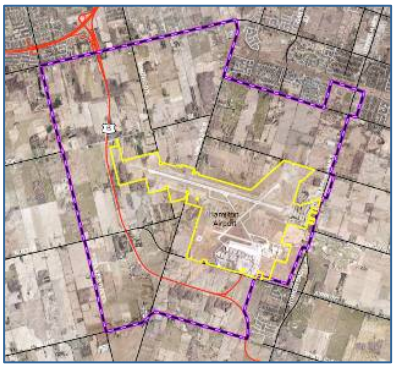
City of Hamilton
Airport Employment Growth District - Phase 2
Economic Impact Report

August 2009



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Executive Summary

In the Spring of 2009, the City of Hamilton requested an Update to the Economic Impact Statement prepared in 2002 for the Hamilton International Airport. The Update herein describes how the Airport contributes to the region, in terms of employment, gross output and value added (Gross Domestic Product). It estimates impacts for 2008, based on the Airport tenant mix on December 31, 2008.

The Airport Employment Growth District ("AEGD") will eventually support a large number of jobs. It will promote the renewal of Greater Hamilton's industrial base and position the region in high value added manufacturing and services. The AEGD's proximity to Hamilton International Airport creates the opportunity for synergies, but also poses the threat of limiting the Airport's growth. The City of Hamilton must balance the competing land needs of the Airport and the AEGD. The first step is to understand how the Airport interacts with the regional economy.

The Study draws heavily on data provided by the tenants and operators at the Airport. Statistics Canada, Air Canada, WestJet, Cargojet, Purolator, Revenue Canada, the Ontario Ministry of Revenue and the United States Department of Transportation contributed published data and statistics.

The "direct" impacts occurred primarily at the Airport and involved activities performed by airlines, ground handlers and other organizations in the immediate provision of air travel services for persons and goods. The "indirect" activities occurred off-airport, and involved the provision of goods and services to the direct participants. "Induced" activities resulted when the direct and indirect agents spent their earnings in the community at large.

In 2008, the Airport generated 1,382 person-years of direct employment and 2,876 person-years of total employment. The total output was $469.8 million and the value added (Gross Domestic Product) was $181.2 million, as illustrated in the following table.

Total Economic Impact, All Sectors

		Passenger	Freight	General Aviation	Other	Total
Employment (* FTE)	Direct	239	887	25	231	1,382
	Indirect	126	482	11	164	783
	Induced	119	451	12	129	711
	Total	484	1,820	48	524	2,876
Output($Mln)	Direct	37.4	161.5	3.5	37.5	239.9
	Indirect	22.9	81.3	1.4	19.9	125.5
	Induced	17.2	69.6	1.4	16.3	104.5
	Total	77.6	312.4	6.2	73.6	469.8
GDP ($Mln)	Direct	7.0	70.5	2.2	.6	80.3
	Indirect	10.6	38.2	.8	3.6	53.2
	Induced	6.3	39.0	1.0	1.5	47.8
	Total	23.9	147.7	4.0	5.6	181.2

*Full-time equivalent. Corresponds to one person-year of employment***.**

Direct activity at the Airport generated $12.9 million in Federal taxes and $8.3 million in provincial taxes as shown in the table below. The indirect and induced activities would contribute even larger payments. However, the multipliers and the tax coefficients suffer from anomalies that would create potentially large inaccuracies in the taxes attributable to the indirect and induced activities.

Hamilton Airport Tax Revenues
($000)

	Federal	Provincial	Total
Passenger	$1,832	$1,185	$3,017
Air Cargo	$8,352	$5,401	$13,753
General Aviation	$375	$243	$618
Other	$2,333	$1,509	$3,842
Total	$12,893	$8,337	$21,320

In 2008, the Hamilton Airport paid $183,617 to the City of Hamilton as rent.

Hamilton Airport's economic impact has increased by 4.9 percent since 2002. During the 2002-2008 period, Hamilton passenger levels fell by 35.5 percent however freight traffic increased by 12.0 percent[1].

The Airport's economic impact, as measured by full-time equivalent employees, is commensurate to the population of Greater Hamilton. Since the Airport loses most of its traffic to Toronto Pearson, its passenger volumes are small in relation to the population. The Airport's very strong air freight business has offset the relatively limited passenger traffic.

In the event that the Airport recovers a significant portion of the passenger traffic "leakage" to Pearson it will have an extraordinarily high economic impact on the greater Hamilton area.

The Airport has significant growth opportunities. While some elements of courier/express cargo traffic may be reaching maturity, new opportunities for growth are becoming apparent in this sector. In addition, trans-border courier traffic and general air freight offer good growth opportunities and specific new global opportunities in air freight are currently under pursuit by management. Passenger markets too have excellent growth prospects.

By 2025, the Airport could generate up to 6,954 direct person-years of employment, and 15,818 person-years including indirect and induced impacts. It would contribute $360 million to GDP in direct effects, and $960 million including indirect and induced impacts.

[1] *Source: Hamilton International Airport*

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1.0 Introduction

The economic uncertainties of 2009 pose challenges to communities throughout Canada and the world. The recession has eroded the traditional economic foundations of many regions. They must now find a new industrial base to go forward.

The City of Hamilton shares many of the concerns of other areas devoted to heavy manufacturing. However, it has a wider range of options than most because of several important strengths:

- a location close to Toronto, at the apex of the Golden Horseshoe. It is part of one of North America's most sophisticated, diversified and dynamic urban regions;
- a remarkable setting, offering scenic beauty and recreational opportunities;
- abundant and low priced city centre lands, offering an urban lifestyle far cheaper than that of downtown Toronto;
- a high quality alternative to Toronto for a business location[2].
- McMaster University, which provides a locally based supply of expertise in many disciplines;
- a large supply of unused land close to the downtown. The City will develop an Airport Employment Growth District (AEGD) that will eventually support a large number of jobs; and
- Hamilton International Airport (HI), a national hub for high value courier/express services and promising regional gateway for passengers.

This study focuses on Hamilton International Airport. Specifically it quantifies how the Airport affects the prosperity of the community of Greater Hamilton. It demonstrates that the Airport is an important generator of employment, income and economic activity. Its contribution continues to grow, despite minor setbacks in passenger markets.

[2] *In 2006, General Electric, Vicwest Steel and Swiss-owned SFS Intec moved their offices from the GTA to Hamilton.*

The Airport's economic role is central to the issues facing the City. The AEGD will border the Airport, raising issues of compatible land uses. Through thoughtful, informed and far-sighted planning, the City can ensure that the Airport and the AEGD can grow together, supporting each other and generating the synergies of advanced technology and good transportation services. This Economic Impact Study Update is one part of the information that will help the city optimize the two entities. The analysis demonstrates that Hamilton Airport is a large and growing contributor to the prosperity of Greater Hamilton. Its large stimulus to output, employment and income makes it a crucial factor to the success of the AEGD and the City of Hamilton.

2.0 Airport - History and Current Activity

2.1 Background

Hamilton Airport, constructed in 1940, first served the British Commonwealth Air Training Plan. The Royal Canadian Air Force expanded the field and lengthened the runways in the late 50's to accommodate jet interceptors. The former air force hangars and the RCAF Club remain in use.

In 1963, the Department of National Defence concluded that the base was superfluous, and transferred it to the Department of Transport (now Transport Canada). Under a 1967 agreement, the City of Hamilton assumed responsibility for maintenance and operation of the Airport. On December 20, 1996 the Regional Municipality of Hamilton-Wentworth took over the airport. The Region subsequently selected TradePort International Corporation to manage the operations, marketing and financing on its behalf.

In the Fall of 2004, the new provincial Highway No. 6 Airport Expressway opened to traffic. Two interchanges serve the Airport. The Expressway offers a fast route to the Queen Elizabeth Way, and onwards to Niagara Falls and the United States. From the Airport, it continues northbound to Highway 403, and provincial trunk routes to Toronto and south-western Ontario. This greatly enhanced access has raised the profile of the Airport, and will help it compete for traffic throughout the Golden Horseshoe and Central Ontario. In contrast, the traditional east-west corridor through the Region, the Queen Elizabeth Way, bypassed both the Airport and the City of Hamilton.

2.2 Overview of Airport Activity

Toronto's Lester B. Pearson International Airport has a strong influence over activity at Hamilton's Airport. Those carriers that have served the Airport have often viewed it as a substitute for, or a complement to, Toronto Pearson. Carriers that have discontinued Hamilton services have often done so based on the opinion that they were redundant with Pearson's offerings, or that Pearson offered better opportunities to tap the critical southern Ontario market. Whatever their decisions, the Toronto Pearson alternative was a leading factor.

