



➔ **John C. Munro Hamilton International Airport Updated Economic Impact Analysis**

Prepared by ICF

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Glossary of Terms

Term	Definition
Cargo	Goods shipped to Hamilton for distribution, as well as good shipped through Hamilton on their way to trade in domestic or foreign markets. Cargo is generally comprised of both mail and freight.
Cargo Operations	The employment associated with supporting cargo activities.
Concession Spending	Spending by passengers on categories such as parking, car rental, food, retail, and ride sharing.
Direct Impacts	Impacts in the primary industries where spending by the Airport and its visitors are focused, such as operations, airport employment, lodging, and restaurant/food purchases.
Employment	Represents the jobs created in each industry, based on the output per worker for each industry.
IMPLAN	Impact Analysis for Planning – economic modeling tool
Indirect Impacts	Impacts in the industries that supply or interact with the primary industries, for example when Airport capital projects require the purchase of construction-related building materials.
Induced Impacts	The increased spending by workers who earn money due to the proposed projects, such as when laborers use their wages at local restaurants.
Industry Activity	Represents the total value of industry activity generated by the direct spending.
Labor Income	Includes all forms of employment income generated by the direct input, including employee compensation (wages and benefits) and proprietor income.
Multiplier	Coefficients that describe the response of the economy to a stimulus (a change in demand or production).
Passenger Operations	The employment associated with supporting passenger activities.
Regions of Analysis	Local: Hamilton CMA, Region: Province of Ontario
Total Passenger Activity	The activity associated with Passenger Operations, Concession Spending, and Visitor Spending
Value Added	The net value of output, including labor income, indirect business taxes, and business income. It is also known as Gross Regional Product (GRP)
Visitor Spending	Purchases made by visitors to the Ontario region in categories such as ground transportation, lodging, or retail expenditures.

Executive Summary

John C. Munro Hamilton International Airport (“the Airport”) acts as a key driver of economic activity in the Hamilton Census Metropolitan Area (“CMA”) and broader Ontario region. The Airport’s Capital Investment, Operational Employment, and Visitor Spending contribute directly to regional employment and industry activity. The Airport’s direct economic activity has a multiplier effect on employment, labor income and industry activity across the region. Since the previous economic impact assessment was conducted in 2018 (using 2017 inputs), the Airport has experienced dramatic fluctuations in passenger air travel due to the global pandemic, with passenger traffic peaking in 2019 but declining in the two years that followed. Cargo activity at the Airport, however, has seen steady organic growth that was only further accelerated by pandemic relief and the rise of e-commerce activity. Moreover, from 2017 to 2021, the Airport received \$327.8 million in Capital Investments, in part due to expansion projects by Airport partners such as DHL and KF Aerospace. For the purpose of this analysis, capital-related economic impacts are determined using spending from 2021, which was \$84.1 million. While Visitor Spending and Concession Spending at the Airport decreased from 2017 to 2021, Passenger Operations employment experienced growth. Cargo Operations employment increased as well; 29 percent from 2017 to 2021. With this growth of activity, it is important to reassess the impact that the Airport has on the surrounding region.

Comparison to Past Impact in Hamilton

The tables below provide a comparison between the 2017 baseline and 2021, illustrating the modelled increase in economic impact. The comparison shows growth across every economic metric considered and demonstrates the growing positive impact that the Airport has on the region.

Table ES-1. Comparison of Total Impact, Hamilton

Total Growth Hamilton	Employment	Labor Income	Value Added	Industry Activity
2017	3,450	\$243.5m	\$385.7m	\$1.2b
2021	4,720	\$339.7m	\$536.7m	\$1.5b
Growth	1,270 (+37%)	\$96.2m (+39%)	\$151.0m (+39%)	\$300.0m (+25%)

Source: ICF calculation based on IMPLAN analysis. Employment is reported in terms of number of jobs.

Note: Growth values may not compute due to rounding. 2017 Passenger Operations activity includes 50 percent of activity associated with operations that include both Passenger and Cargo Operations.

Table ES-2. Comparison of Total Impact, Ontario

Total Growth Ontario	Employment	Labor Income	Value Added	Industry Activity
2017	7,450	\$473.4m	\$771.6m	\$2.0b
2021	9,810	\$623.0m	\$1.0b	\$2.7b
Growth	2,360(+32%)	\$149.6m (+32%)	\$228.4 (+30%)	\$700.0m (+32%)

Source: ICF calculation based on IMPLAN analysis. Employment is reported in terms of number of jobs.

