009

PROVIDING PERSPECTIVE: CANADA'S REGIONAL AND NATIONAL ECONOMIES IN CONTEXT, October 2008

Questions, comments or additional information:

Anthio Yuen, M.Sc.PI

Manager

Portfolio Analysis & Research Services

GWL Realty Advisors Inc.

604.713.8919

anthio.yuen@gwla.com

Wendy Waters, Ph.D

Director

Portfolio Analysis & Research Services

GWL Realty Advisors Inc.

604.713.6451

wendy.waters@gwla.com



"DISCLAIMER: The content of this report is provided for informational purposes only. GWL Realty Advisors Inc., its affiliates, licensors, service providers and suppliers (collectively "GWLRA") assume no liability for any inaccurate, delayed or incomplete information, nor for any actions taken in reliance thereon. Information provided in this report has been obtained from sources considered reliable, however GWLRA has not independently verified same and cannot guaranty its accuracy. This report could include technical or other inaccuracies, or typographical errors, and it is provided to you on an "as is" basis without warranties or representations of any kind. GWLRA reserves the right, in its sole discretion, to correct any errors or omissions in this report and may make changes to this report at any time without notice. This report may contain third-party trade names, brand names, trademarks, logos and other identifying marks (collectively "Marks"). All such Marks are the property of their respective owners. The inclusion of any third-party Marks is intended to be representative only and does not imply any association with, or endorsement by, the owners of such Marks. The names of owners, tenants or other third parties are provided solely for informational purposes and for no other reason. Past performance may not be an indication of future performance. Opinions expressed herein are those of the author and may not represent the views of GWLRA or its affiliates. Opinions expressed herein should not be construed as professional advice. Parties are encouraged to consult with qualified professionals in regard to all real estate transactions."