Hamilton Airport has low fees and charges which is a significant factor in helping to attract both passenger and air cargo services.

In 2008, 545,800 passengers boarded or deplaned at the Hamilton Airport[3]. The Airport now accommodates scheduled domestic flights of WestJet. WestJet, Transat Holidays and Sunwing also offer seasonal flights to Florida, Mexico and the Caribbean. Flyglobespan provides summer-only flights to the United Kingdom and Ireland. In 2007, AeroMexico offered charter flights to Mexico. Three airlines offered charter services to Fort McMurray for itinerant workers on oil-sands projects.

The Airport has often been at the centre of air service innovations. In 2000, Air Canada announced plans to establish a low cost carrier with a hub at Hamilton Airport. The proposal was promptly challenged on monopolistic and predatory behaviour grounds. Regulators required Air Canada to postpone its plans. In the aftermath of the correction of technology companies, the September 11 2001 terrorist attacks on Washington and New York, the Sudden Acute Respiratory Syndrome (SARS) and Air Canada's bankruptcy, the airline never implemented its plans.

Nordair, Tempus, Greyhound, Nationair and the commuter affiliates of Pan American, Continental, and Northwest (now merged with Delta Air Lines) have served the Airport in the past. Their decisions to eliminate service have resulted from corporate failures, perceived redundancies between duplicate Hamilton and Pearson operations, or the shifting of flights from Hamilton to Pearson.

The Airport has demonstrated particular strengths in air cargo. Beginning in the 1990's, several large integrated carriers established large sorting hubs and flight operations. Several factors have favoured the Hamilton Airport:

[3] *Source: John C. Munro Hamilton International Airport Annual Report - 2008, June 2009. Page 16*

- the Airport is close to the major business, manufacturing and consuming complexes of the Golden Horseshoe. Most importantly, delivery trucks can meet shipment cutoff and retrieval times throughout a large part of southern Ontario.
- the Airport has a good supply of available land with airside access - a testimony to the importance of integrating the planning for the Airport and the Employment Growth District;
- the Airport is close to Canada's centre of economic activity;
- flight operations are not constrained by curfews. This is especially important for companies providing overnight delivery;
- the airspace at Hamilton is almost congestion-free. Departing flights can be cleared to their final destinations shortly after takeoff, rather than vectored on circuitous and expensive paths to avoid conflicting traffic;
- the large passenger airline presence at Pearson results in many competitors for scarce on-airport space;
- the continuing shift of air cargo, especially of premium items, from the traditional airlines to the integrated carriers (see below);
- the Airport is sufficiently close to Mississauga and Pearson to benefit from many of Toronto's warehouses and sorting facilities;
- the historical strength of the Toronto economy may result in higher wages at Pearson;
- the early 1990's sale of Air Canada's DC8-73F freighter aircraft. These flights had previously served time-sensitive freight on trans Canada routes. The resulting vacuum could be filled by a new operator, flying from either Pearson or Hamilton; and
- the liberalized Canada-United States bilateral agreement of 1995 greatly improved the regulatory conditions for trans-border cargo flights.

These conditions helped Hamilton become a leading airport for air cargo. Table 2.1 summarizes cargo volumes for Canada's top ten cargo airports. Table 2.2 shows corresponding movement statistics for freighter aircraft.

Table 2.1 - Air Cargo Volumes - Major Canadian Airports

Airport	Tonnes of Cargo Loaded / Unloaded, 2007
Toronto Pearson	445,330.5
Vancouver	228,815.9
Montreal (Dorval)	107,841.7
Hamilton (Airport)	**101,400.0**
Calgary	91,267.9
Hamilton (Stats. Cda.)	**82,956.4**
Winnipeg	66,514.3
Montreal (Mirabel)	64,272.5
Halifax	26,606.4
Edmonton	20,109.8
Ottawa	16,553.2

Source: Statistics Canada Report 51-203, Air Carrier Traffic at Canadian Airports - 2007, Table 2-1, (Ottawa, 2009)

Table 2.2 - All Cargo Flights – Major Canadian Airports

Airport	All-Cargo Flights, 2007
Winnipeg	9,016
Vancouver	7,810
Hamilton	**7,175**
Toronto Pearson	6,069
Calgary	5,596
Moncton	2,629
Victoria	2,167
Ottawa	1,995
Sudbury	1,939
Halifax	1,606

Source: Statistics Canada Report 51-203, Air Carrier Traffic at Canadian Airports - 2007, Table 3 (Ottawa, 2009)

The Statistics Canada data highlights the relative importance of Airport as a node for air cargo. However many airports dispute the Statistics Canada methodologies for reporting air freight.

Many small aircraft operate feeder services for air cargo but the Statistics Canada reports often fail to capture such flights. According to Airport records, the 2007 throughput was 101,400 tonnes of cargo, over 22 percent greater than the quantity reported by Statistics Canada[4].

In August, 2009, DHL Express (Canada) announced that it was moving its transborder flights from Pearson to Hamilton. The Airport gained five weekly flights to Cincinnati. DHL cited the opportunities to consolidate and streamline its operations at Hamilton. The flights will begin in September, 2009.

Raw air cargo volume statistics are a poor measure of the economic importance of air freight. "Air cargo" is a very heterogeneous collection of services that includes:

- Air mail - The air carrier provides an airport-to-airport service for consolidated volumes of air mail letters and parcels. The postal service manages the ground transfer between its consolidation centres and the airports. Shipments move under a long term contract.
- Air Courier/Small Package services - Shipments include documents, consumer goods for final delivery, small machine parts, medical supplies and samples, and other items. Most can easily be lifted without aid. Shipments tend to have a very high value-per-weight, and are often very urgent. They travel according to strict delivery standards, and customers pay a guarantee for high levels of service.
- General Air Freight - This category contains a wide variety of items that are usually very large. Examples include machinery, seafood, livestock, perishable fruits and vegetables, cut flowers, motor vehicle parts, complete motor vehicles, computer components, hanging garments, chilled meats and virtually anything else requiring faster transportation than a surface mode. Shipment sizes are usually larger than for courier/small package air services, and can range up to a full wide body aircraft. Delivery standards are usually less stringent than for courier/small package services. Shipment values and shipping costs per unit weight are usually well below those of the courier/small package segment.

[4] *Source: Airport Annual Report - 2007, June 2008. Page 17*

The institutions responsible for each type of cargo vary widely. Air mail is the exclusive concern of the Post Office[5]. "Integrated carriers" serve the courier/small package market. They can command premium rates because of their high quality, guaranteed services. An integrator performs all shipment functions, including sales, pickup, tracing, consolidation, aircraft loading, intercity carriage, customs clearance, insurance and delivery in-house. It obtains the tight, seamless control over all steps that it needs to meet delivery standards.

The airlines carry general air freight. While some operate pure freighter services on high volume, international flights, most rely on the belly (or lower hold) capacity of passenger aircraft. A flight with a full load of passengers will often have empty belly space that can be sold as a by-product. The incremental costs of carrying air freight are very low. Most passenger airlines have relinquished control of their air freight services to forwarders. Air freight forwarders work directly with shippers, negotiate rates with the airlines, and control the routing of shipments. Many entities, including forwarders, truckers, ground handlers, airlines, customs brokers and suffrance warehouses may handle a single shipment. This contrasts sharply with the integrators.

General airfreight is especially important on international routes. The wide body aircraft that operate most intercontinental flights provide extensive space for air cargo. Carriers and shippers greatly value the large volumes available and the containerized capacity. While daytime domestic flights are of limited value to air freight, many international passenger flights depart on timings that are ideal for shippers. Bilateral agreements have constrained the international growth of the integrators, which emerged long after the traditional airlines had started long haul routes and secured the limited traffic rights.

In practice, the differences between the types of air cargo services and the institutions are not as well defined. Integrated carriers do carry large items, and some even specialize in carrying heavy items for manufacturers. An integrator may co-mingle low yield general air freight with high yield courier/small package shipments.

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[5] *Current regulations forbid courier companies from competing with Canada Post for standard mail. They effectively separate the door-to-door market into two segments - postal services for low priced deliveries and courier/small package for premium items. Canada Post holds a 91 percent interest in Purolator. This relationship may serve as part of a future convergence of traditional mail and courier services*

UPS offers night flights for premium traffic, and daytime flights for large and usually non-premium general cargo items. Some airlines carry courier/small package traffic under a contract with an integrator. Some general cargo traffic follows very exacting schedules with stringent delivery standards. Both integrators and traditional airlines carry air mail.

These distinctions, however ill-defined, are vital to understanding the relative importance of air freight at Hamilton and other airports. The cargo leaders of Table 2-1, Toronto Pearson, Vancouver, Montreal (Dorval) and Calgary, have both integrated carrier flights and services by traditional airlines.