Note: Growth values may not compute due to rounding. 2017 Passenger Operations activity includes 50 percent of activity associated with operations that include both Passenger and Cargo Operations.

As illustrated in Table ES-3, the impact of Passenger Activity was largely stable between 2017 and 2021, the early growth between 2017 and 2019 muted by declines between 2019 and 2021. In 2021, passenger activity generated an impact of approximately 1,190 jobs as well as \$393.0 million in industry activity. Employment impacts decreased by 8 percent while industry activity grew by 7 percent. This trend is due to the fact that the growth in industry activity driven by the increase in direct Passenger Operation employment outweighed the decrease in Visitor and Concession Spending industry activity because of the high leakage factor of the latter.

Table ES-3. Comparison of Passenger Activity Total Impact

Passenger Activity	Employment	Industry Activity
2017 Impact	1,300	\$363.9m
2021 Impact	1,190	\$393.0m
Growth	-110 (-8%)	\$29.1m (+7%)

Source: ICF calculation based on IMPLAN analysis. Employment is reported in terms of number of jobs.

Note: Growth values may not compute due to rounding. 2017 Passenger Operations activity includes 50 percent of activity associated with operations that include both Passenger and Cargo Operations.

Of the spending categories considered, Cargo Operations had the greatest overall impact. In Hamilton, operational employment related to cargo activity supported approximately 2,770 jobs and generated approximately \$1 billion in industry activity. This growth in impact represents a 29 percent increase from 2017. This trend is largely due to the significant role that the Airport plays in Cargo Operations as the largest domestic overnight express cargo airport in the country.

Table ES-4: Comparison of Cargo Activity Impact

Cargo Activity	Employment	Industry Activity
2017 Impact	2,150	\$789.2m
2021 Impact	2,770	\$1.0b
Growth	620 (+29%)	\$210.8m (+29%)

Source: ICF calculation based on IMPLAN analysis. Employment is reported in terms of number of jobs.

Note: Growth values may not compute due to rounding. 2017 Cargo Operations activity includes 50 percent of activity associated with operations that include both Passenger and Cargo Operations.

Within Hamilton, spending on the Airport's capital expenditures generated an impact of approximately 760 jobs and \$154.3 million in industry activity. This represents a 1719 percent increase from 2017, as Capital Investments have continued to grow as a result of cargo facility development and other airport infrastructure improvements.

Table ES-5: Comparison of Capital Spending Impact

Capital Spending	Employment	Industry Activity
2017 Impact	40	\$8.5m
2021 Impact	760	\$154.3m
Growth	720 (+1719%)	\$145.8m (+1719%)

Source: ICF calculation based on IMPLAN analysis. Employment is reported in terms of number of jobs.

Note: Growth values may not compute due to rounding.

Impacts of the Airport can also be classified as direct, indirect, and induced. Indirect economic impacts result in an increase in materials and service sales to companies that support Hamilton's operations and visitor purchases, while induced impacts are the resulting sales and jobs that come from increase household spending on consumer goods and services. Consistent with the 2018 analysis, roughly 65 percent of both the Passenger and Cargo Operational Expenditures impact is direct, while 5 percent is indirect, and 30 percent is induced. Of the total Capital Impact, roughly 50 percent is direct, while 20 percent is indirect, and 30 percent is induced.

The impact in each spending category is felt beyond the immediate Hamilton region in the entirety of Ontario, creating a greater impact Province-wide due to the larger area and thus greater indirect and induced effects compared to Hamilton. The tables below provide a summary of the total impacts in both geographies of analysis.

Table ES-6: Total Impacts of Airport-Related Activity in Hamilton

Spending Category	Employment	Labor Income	Value Added	Industry Activity
Passenger Activity Total	1,190	\$83.4m	\$130.3m	\$393.0m
Passenger Operations	1,000	\$74.5m	\$119.3m	\$368.1m
Visitor Spending	170	\$7.9m	\$9.7m	\$22.2m
Concession Spending	20	\$968,000	\$1.3m	\$2.7m
Cargo Operations	2,770	\$205.5m	\$329.3m	\$1.0b
Capital Spending	760	\$50.8m	\$77.1m	\$154.3m
Total	4,720	\$339.7m	\$536.7m	\$1.5b

Source: ICF calculation based on IMPLAN¹ analysis. Employment is reported in terms of number of jobs.