The four cities have multiple daily intercontinental departures by wide body passenger aircraft. Their volumes of general cargo must be substantial. Hamilton, in contrast has little belly cargo traffic. WestJet's 737s do offer useful cargo capacity, but the quantities are modest. Low frequency winter charters to "sun" destinations would have limited cargo appeal. Flyglobespan operates wide body aircraft to the Airport, but the high seating density will limit cargo capacities. The flights operate only during the summer, a low period for air freight. Although airline-specific cargo data is not available, these factors suggest that the quantity of Hamilton's belly cargo on passenger aircraft is minimal.

The integrated carriers must therefore carry the majority of Hamilton's air cargo. This cargo is of sufficiently high value to require dedicated pure freighter aircraft. The many small items tendered require elaborate sorting facilities and a large fleet of trucks for local pickup and delivery. The economic impact is likely larger than that for a similar quantity of general air freight. These operations in turn require a curfew-free airport, low landing fees, uncongested airspace, a supply of high quality labour, abundant land close to the Airport for expansion, and fast surface transportation routes to Hamilton, the Greater Toronto Area and the Niagara region.

Hamilton's air cargo industry has excellent prospects for growth. Kelowna Flightcraft now operates DC-10-30 freighter aircraft, and CargoJet flies two 767-200s. These aircraft can accommodate airfreight containers in both the belly and on the main deck. They have intercontinental ranges. The wide body equipment offer a substantial increase in total capacity.

Domestic airfreight volumes are limited during the weekend, and trucks can cheaply accommodate many items tendered on Friday for Monday delivery. The wide body freighters could service international routes during the weekend. For most airports, air freight on the North Atlantic peaks during the weekend. The forwarders serving Pearson's general airfreight traffic could use Hamilton space without difficulty. Since the aircraft cover fully allocated costs on domestic routes, their international capacity could be priced incrementally.

Hamilton Airport has a modest presence in General Aviation. AIC, a mutual fund, operates a corporate aviation base. Jetport provides both small aircraft charters and fixed base operator services. Table 2.3 shows recent general aviation activity.

Table 2-3 - Itinerant General Aviation Operations at HI

Year	Other Commercial	Private	Civil Government	Military
2008	1,811	6,013	2,028	137
2007	1,835	6,292	2,032	168
2006	2,232	7,377	1,782	132
2005	2,403	6,927	1,586	227
2004	2,541	6,718	1,782	124

Source: Statistics Canada Report 51-209-X, Aircraft Movement Statistics: NAV CANADA Towers and Flight Service Stations: Annual Report (Ottawa, 2009) , Table 4-1, Itinerant Movements by Type of Operator, NAV Canada Towers

The level of general aviation activity is undistinguished. Many other airports in the region, including Toronto Pearson, Toronto City Centre, Buttonville, St. Catherines and Kitchener-Waterloo serve general aviation. The City of Hamilton is not a major centre for corporate headquarters limiting its corporate (included in Table 2.3 as "Private") aviation activity.

2.3 Summary

Hamilton Airport has experienced considerable volatility in passenger services. WestJet, despite the 2004 transfer of flights to Pearson and its presence in Kitchener-Waterloo, continues to develop at the Airport. Flyglobespan's summer services to Britain and Ireland, and several carriers' flights to southern destinations reflect a growing international role. The proximity of Toronto Pearson is the leading influence in the Airport's growth of passenger traffic.

Hamilton Airport has a well established air cargo sector. It dominates the courier/small package airfreight business, the highest value segment of the air cargo industry. It is arguably Canada's leading courier/small package airport. Although other airports process larger raw volumes of airfreight, much of their traffic involves low value general cargo. The diversity of operators and new wide body all-cargo aircraft offer the foundation for continuing growth.

The Airport clearly represents a significant asset to Greater Hamilton and has a significant economic impact on the City and region.

3.0 Methodology: Economic Impact Analysis

3.1 Introduction

The process for calculating the economic impact is, in theory, straightforward. In practice, it often requires many ad-hoc adjustments to the data and estimates for missing transactors.

A vital assumption of any economic impact analysis is that the economy is operating at less than full employment. Otherwise, the Airport's activities will merely displace workers from other employment. The very uncertain economy of 2008-2009, the retrenchment at USX and other local businesses, and the weakened provincial economy support the less-than-full-employment assumption.

The study itself takes a snapshot of Airport activity in December 2008. To the fullest extent possible, it uses 2008 data to develop an idealized portrait of the Airport for 2008. It considers only those tenants operating on the Airport on December 31, 2008.

3.2 Types of Economic Impact

The methods for conducting an economic impact analysis are well structured and widely accepted. Practitioners use a common nomenclature to describe the effects. However, the definitions may vary between studies. Three types of economic impacts are of particular concern to this Study:

Direct

Direct impacts involve those activities undertaken on the Airport. They may also include economic activities performed off the Airport, but that serve only the aviation community. An off-airport consolidation centre for an air courier is a direct impact. A bottling plant that serves airlines and non-aviation user is not a direct impact.

Indirect

Indirect activities occur off-airport. The goods or services may be used in the support of flight operations, but could also see many other uses. The off-airport bottling plant that supplies drinks to airlines and to local schools and supermarkets is an indirect impact.

Induced

The direct and indirect impacts create jobs and personal income. The wage earners spend a portion of their income on goods and services, thereby creating employment for additional persons. The process continues indefinitely, with each successive transactor spending a portion of his or her income. Since a portion of the income of each step goes to taxes, savings or imports, the stimulus declines geometrically with each round. The total stimulus can be represented as a multiple of the original earnings.

The Airport generates three other types of impacts. This, and most other studies do not attempt to quantify these effects:

Catalytic

Catalytic benefits result from the structural changes that a facility such as an airport makes in the business environment of a region. An airport may lower the cost of doing business in a region, or increase the quality of life sufficiently to attract new firms. It may also change expectations or attitudes about a community. The availability of air capacity may cause businesses to change their behaviour.

Considerable research has examined the catalytic impacts for European airports[6] Material on North American airports is very limited.

The Employment Growth District and the Airport could together generate large catalytic effects. Firms may decide to locate in the AEGD to benefit from the proximity of the Airport. Other catalytic impacts could result from the combination of the Airport and the improved highway links.

[6] *Airports Council International, The Social and Economic Impact of Airports in Europe, (2004). The report cites many examples, including Hamburg, Amsterdam, Munich, London, Paris, Dublin, Nice and Copenhagen.*

Technical Externalities

Technical externalities occur when the facility in question affects other entities, either positively or negatively. These effects, while tangible, are often difficult to quantify. They usually involve an asset that has no clear and legally definable owner. No market mechanism allows the transactors to value the effects, or to conduct an exchange that would maximize their collective potential welfare. The noise caused by aircraft is a negative technical externality. To the extent that the Hamilton Airport reduces the need for surface travel to Pearson, it could generate positive technical externalities though reduced highway congestion and lower carbon dioxide emissions.

Other

An airport can help define a community. Its three letter designator is a unique identification that is meaningful throughout the world. Through having scheduled air services, a community gains a presence on airline, travel agent, global distribution system and website screens throughout the world. The connection algorithms can produce itineraries to an airport, often from anywhere in the world. This visibility greatly raises the profile of a community, particularly in relation to those lacking air service. The Airport is now considered by IATA as another Toronto airport, and will now appear on many requests for flights to and from Toronto. Its visibility will be correspondingly increased.

Many airlines still list Pearson as the airport for “Toronto/Hamilton.” In many similar listings, the second city is considered as less significant than the first. Hamilton’s location is distant from the Queen Elizabeth Way and MacDonald Cartier Freeway. It lacks an intercity railroad station bearing its name. The world has many cities named “Hamilton.” These factors suggest that the City may require a higher profile. The Airport and its ”YHM” designator address this problem. The monetary value of this higher profile is difficult to quantify.

The five types of economic impact listed above serve as the conceptual framework for economic impact analysis.

Economic impact" has a second dimension that dictates what effects are measured and the units of measurement. While an economic impact study could examine many effects, several measures are most important:

Employment

Employment can be expressed either as the total number of jobs, or annualized Full Time Equivalents (FTE). This analysis works exclusively with the FTE measure. All references to the number of employees use Full Time equivalents. One "employee" refers to one full person-year of employment.

Output

Economic output states the total dollar value of whatever is sold. At the level of a company, it corresponds to the revenues.

Gross Domestic Product (GDP)

The GDP measures the value added by the production process. It corrects for any intermediate expenditures, calculating benefits against offsetting costs. By eliminating double-counting, it provides the most useful measure of the true stimulus generated by the object under study.