Table ES-7: Total Impacts of Airport-Related Activity in Ontario

Spending Category	Employment	Labor Income	Value Added	Industry Activity
Passenger Activity Total	2,560	\$152.8m	\$261.4m	\$697.5m
Passenger Operations	2,300	\$148.8m	\$243.6m	\$657.3m
Visitor Spending	230	\$2.6m	\$15.7m	\$35.8m
Concession Spending	30	\$1.4m	\$2.1m	\$4.4m

¹ The IMPLAN model is created and maintained by the Minnesota IMPLAN Group (MIG). Municipalities across North America regularly use IMPLAN for a variety of applications, including assessing the impact of transportation policies and airports

Cargo Operations	6,340	\$410.5m	\$672.2m	\$1.8b
Capital Spending	910	\$59.7m	\$91.7m	\$184.9m
Total	9,810	\$623.0m	\$1.0b	\$2.7b

Source: ICF calculation based on IMPLAN analysis. Employment is reported in terms of number of jobs.

Introduction

John C. Munro Hamilton International Airport not only generates direct economic benefits for employees and visitors, it is also indirectly involved in generating regional employment and revenue through spending on airport operations, Capital Investments, airport employment, and Visitor Spending. In this analysis, ICF measures the economic impact of the Airport's Capital Expenditures, operational activity in terms of cargo and passenger employment, Concessions Spending, and Visitor Spending. Impacts are measured in terms of job creation, labor income, value added, and industry activity across Ontario, Canada, as well as specifically in the Hamilton CMA.

Since the previous economic impact assessment was conducted in 2018 (using 2017 inputs), the Airport has experienced a decline in passenger traffic, but significant growth in cargo volumes. The past two years have seen dramatic fluctuations in air travel and cargo volumes due to the global pandemic. Passenger activity, including Passenger Operations, Visitor Spending, and Concession Spending, all experienced significant increases from 2017 to 2019, when passenger activity reached its peak prior to the COVID-19 pandemic. In the years following 2019, however, passenger activity experienced a significant decline as the pandemic slowed passenger air travel. Cargo in recent years has come to play a significant role in Hamilton and Ontario's economies as it passes through the region on its way across the country and around the globe. The primary generator of air cargo volumes at the Airport continues to be Cargojet, Canada's largest dedicated air freighter operator, which uses the Airport as their primary hub. Hamilton Airport also supports scheduled international freight operations by the US integrators UPS and DHL, turboprop regional feeder service, and ad hoc charter freight operations. In response to a significant increase in shipping demand across the country, cargo operators continue to add capacity and increase their fleet sizes to support the growth, utilizing facilities onsite, such as DHL which recently opened expanded facilities at the Airport. ICF predicts that the continuous growth of cargo shipping demands will continue to impact Hamilton in coming years, further emphasizing its importance in terms of job creation and economic growth. Capital Spending as well experienced significant growth from 2017 to 2021 due to expansion projects by airport partners, such as DHL and KF Aerospace, both of which increased their footprint at the Airport in order to meet increased cargo shipping demands.

Study Methodology

Economic Impact Modeling

Airport spending initiates economic impact throughout the Hamilton and the Ontario region not only through direct purchase of goods and services from the surrounding economy but also through employment, infrastructure development, and tourism.

The Airport creates economic activities via multiple pathways, from operational purchases and capital spending to employing airport workers and transporting visitors to the region. Direct spending by the Airport and its visitors is the most straightforward economic impact. However, this direct spending represents only a portion of the Airport-generated impact. The full economic impact of the Airport on the regional economy, including indirect impacts in sectors beyond the initial spending categories, can be assessed through economic impact modeling.

Regional economic modeling is founded on the principle that industry sectors are interdependent: one industry purchases inputs from other industries and households (e.g., labor) and then sells outputs to other industries, households, and government entities. Therefore, economic activity in one sector causes an increased flow of money throughout the economy.

To understand the continued impact of the Airport on the regional economy today, multipliers determined through the 2018 impact study were applied to the current inputs in three key spending categories: Cargo

Operations, Passenger Activity, including Passenger Operations, Visitor Spending, and Concession Spending, and Capital Expenditures. The 2018 impact study relied on the IMPLAN model (version 3.1), which is still the current version of the model.² IMPLAN is widely used by municipalities and other entities throughout North America and thus the results of this analysis are comparable to other assessments.