Tax Revenues

The study could examine federal, provincial or municipal taxes.

Capital Stock

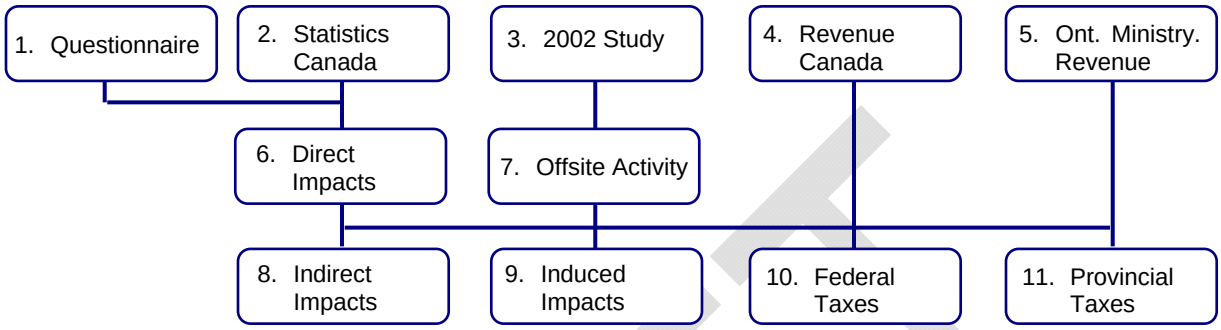
This measures the value of the total capital formation of the entity.

This Study examines the first four attributes. It considers the change in capital stock only to the extent that the other metrics would change.

3.3 The Method

Figure 3.1 portrays a simplified schematic of the approach for estimating the Airport's economic impact. A questionnaire of Airport tenants (Box 1) sought detailed information about employment levels, wages and salaries, purchases of local goods and services, and financial interactions with other Airport tenants.

Figure 3-1 - Method for Calculating Economic Impacts



The questionnaire for this study was sent to over thirty Airport tenants. A covering letter accompanied each questionnaire and described the purpose of the study in detail. To maximize the response rates and obtain the highest quality of data, senior officials of TradePort and the City of Hamilton signed the letter. Every letter was addressed to a specific senior official within the tenant's organization and was customized to the particular tenant. The letters to the most important tenants requested a meeting to discuss the questionnaire and the tenant's perceptions on the future growth of the Airport. Appendix A contains a sample of the letter and accompanying questionnaire.

Each tenant received an email message explaining the study and its goals. It included the questionnaire and letter of introduction as attachments. The questionnaire used a Microsoft Word format, so that the respondents could reply directly on the file. The analysts created a new email address to receive the completed responses.

Other businesses that depend on the Airport such as hotels, surface transportation companies, scenic attractions, and key employers in the Region, could also contribute. However, these organizations will not necessarily have information about the travel habits of their clients, visitors or employees. The information would be highly diffuse and anecdotal.

The team followed up any non-respondents by sending the questionnaire and accompanying letter by mail, with a stamped, self-addressed envelope. The remaining non-respondents were contacted by telephone.

Questionnaire response rates were relatively poor. Many companies were reluctant to provide financial data. Information on salaries and headcounts may be particularly sensitive in an industry suffering from a weak economy and facing a prospect of layoffs.

Interviews, however, were very informative and productive. They provided outstanding information on Airport operations, the distribution of Airport-related activity throughout Hamilton, and the most important factors driving traffic.

The follow-up telephone calls were also very productive. The Team asked for limited data on the number of employees and average wage levels. The firms contributing data collectively account for 95.2 percent of all direct employees. Virtually the whole remainder consisted of off-site employees, for which an estimation process was essential. Of the Airport's direct employees, excluding contract workers, the surveys failed to capture only a small fraction of one percent. This process created very accurate estimates of direct labour impacts.

In Figure 3-1, Statistics Canada (Box 2) publishes multipliers and other data from its Ontario input-output model. When applied to the questionnaire answers, the Statistics Canada models generated direct output and GDP impacts (Box 6) and indirect employment, output and GDP impacts (Box 7). The questionnaires provided average wage levels for some tenants. The Statistics Canada salary/wages reports by province and industry produced estimates for non-respondents (Table 3.1).

The 2002 study included information on offsite activity from which estimates were derived for 2008 offsite activity (Box 8). Without this correction, any comparison between this study and its predecessor would not be meaningful. The principal off-site activities were cargo trucking, passenger ground transport, cargo airlines other than Kelowna Flightcraft and Cargojet, and hotel accommodations for flight crew. These activities were estimated from the2002 study, with adjustments to reflect changing levels of activity.

The 2002 study had access to induced multipliers; these were not available for this analysis. This study developed estimates of induced multipliers from the 2002 analysis (Box 9).

The limited response to the detailed questionnaire defeated attempts to measure on-airport contract employment. The 2002 study considered these workers direct employees. This Study estimated this component as part of its calculations of indirect impacts.

Tax revenue data from Revenue Canada and the Ontario Ministry of Revenue (Boxes 4 and 5) gave average tax rates for income and excise taxes. When applied to the calculated gross salary and wages, they produced estimates of Federal and provincial tax revenues (Boxes 10 and 11).

The Annual Reports of the Hamilton International Airport, Purolator, WestJet, Air Canada and Cargojet and Statistics Canada reports on airport operations proved useful at several steps of this Study. The United States Department of Transportation's Report 28IS was an excellent source of trans-border traffic data. The tenant interviews gave many insights into the dynamics affecting the Airport, and the factors underlying its economic impact.

The Official Airline Guide, Statistics Canada and Hamilton Airport publications contributed data on traffic volumes and flight activity. By adjusting Full-Time Equivalent employment data to changes in flight activity between 2002 and 2008, the method generated estimates of 2008 employment.

The Statistics Canada Employment and Earnings Report (Box 7) helped convert the direct employment data into wages and salaries (Box 8). The table reports highly aggregated employment categories but proved important for some sectors for which the financial reports gave little value. Table 3.1 reports the most recent data on provincial employment and earnings.

Table 3-1 - Employment and Earnings Data

(Average Weekly Earnings, Dollars)

	2004	2005	2006	2007	2008
All industries excluding unclassified enterprises	709.41	737.29	755.5	788.17	810.45
Forestry, logging and support	894.01	883.89	902.28	907.41	935.84
Mining and oil and gas extraction	1,278.11	1,296.35	1,325.73	1,437.44	1,527.98
Utilities	1,261.08	1,298.32	1,350.66	1,421.49	1,424.73
Construction	846.38	877.34	900.32	961.16	1,014.51
Manufacturing	862.6	896.35	904.69	940.67	949.54
Wholesale trade	826.89	865.92	905.24	937.14	956.59
Retail trade	425.65	441.18	449.86	458.8	475.17
Transportation and warehousing	807.78	828.07	834.4	864.51	883.28
Information and cultural industries	916.99	952.3	955.52	1,003.44	1,003.54
Finance and insurance	887	921.01	951.25	997.59	1,000.76
Real estate and rental and leasing	654.56	698.06	710.73	756.11	772.87
Professional, scientific and technical services	937.42	989.94	1,016.41	1,060.36	1,093.67
Management of companies and enterprises	1,012.41	1,005.19	1,050.28	1,086.16	1,087.91
Admin. support, waste management, remediation	546.15	583.67	600.98	648.97	673.05
Educational services	750.52	779.6	808.15	834.62	862.64
Health care and social assistance	635.03	667.4	687.72	705.55	743.94
Arts, entertainment and recreation	437.37	439.16	445.08	468.77	503.66
Accommodation and food services	287.18	288.45	299.73	318.4	331.11
Public administration	894.04	925.45	951.03	1,007.53	1,040.51
Other services	573.54	605.4	622.43	652.13	669.67

Source: Statistics Canada Survey of Employment, Payrolls and Hours (SEPH), (Ottawa, May 2009)

3.4 Multipliers

Statistics Canada has developed a comprehensive national and provincial input-output model. The model employs a Leontief structure, in which transaction bear a linear relation to output and employment. The model traces the financial flows between different sectors as part of the production process. It also evaluates the financial transactions between each sector and imports, exports, investment, government and other sources or uses. The model traces, for example, how a trucking company's expenditures flow to other sectors. It calculates how these disbursements in turn generate further employment, output and value added. Its linear structure to express a particular ensuing change in the economy as a multiple of the trucking company's original stimulus. Many such proportionality relationships can be assembled from the analysis.

These "multipliers" provide the foundation for calculating indirect and induced impacts.

Statistics Canada runs the input-output model every year. In November 2008, it released the multipliers for 2005. These coefficients, the latest available, established the link between the Airport's direct activities and indirect or induced outcomes. The analysis used a disaggregated definition of the Ontario economy with a total of 126 industries.

The Statistics Canada provincial model is of an "open" type in that it does not include final consumption. Since induced impacts result from successive rounds of increased consumption, the Statistics Canada national and provincial models **do not generate induced multipliers**. Only indirect multipliers are available. Many economists believe that induced multipliers can lead to an overstatement of impacts and use them with reluctance[7].

A "closed" model includes consumption, and reflects greater interdependencies between industries. It can generate both indirect and induced multipliers. Many economic impact studies consider only direct and indirect effects. This Study used the 2002 study's relationships between the direct plus indirect, and the resulting induced effects. This will simplify comparison of the two estimates.

The multipliers purchased from Statistics Canada correspond to a highly disaggregated definition of industries. There is a large likelihood that a multiplier will be appropriate for a particular airport tenant. However, this also raises the chance that Statistics Canada will have insufficient data to generate multipliers for a particular industry. In this instance, the Ontario provincial model could not resolve multipliers for the airline industry, a critical omission. The 2005-2007 financial statements of Air Canada and WestJet reported revenue, operating income and employment data. This information served as the basis for estimating the missing coefficients. The air carriers required further adjustments to reflect changes instaffing.

[7] *See the discussion in NWT Economic Multipliers - Overview and Results, NWT Bureau of Statistics, Government of the Northwest Territories (Yellowknife, March 2009)*

The direct impact in terms of person-year employment offers the most sound measure of the economic impact. The multipliers result from an elaborate computational process. They apply to the Statistics Canada classifications of sectors. They may mis-estimate impacts when applied to specific geographical areas and businesses. The size and sign of the potential bias is unknown, since no effort was made to control the direction of the estimation process.

Whatever the methods for estimating multipliers, all multiplier-based indirect and induced impacts must be interpreted with caution. While there are no cost-effective alternatives to using multipliers, the results are substantially less solid than the direct impacts.

3.5 Summary and Conclusions

The weak response to the questionnaire forced the reliance on other methods to estimate direct impacts. However, by relying on several methods to obtain key parameters, the methodology finally adopted made use of extensive information from both Hamilton and other airports. A later Chapter will validate the estimates.

The approach relied heavily on a questionnaire distributed to Airport tenants. The response rate to the initial questionnaire was relatively poor. However, an aggressive follow-up process obtained a very high coverage rate. The estmates of on-site direct employment are of high quality. The respondents provided only limited information on off-site employment and off-airport purchases of goods and services. The Statistics Canada multipliers offered an alternate means to estimate these interactions. The 2002 study assisted in estimating certain activities very specific to the Hamilton Airport. These off-airport components were calculated to simplify comparisons of 2008 to 2002.

The methodologies used are similar to those applied at other airports. However, each facility poses unique challenges, each requiring ad hoc adjustments. Caution should be exercised whenever comparing the economic impact studies of different facilities or analysts. Notwithstanding these caveats, the approach used in this Study has demonstrated that it can generate a rigorous, current and useful estimate of the economic impact of the Hamilton Airport.

4.0 Economic Impact

4.1 Introduction

Hamilton Airport makes an important contribution to the prosperity of the City of Hamilton. All three major business sectors, passenger air services, air cargo and general aviation provide tangible benefits for regional employment, output, and GDP (value added).

4.2 Passenger Services

In 2008, passenger services at Hamilton provided 239 person-years of direct employment despite WestJet's 2004 shift of services to Pearson and the Air Canada Jazz cessation of flights. The 2008 total includes airlines, aviation security firms, concessions operators, car rental agencies and food and beverage operators in the passenger terminal. It does not include the impact of visitor expenditures. The services generated 126 person-years of indirect employment and 119 person-years of induced employment. All monetary values use 2009 dollars. Table 4-1 summarizes the results.

Table 4-1 - Passenger Services Economic Impact

(2009 Dollars)

Person-Years	2008
Direct	239
Indirect	126
Induced	119
Total	484
Output ($Mln.)	
Direct	37.4
Indirect	22.9
Induced	17.2
Total	77.6
GDP ($Mln.)	
Direct	7.0
Indirect	10.6
Induced	6.3
Direct	23.9

Total output was $107.9 million, with $52.2 million in direct impacts. The passenger services directly contributed $7.5 million to GDP (value added). The total GDP impact was $35.7 million.

4.3 Cargo Services

Cargo flights at the Hamilton Airport create 887 direct person-years of employment. Indirect effects of 482 person-years and induced effects of 451 person-years result in a total stimulus of 1,820 person-years of employment. Air cargo's contribution to direct output was $161.5 million. The total contribution to output was $312.4 million.

The sector created a direct stimulus to GDP of $70.5 million. The total GDP contribution is $147.7 million. Table 4-2 summarizes the economic impacts of air cargo.

Table 4-2 – Air Cargo Services Economic Impact
(2009 Dollars)

Person-Years	2008
Direct	887
Indirect	482
Induced	451
Total	1,820
Output ($Mln. 2009)	
Direct	161.5
Indirect	81.3
Induced	69.6
Total	312.4
GDP ($Mln. 2009)	
Direct	70.5
Indirect	38.2
Induced	39.0
Direct	147.7

The "Cargo" sector, as described, includes the Kelowna Flightcraft maintenance, repair and overhaul base. This facility competes for third party maintenance work. It could justifiably be included in the "Other" group of operators at the Airport.

However, it is assumed that the primary mission of the base is to service the fleet of aircraft used by Purolator, and more recently in support of Canada Post. The staff and equipment would be cross-utilized for third party work only to the extent that downtime is available from the Purolator fleet. The assumed emphasis on the Purolator work warrants the inclusion of maintenance staff in the "Cargo" category.

4.4 General/Corporate Aviation Economic Impact

At this time Hamilton Airport has a relatively small corporate and general aviation sector as relatively few companies have head offices in Hamilton. This limits the based and itinerant activity. Key tenants include AIC mutual funds, Jetport and Glanford Aviation. Table 4.3 summarizes the economic impacts of Hamilton's Corporate and General Aviation sector.

Table 4.3 - Corporate/General Aviation Economic Impact
(2009 Dollars)

Person-Years	**2008**
Direct	25
Indirect	11
Induced	12
Total	48
Output ($ Mln 2009)	
Direct	3.5
Indirect	1.4
Induced	1.4
Total	6.2
GDP ($Mln 2009)	
Direct	2.2
Indirect	.8
Induced	1.0
Total	4.0

4.5 Other Sectors

"Other" businesses include the Canadian Warplane Heritage Museum, sellers of aircraft deicing services, Transport Canada, NAV CANADA, Airport management and the Tim Horton's outlet in the JetPort building (the analysis considers the Tim Horton's outlet in the passenger terminal to be part of the passenger sector). Table 4-4 summarizes the economic impacts of these entities.

Table 4.4 - Other Sectors Economic Impact
(2009 Dollars)

Person-Years	2008
Direct	231
Indirect	164
Induced	129
Total	524
Output ($ Mln 2009)	
Direct	37.5
Indirect	19.9
Induced	16.3
Total	73.6
GDP ($Mln 2009)	
Direct	.6
Indirect	3.6
Induced	1.5
Total	5.6

4.6 Summary and Conclusions

Table 4.5 summarizes the economic impacts of Hamilton Airport. In 2008, the Airport generated a total of 1,382 direct full-time equivalent employment positions. Total employment, including indirect and induced effects was 2,876 full-time equivalents.

The Airport and its tenants collectively created $80.3 million in direct gross domestic product. A further $53.2 million resulted from indirect effects. The total stimulus to GDP including induced effects was $181.2 million.

Airport operations stimulated private sector activity through increased employment, output, and value added. They also made a significant contribution to the public sector through tax payments.

Table 4-5 Total Economic Impact, All Sectors
(2009 Dollars)

		Passenger	Freight	General Aviation	Other	Total
Employment	Direct	239	887	25	231	1,382
	Indirect	126	482	11	164	783
	Induced	119	451	12	129	711
	Total	484	1,820	48	524	2,876
Output($Mln)	Direct	37.4	161.5	3.5	37.5	239.9
2009 $	Indirect	22.9	81.3	1.4	19.9	125.5
	Induced	17.2	69.6	1.4	16.3	104.5
	Total	77.6	312.4	6.2	73.6	469.8
GDP ($Mln)	Direct	7.0	70.5	2.2	.6	80.3
2009 $	Indirect	10.6	38.2	.8	3.6	53.2
	Induced	6.3	39.0	1.0	1.5	47.8
	Total	23.9	147.7	4.0	5.6	181.2

5.0 Tax Impacts

5.1 Introduction

The economic activity at the Airport contributes taxes to all three levels of government generated by passengers using the Airport and by the Airport tenants.