The results of this analysis are reported using four commonly used metrics, consistent with best practices across economic impact analysis. A summary of each metric is provided below:

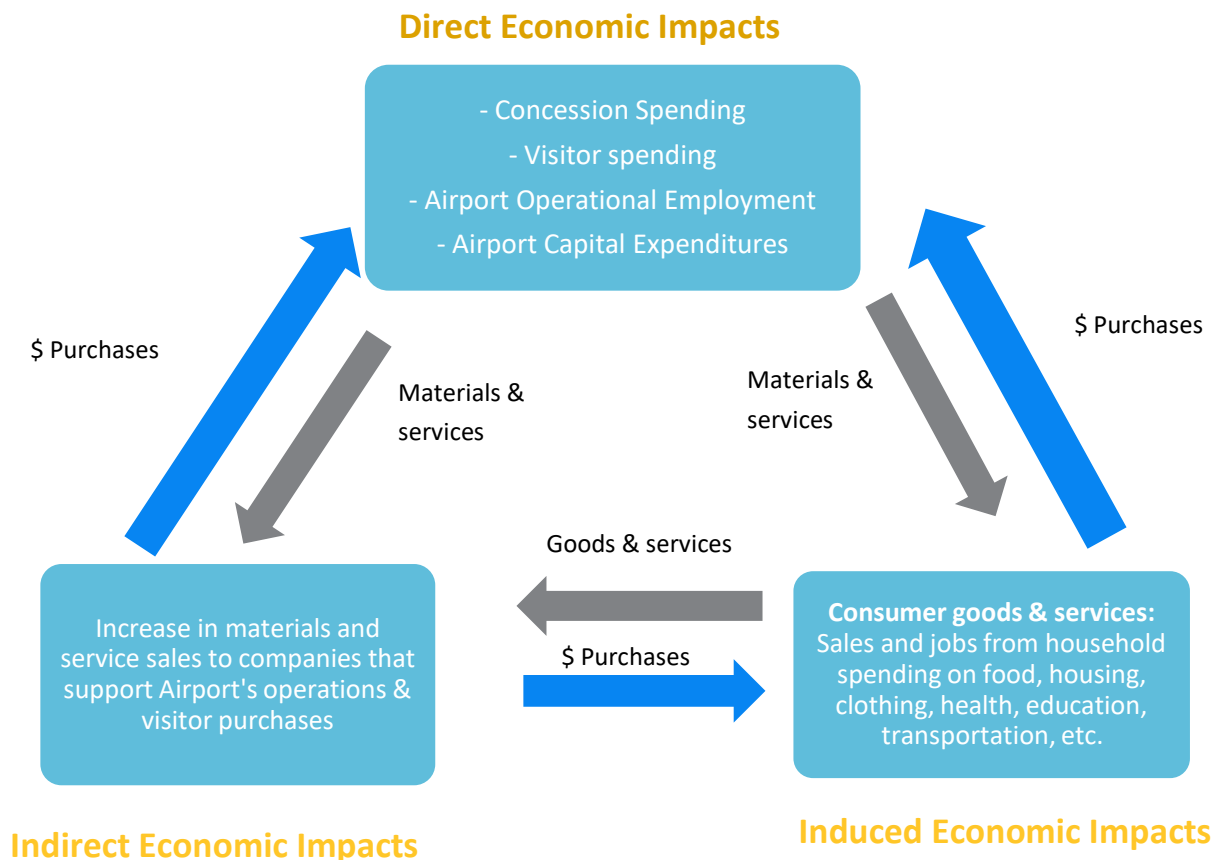
- **Employment:** Represents the jobs created in each industry, based on the output per worker for each industry.
- **Labor Income:** Includes all forms of employment income generated by the direct input, including employee compensation (wages and benefits) and proprietor income.
- **Value Added:** The net value of output, including labor income, indirect business taxes, and business income. It is also known as Gross Regional Product (GRP).
- **Industry Activity:** Represents the total value of industry activity generated by the direct spending.

The total impact is the sum of the multiple rounds of secondary indirect and induced impacts that remain in the region (as opposed to “leaking out” to other regions). IMPLAN then uses this total impact to calculate subsequent impacts such as total jobs created, and labor income and taxes generated. Figure 1 below provides a visual model of this process.

ICF relied on multiple data sources to determine the model inputs for each spending category. The methodology used to develop the model inputs is described in further detail in **Appendix A**.