Tax payments pose many analytical obstacles. The progressive tax system applies a sliding scale to personal and corporate income tax rates. The payments due from any household depend on the income, household composition (individual or family), and a complex set of exemptions and tax credits. Corporate income taxes are even more complicated, and consider profitability, accelerated depreciation, and other factors that sever the link between profits and tax liabilities.

Only taxes generated by direct activity are considered herein. The study concentrated on the Airport itself, rather than the wider constellation of economic activity. It did not attempt to estimate property taxes of persons working on the Airport, and does not consider the taxes generated by visitor expenditures.

Passengers must pay the Federal Goods and Services Tax (GST) as part of the process of purchasing a ticket. Several other taxes apply. Shippers, including those sending small letter-sized items, must also pay the GST. The calculations in this chapter exclude these tax payments. The taxes are incurred on the whole end-to-end transportation process, and only a small proportion should be allocated to the Hamilton Airport.

5.2 Taxes Paid by Airport Passengers and Carriers

Departing passengers must pay an Airport Improvement Fee of $15. This fee is subject to a 5 percent Federal GST. The total proceeds for the GST were approximately $248,000 in 2008. Passengers using the parking services and the concessions in the Air Terminal Building must also pay the GST on any purchases. The operators did not provide revenues.

According to the Airport's 2008 Annual Report, revenues for landing, general terminal, concessions, parking and miscellaneous rentals were $12.8 million[8]. This implies GST proceeds of $641,000. The multipliers reflect these transactions.

5.3 Federal Income Taxes

The progressive rate structure of the Canadian income tax system complicates any calculation of Federal tax revenues. However, Statistics Canada has estimated that, for Canada as a whole, every $100 in personal income results in an average tax liability of $11.189[9]. This rate, applied to total salaries and wages, provided an estimate of Federal personal income taxes.

Corporate income taxes pose many complications. Besides the tax complexities faced by individual companies, most companies at Hamilton have widespread operations. Their tax liabilities must somehow be allocated to different areas. It is very rare that even a publicly traded company will provide enough detail to permit an airport-specific imputation of its profits. Several operators, including Purolator and Kelowna Flightcraft, are privately held and release only minimal financial data. These circumstances will affect any estimate of the Airport operation's corporate income taxes and call for caution in interpreting the results. In the 2007-2008 fiscal year, Canada collected $113,063 million in personal income taxes and $40,628 million in corporate income taxes10[10]. The economic impact analysis therefore assumes that this ratio, 35.9 percent, applies to the Hamilton Airport.[11] Table 5.1 summarizes the results for the federal income taxes.

[8] *Source: Hamilton International Airport Annual Report, 2008. Income Statement.*

[9] *Source: Statistics Canada, Federal Income Tax: Sharing the Pie, (Ottawa, The Statistics Canada Daily, April 22, 2005)*

[10] *Source: Government of Canada Budget, FY 2009-2010, Table 4.5 "Revenue Outlook"*

[11] *The tax calculations assume a stable ratio between personal and corporate income taxes. However, corporate taxes are more volatile than personal taxes. They are very sensitive to the level of economic activity. As a nation enters a recession, employers will first attempt to place unwanted final produce in inventory, sell their product at a discount, pressure suppliers for discounts, and reduce purchases of goods and services. Layoffs would only occur if these measures fail to remove the threat of business failure.*

Table 5.1 - Federal Income Taxes by Sector
(2009 Dollars)

	Personal	Corporate	Total
Passenger	$1,128	$405	$1,533
Air Cargo	$5,143	$1,848	$6,991
General Aviation	$231	$83	$314
Other	$1,436	$516	$1,953
Total	$7,939	$2,852	$10,792

The estimates reflect simple proportionality relationships. The corporate estimates in particular must be examined with caution. The number of businesses operating is relatively small, and each is unique. Simple averages may fail to capture the company fundamentals. For example, in 2008, Cargojet generated a $2.6 million loss on taxable earnings[12]. Other companies on the Airport also likely encountered problems with high prices of jet fuel and the weakening economy. The cargo income taxes in 5.1 apply over the long term, but are questionable for 2008. The Cargojet example highlights the problems of interpreting simple proportional relationships for a small and heterogeneous population.

5.4 Provincial Income Taxes

The Ontario provincial income taxes pose the same obstacles as the Federal taxes examined in the previous section. Again, their complexity, and their sliding scale of marginal rates defy any simple treatment. However, historical data provide the means for calculating the average tax rate, which was applied to the wage and salary data (excluding benefits) for Hamilton. In the 2007-2008 fiscal year, Ontario had a population of 12.794 million persons, and an average per capita income of $36,288/year. Personal income taxes were $24,538 million and corporate income taxes $12,990 million[13]. These values imply an average personal income tax rate of 5.285 percent. Corporate income tax proceeds were 52.938 percent of personal income tax revenues. Table 5.2 summarizes provincial income tax payments by sector.

[12] *Source: Cargojet 2008 Annual Report, Page 13*

[13] *Source: Government of Ontario Budget*

Table 5.2 - Provincial Income Taxes by Sector
($000) 2009

	Personal	Corporate	Total
Passenger	$533	$282	$815
Air Cargo	$2,431	$1,287	$3,719
General Aviation	$109	$58	$167
Other	$679	$360	$1,039
Total	$3,753	$1,987	$5,740

5.5 Goods and Services Tax and Provincial Sales Taxes

The calculations for the G.S.T and the Provincial Sales Tax (P.S.T) use a methodology that is very similar to the corporate income taxes. They apply the 2007-2008 fiscal year data displayed on taxation the table appendices for the Federal and Ontario budgets. The G.S.T calculations assume a constant relationship between personal income tax revenues and the value-added tax. During the time period in question, personal income taxes generated federal revenues of $113,063 million and G.S.T. revenues of $16,558 million[14]. Ontario personal income taxes raised $24,538 million, and the P.S.T. raised $16,976 million[15]. Table 5.3 summarizes the estimates by aviation sector.

Table 5.3 - Goods and Services and Provincial Sales Taxes by Sector
($000) 2009

	Federal G.S.T	Provincial Sales	Total
Passenger	$299	$369	$668
Air Cargo	$1,361	$1,682	$3,043
General Aviation	$61	$76	$137
Other	$380	$470	$850
Total	$2,101	$2,597	$4,698

[14] *Source: Government of Canada Budget, FY 2009-2010*

[15] *Source: Government of Ontario Budget, FY 2009-2010*

5.6 Other Taxes

Air passengers pay a Federal Goods and Services Tax on air tickets. Other charges include a security charge, an Airport Improvement Fee and an Air Navigation Service Charge. Of these charges, only the G.S.T. is a true "tax" that supports general government activities. The other three charges cover specific services rendered by public-associated bodies.

Any purchases of goods and services by tenants at the Hamilton Airport requires the payment of the G.S.T. The calculations use multipliers and broad relationships between different categories of tax revenues to estimate the G.S.T. payments. The tenants provided little information about purchases of goods and services, necessitating this approximation. Duties and excise taxes must be paid on imports, whether shipped as air freight or brought in by arriving passengers.

UIC, OHIP and CPP premiums are either deducted from the paycheck or assessed as a payroll tax. These disbursements are payments for services provided and are only deemed to be taxes because the service provider is a government body.

Aircraft purchasing fuel at Hamilton must pay fuel taxes. Too few carriers entered this data on the questionnaire to permit valid estimates.

5.7 Hamilton Airport Rents

In 2008, the Hamilton Airport paid $183,617 to the City of Hamilton as rent.

5.8 Summary and Conclusions

In 2008, direct activity at the Airport generated over $12.8 million in Federal tax revenues, and over $8.3 million in revenues for Ontario. This estimate is conservative as it includes only direct activity. Estimates that reflect indirect and induced effects will be significantly larger. Airport activity also resulted in increased tax revenues for the City of Hamilton. The quantity of property tax revenues is not known. However, the Airport paid the City $183,617 in rents.

The air cargo sector accounted for fully 64.5 percent of the total tax revenues. The large share reflects Hamilton's dominance of the high yield express/courier segment. The smaller contribution of passenger traffic results partly from the discontinuation of Air Canada Jazz services to Montreal and Ottawa.

Table 5.4 - Total Taxes by Sector
($000) 2009

	Federal	Provincial	Total
Passenger	$1,832	$1,185	$3,017
Air Cargo	$8,352	$5,401	$13,753
General Aviation	$375	$243	$618
Other	$2,333	$1,509	$3,842
Total	$12,893	$8,337	$21,320

The significant tax revenues at the Hamilton Airport highlight the importance of government investments in infrastructure. Projects such as the improved highway access to the Airport can ultimately be financed through the added tax revenues that result from increased activity.

6.0 Economic Impact Validation and Analysis

6.1 Comparison to Earlier Economic Impact Studies

Table 6-1 compares the 2008 impacts to the 2002 study. Total direct labour grew from 1,317 full-time equivalents to 1,382 person-years, an increase of 4.9 percent. The direct full-time employment equivalent is arguably the best single measure of an airport's impact over time. This number is generated from direct observation. All other measures depend on the multipliers used. Statistics Canada provided multipliers for 116 industries. In most instances in this Study, the Statistics Canada industry definitions did not fit most tenants. It was then a challenge to select the most appropriate multipliers. Multiplier vectors for some vital industries such as Air Transport had important cells missing. Under these conditions, estimates for all but the direct employment person-years will depend on the analyst's often arbitrary choice of the multipliers. This element defeats any attempt to create fully comparable results.

Table 6-1 Total Economic Impact, 2009 Versus 2002
(2009 Dollars)

Employment PY	2009	2002
Direct	1,382	1,317
Indirect	783	1,108
Induced	711	824
Total	2,876	3,249
Output ($M)		
Direct	239.9	170
Indirect	125.5	150
Induced	104.5	90
Total	469.8	410
GDP ($M)		
Direct	80.3	65
Indirect	53.2	60
Induced	47.8	45
Total	181.2	170

During the 2002-2008 period, Hamilton's passenger levels fell from 845,960 to 545,800, a drop of 35.5 percent.

Freight traffic increased, from 92,321 tonnes to 103,428 tonnes, or 12.0 percent[16]. The economic impact, as measured by the direct full-time equivalent employees, grew 4.9 percent. In 2000, a third study estimated that the Hamilton Airport generated 1,650 jobs[17]. In 2000, the Airport served 243,205 passengers and 91,445 tonnes of air freight.

6.2 Comparisons to Other Airports

In theory, the methods for calculating economic impact are clear and straightforward. In practice the problems of defining the system, correcting for non-respondents, and applying the best multipliers often call for arbitrary and poorly structured remedies. Any ability to compare economic impacts over time or between different airports will suffer. These anomalies impose modest distortions on the calculations of direct employment but problems mount rapidly for findings using multipliers.

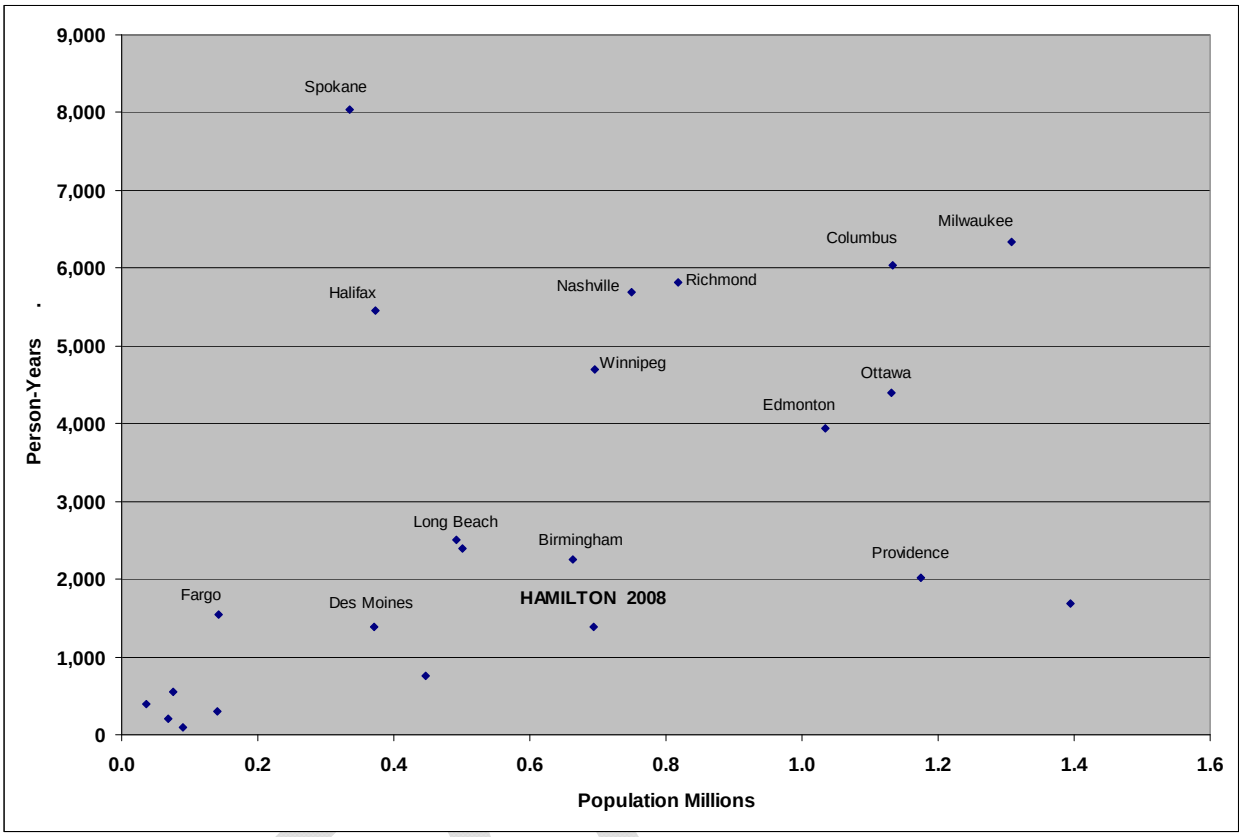
Despite these caveats, an airport-to-airport comparison is informative. Figure 6.1 displays direct employment at Hamilton and comparable airports in Canada and the United States.

The chart shows that Hamilton Airport performs within its peer group. This is a remarkable achievement. Most of the other airports are distant from large, competing airports. Hamilton must compete with the much larger Toronto Pearson Airport. Pearson is the leading choice even for residents of Hamilton-Wentworth and the Niagara regions.

[16] *Source: Hamilton International Airport*

[17] *Source: Airports Council International, The Economic Impact of Canadian Airports -2002, (Washington, 2003) page 21*

Figure 6.1 - Economic Impacts of Hamilton and Comparable Airports



None of the comparison airports have had the difficulties attracting and retaining carriers as Hamilton. Most have considerably more passenger traffic than Hamilton, but Hamilton's vibrant air freight sector helps it outperform airports with more passengers.

6.3 Economic Impact of New Passenger Services

Hamilton Airport remains a strong prospect for new passenger air services and new carriers. It could see a return of Air Canada/Air Canada Jazz, or obtain new services to Ottawa/Montreal by airlines such as Bearskin (which now operates a Kitchener/Waterloo-Ottawa route). Transborder services to hubs including Newark (Continental), Cleveland (Continental), Washington Dulles (United), Philadelphia (US Airways), Charlotte (US Airways), Chicago (United, American), Detroit, Cincinnati or Atlanta (the last three by Delta Air Lines) are also prospects. New services by low cost carriers, or by the WestJet-Southwest Airlines codesharing alliance, are also possible.

A domestic or trans-border commuter service such as that previously operated by Air Canada Jazz would employ 14 customer service agents[18]. Under the conservative assumption that the agents servicing the flight would not need to hire extra staff, the flight would create an additional 8 person-years of employment through induced effects. The direct effects GDP would increase by $861,000 and total GDP by $1.4 million. A $2.7 million increase in direct output and a $3.7 million increase in total output would result from the hypothetical service.

6.4 Current and Potential Catalytic Impacts

The analytical instruments used in this Study did not capture catalytic impacts. The magnitude of these effects is a matter for speculation. However, current and future impacts could be very large. The Airport could exert both quantitative and qualitative effects on Greater Hamilton, helping it develop a new economic base and stimulating a transformation of the entire region.

A report by the Real Estate Investment Network estimated that Hamilton is the fifth best community in Ontario for investments in real estate[19]. The report cited the growth of the Hamilton Airport as a leading factor in the community's appeal.

Other influences included completion of the Red Hill Parkway, upgraded GO Transit services, and a growing migration of urban residents from Toronto. An article in Canadian Business[20] ranked Hamilton as the third best location in English Canada for conducting business. It cited the Airport as a major reason.