² IMPLAN is created and maintained by the Minnesota IMPLAN Group (MIG). Municipalities across North America regularly use IMPLAN for a variety of applications, including assessing the impact of transportation policies and airports

Figure 1: Hamilton Airport's Economic Impact Under the IMPLAN Model



Findings

Summary of Economic Impacts

The tables below summarize the results from the economic impact analysis for each spending category. Table 1 presents the total economic impact of each spending category within Hamilton. Overall passenger activity in 2021, including Passenger Operations, Visitor Spending, and Concession Spending generated an impact of approximately 1,190 jobs, \$83.4 million in labor income, and \$393.0 million in industry activity. Operational employment related to cargo activity in 2021 had the greatest overall impact, supporting approximately 2,770 jobs, and generated approximately \$205.5 million in labor income, and \$1.0 billion in industry activity. Findings additionally indicate that 2021 Capital Expenditures generated an impact of approximately 760 jobs, \$50.8 million in labor income, and \$154.3 million in industry activity.

Table 1: Total Impacts of Airport-Related Activity, Hamilton

Spending Category	Employment	Labor Income	Value Added	Industry Activity
Passenger Activity Total	1,190	\$83.4m	\$130.3m	\$393.0m
Passenger Operations	1,000	\$74.5m	\$119.3m	\$368.1m
Visitor Spending	170	\$7.9m	\$9.7m	\$22.2m
Concession Spending	20	\$968,000	\$1.3m	\$2.7m
Cargo Operations	2,770	\$205.5m	\$329.3m	\$1.0b
Capital Spending	760	\$50.8m	\$77.1m	\$154.3m
Total	4,720	\$339.7m	\$536.7m	\$1.5b

Source: ICF calculation based on IMPLAN analysis. Employment is reported in terms of number of jobs.

Passenger Activities

Although passenger activities at the Airport increased significantly between 2017 and 2019, the COVID-19 pandemic caused a decline in passenger air travel and muted the positive growth that was previously felt. While Passenger Operations employment experienced an increase from 2017, Visitor Spending, and Concession Spending experienced a large decline. In total, passenger activity produced 1,180 jobs and \$391.0 million in industry activity in 2021. Passenger Operations grew 22 percent from 2017, employing 664 individuals in 2021 and generating approximately 1,000 jobs, \$74.5 million in labor income and \$368.1 million in industry activity in Hamilton. Visitor Spending declined, with the direct spend decreasing from \$39.9 million in 2017 to \$15.5 million in 2021 for a decline of 61 percent. Concession Spending experienced a similar decrease, with the direct spend dropping from \$4.9 million in 2017 to \$2.0 million in 2021 for a decrease of 60 percent. The tables below detail the change in Passenger Operations, Visitor Spending, and Concession Spending impacts from 2017 to 2021.

Table 2: Passenger Operations Impacts, Hamilton

Passenger Operations Impacts	Employment	Labor Income	Value Added	Industry Activity
2017	820	\$60.8m	\$97.4m	\$300.4m
2021	1,000	\$74.5m	\$119.3m	\$368.1m
Growth	180(+22%)	\$13.7m (+22%)	\$21.9m (+22%)	\$67.7m (+22%)

Source: ICF calculation based on IMPLAN analysis. Employment is reported in terms of number of jobs.

Note: Growth values may not compute due to rounding. 2017 Passenger Operations activity includes 50 percent of activity associated with both passenger and Cargo Operations

Table 3: Visitor Spending Impacts, Hamilton

Visitor Spending Impacts	Employment	Labor Income	Value Added	Industry Activity
2017	440	\$20.2m	\$25.1m	\$57.1m
2021	170	\$7.9m	\$9.7m	\$22.2m
Growth	-270 (-61%)	-\$12.3 (-61%)	-\$15.4m (-61%)	-\$34.9m (-61%)

Source: ICF calculation based on IMPLAN analysis. Employment is reported in terms of number of jobs.

Note: Growth values may not compute due to rounding

Table 4: Concession Spending Impacts, Hamilton

Concession Spending Impacts	Employment	Labor Income	Value Added	Industry Activity
2017	50	\$2.3m	\$5.1m	\$6.4m
2021	20	\$968,000	\$1.3m	\$2.7m
Growth	-30 (-60%)	-\$1.3m (-60%)	-\$3.8m (-60%)	-\$3.7m (-60%)

Source: ICF calculation based on IMPLAN analysis. Employment is reported in terms of number of jobs.

Note: Growth values may not compute due to rounding

Cargo Operations

Operational expenditures are the main driver of the Airport's economic impacts in Hamilton, representing almost 75 percent of the total operational impact of the Airport. In 2021, approximately 1,830 individuals were directly employed in cargo related operations, representing a 29 percent increase from 2017. The impact attributed to cargo related operations grew proportionally, with Cargo Operations generating an estimated 2,770 jobs, \$205.5 million in labor impact, and \$1.0 billion in industry activity in 2021. The growth in impact can be seen in Table 5 below.