Each sector at the Airport could contribute catalytic impacts:

[18] *Source: Canada Press, June19 2008*

[19] *Source: Real Estate Investment Network, Top Ontario Investment Towns 2008/2009, (Vancouver, 2008)*

[20] *Source: Canadian Business, September 2008*

6.4.1 Passenger Services

Hamilton Airport helps define Greater Hamilton as a distinct community. The Airport greatly simplifies access to Greater Hamilton, the Niagara Region and points west of Toronto. It can help boost tourist travel, and make Hamilton a more competitive location for business. The community could become a competitor to downtown Toronto. The Airport also reduces costs for residents, by offering an alternative to a lengthy surface transfer to Pearson.

As Hamilton Airport is in a position to offer lower fees and charges to passengers and users than Pearson, traffic can potentially be drawn from a wide catchment area which includes the Greater Toronto Area. To the extent that passengers may prefer Pearson as a gateway to Toronto, fares at Hamilton may be lower than those at Pearson. The lower fares represent a gain for Hamilton residents and visitors using the Airport[21];

A 2007 survey conducted by TradePort confirmed that the community has recognized the economic importance of the Airport[22]. This consensus likely reflects the needs of Airport users, and those who see the Airport as promoting the growth of non-aviation sectors.

6.4.2 Cargo Services

Hamilton's cargo carriers have purchased wide body freighters with intercontinental capabilities. The Airport has extensive facilities to accommodate containerized cargo. These assets greatly lower the costs for international all-cargo services for general airfreight. Such flights would boost the trucking and forwarding industries;

[21] *In 2004, after WestJet transferred some flights from Hamilton to Pearson, the airline openly priced Hamilton more favourably. FlyGlobespan offers very attractive fares from the Airport to Ireland and the United Kingdom.*

[22] *Over 92percent of the survey respondents strongly agreed or slightly agreed that the Airport is a "key economic driver" for the City of Hamilton.*

As Canada's primary hub for overnight premium services, the Airport and its vicinity are ideal locations for parts warehouses serving the entire nation. The current air cargo infrastructure could support new businesses focussed on air freight, such as exports of livestock, transportation of outsized materials, perishables transport, forwarder consolidation activity and intermodal transfers.

A recent analysis of the City of Hamilton's growth prospects[23] identified the Airport as an important asset for Hamilton's developing a transportation and logistics gateway.

6.4.3 General and Corporate Aviation

The Airport could support increased FBO and corporate aviation activity.

6.4.4 Other

The Airport employs many highly skilled specialists in commercial aviation. They could serve as the nucleus for an expanded Maintenance, Repair and Overhaul ("MRO") sector. Activities could include periodic heavy maintenance for airlines and the military, conversion of passenger aircraft to pure freighter, re-engining, refurbishing, etc.

Hamilton Airport could seek to attract an airline for a heavy maintenance base. Figure 6-2 shows that many airlines locate their maintenance facilities close to but separate from their primary hubs.

Hamilton's proximity to Pearson, its inexpensive land, and its large, skilled workforce could make it an ideal site for a maintenance base for Air Canada or another Canadian carrier.

Many airports and airport tenants work closely with universities and trade schools. Students benefit from hands-on experience in an aviation environment. The Canadian Warplane Heritage Museum could potentially expand it's collection.

[23] *Source: McMaster Institute for Transportation and Logistics, A Sustainable Strategy for Developing Hamilton as a Gateway, (Hamilton, April 2009), page*

Figure 6-2 Location of Non-Hub Airline Maintenance Facilities in the United States

6.4.5 Future Economic Impact

The future economic impact of the Airport will depend on the level of aviation activity and the degree to which it interacts with other sectors in the Hamilton region. Table 6.2 shows projected economic impacts in 2025.

The Medium passenger case corresponds to the activity levels used to calculate land requirements in 2030. The High case assumes 5.5 million passengers yearly. The Medium cargo case includes 2008 traffic, the incremental traffic resulting from DHL's relocation of its transborder operation, and continuing organic growth.

The High cargo case assumes stronger organic growth, and superimposes on existing activity the increase from DHL, increases from UPS and FedEx shifting their transborder operations from Pearson to Hamilton, an augmented WestJet passenger schedule that carries significant belly cargo, year-round transatlantic flights with strong volumes of belly cargo, new widebody domestic freighters and a modest international cargo service. The levels of General Aviation and other activities and their economic activities vary according to the GDP.

Table 6.2 - Projected Economic Impact, 2025

	Passenger	High	Medium	High
	Cargo	Medium	High	High
Employment (PY)	Direct	4,832	5,568	6,954
	Indirect and Induced	6,888	6,638	8,864
	Total	11,720	12,207	15,818
GDP (2008 Constant $)	Direct	219	323	360
	Indirect and Induced	449	452	600
	Total	668	775	960
Output (2008 Constant $)	Direct	953	946	1,227
	Indirect and Induced	974	943	1,244
	Total	1,927	1,889	2,471

All monetary values are expressed in 2009 constant dollars

An earlier economic impact study used a similar table to project impacts for 2025[24]. The above table used a similar date and format to facilitate comparisons. Nevertheless, the assumptions, methodologies, and traffic volumes of the respective base years are sufficiently different to negate any value to a detailed column-by-column comparison. The differences in the two tables do not necessarily reflect changing conditions.

[24] Tradeport International Corporation, Hamilton International Airport Economic Impact Study, (Hamilton, 2003)

6.5 Role of the Airport Employment Growth District (AEGD)

The Airport Employment Growth District will enhance the economic impact of the Airport. The District will offer firms an opportunity to locate close to the Airport. These businesses will be more inclined to prefer the Airport over Pearson than those located in downtown Hamilton, Burlington or other areas. This will encourage airlines to add seat capacity to the Hamilton Airport.

Besides being a market for the Airport's air services, the large number of employees in the AEGD will require high quality roads, public transportation, and other municipal services. This infrastructure could also support the Airport.

Most large airports support large off-airport businesses. Many hotels, car rental firms, parking facilities, aviation parts suppliers, truck depots, warehouses and freight forwarder sort centres require proximity to an airport, but do not need airside access. Such businesses could serve as the initial nucleus for the AEGD. Eventually, the AEGD would serve a wide spectrum of businesses, ranging from those solely focussed on the Airport to companies having no relationship to commercial aviation.

Closely integrating Airport and AEGD planning would promote a symbiotic Airport-District relationship. Some areas with airside access, and slated for future Airport tenant development, should be located close to the AEGD. The Airport and the AEGD together would offer prospective tenants a full combination of airside and groundside access, and proximity to the Airport

The AEGD will significantly enhance the Airport's appeal to the airlines. Most airports, including Hamilton, have active programs for recruiting new passenger and cargo services. The District offers an additional inducement for new services, and will complement TradePort's recognized excellence in air service marketing[25]

[25] *In October 2008, the Airport received the OAG - Routes Marketing Award for the Americas. The award was presented at the 14th Annual World Route Development Forum in Kuala Lumpur, Malaysia before delegates representing nearly 500 airlines and 1000 airports. Other nominees for the award included the Dallas/Fort Worth*

6.6 Conclusions

The economy of 2009 places an urgency to the findings of this Economic Impact Update study, and the importance of stimulating the airport-related areas of the local economy. The results reinforce the need for a symbiotic relationship between the Airport and the AEGD.

The 1,382 direct or 2,876 total job positions attributable to Hamilton Airport are significant for the City and region. The Airport has many excellent growth opportunities. By 2025, it could generate up to 6,954 direct person-years of employment, and 15,818 person-years including indirect and induced impacts. It would contribute $360 million to GDP in direct effects, and $960 million including indirect and induced impacts.

This analysis, specifically the comparison to other airports, has shown that the Airport's economic impact is remarkably high. When compared against Greater Hamilton's population, the impact is in line with other airports, even though other airports do not compete with an airport of such size and close proximity as Pearson. In relation to its passenger traffic, the economic impact of Hamilton Airport is extraordinarily high. The thriving cargo business is one of the key factors responsible for this strong performance.

As a maturing air cargo gateway and a growing passenger facility, the Hamilton Airport has excellent opportunities to strengthen its economic impact. As management markets the Airport to new tenants, it will need the support of the Greater Hamilton community. As a first step this support can include a greater propensity to use the Airport. A second step would be to develop the AEGD, generating positive feedback between the region and the Airport. The third step involves establishing the boundaries between the Airport and the AEGD, so that both may grow to their full potential. As AEGD planning advances this is becoming increasingly important.

International Airport, Newark Liberty International Airport, San Francisco International Airport and Minneapolis International Airport.

7.0 Appendix – Letter and Questionnaire

The following letter and questionnaire, describing the purpose of the study, was sent to over thirty Airport tenants. The letters to the most important tenants requested a meeting to discuss the questionnaire and the tenant's perceptions on the future growth of the Airport.