Table 5: Cargo Operations Impacts, Hamilton

Cargo Operations Impacts	Employment	Labor Impact	Value Added	Industry Activity
2017	2,150	\$159.7m	\$255.8m	\$789.2m
2021	2,770	\$205.5m	\$329.3m	\$1.0b
Growth	620 (+29%)	\$45.8m (+29%)	\$73.5m (+29%)	\$210.8m (+29%)

Source: ICF calculation based on IMPLAN analysis. Employment is reported in terms of number of jobs.

Note: Growth values may not compute due to rounding. 2017 Cargo Operations activity includes 50 percent of activity associated with both passenger and Cargo Operations

Cargo Operations generated the most significant impact across all the spending categories and for each measure of output. This is in part due to the steady increase of international trade and the movement of goods in Hamilton and the Ontario region in recent years. Since 2019, shipments per day for DHL in Canada have increased by an average of 40 percent. This trend in goods movement can also be seen through the increase in investment by Hamilton based cargo operates to support its operations and cargo related activities.

DHL –New Facility Opens at Hamilton Airport

DHL opened a new facility at the Airport in September of 2021 after investing \$100 million CAD in its development. The new facility is four times larger than the company's original footprint and will bring about 150 new jobs to the area, allowing DHL to meet the sharp increase in shipping volumes experienced in recent years. The facility is approximately 238,000 square feet and is capable of processing up to 28,000 packages per hour.



Source: https://www.yahoo.com/now/dhl-express-officially-opened-doors-120000924.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cu229vZ2xlmNvbS88guce_referrer_sig=AQAAAASuleVFGztCQuDo_zsWQ7U1WCLc_vOHLA-14TYTcu_jbOtnG2IVX_twAV04PVgHk7L2Cv1AGZ8ouq5ml-1AA0u77Bw8aVd7MAA5aQdKfcmf1_nc2nncFv4B1uCdECIQhFu77TFEnh81uFu3C

Capital Expenditures

While the Airport received \$327.8 million in Capital Investments from 2017 to 2021, the point in time spending from 2021 is used to analyze the annual economic impact of the Airport. Specifically, capital expenditures, in 2021 were over \$84.1. The total spending is comprised of three investment categories and further defined by specific projects supported by airport partners. Table 6 details the breakdown of Capital Investment by TradePort, airport partners, and government infrastructure Investment.

Table 6: Direct Capital Spending, 2021

Investment Category	Spending Value
TradePort	\$22.8 Million
Airport Partners	\$61.1 Million
KF Aerospace	\$25.0 Million
DHL	\$30.0 Million
Cargojet	\$6.1 Million
Government Infrastructure	\$200,000
Total	\$84.1 Million

Source: Data provided to ICF by Airport staff

Total Airport Capital Investment since 2018 has been led by cargo facility development, with other airport infrastructure improvements benefitting all airport operators. Capital Spending impacts in 2021 represent a 1719 percent increase over 2017 investments, when the Airport realized only \$4.6 million in direct capital investments. The significant increase to \$84.1 Million in 2021 is mainly due to Tenants' investments to meet increasing cargo

shipping demands as well as the Airport's investment in the airfield rehabilitation and modernization project in order to support continued cargo and passenger traffic growth. A comparison of the economic impact generated by capital spending from 2017 to 2021 can be seen in Table 7.



KF Aerospace – Expansion at YHM

In 2019, KF Aerospace announced an expansion to their space at Hamilton International Airport that added 150,000 square feet and more than 275 jobs to the company's workforce.

The expansion included the development of a new aerospace training hub and the construction of a 70,000 square-foot hangar. Overall, the new development is expected to triple KF Aerospace's economic activity at the Airport

Source: <https://skiesmag.com/news/kf-aerospace-invests-in-hamilton/>

Table 7: Capital Spending Impacts, Hamilton

Capital Spending Impacts	Employment	Labor Income	Value Added	Industry Activity
2017	40	\$2.8m	\$4.2m	\$8.5m
2021	760	\$50.8m	\$77.1m	\$154.3m
Growth	720 (+1719%)	\$48.0m (+1719%)	\$72.9m (+1719%)	\$145.8m (+1719%)

Source: ICF calculation based on IMPLAN analysis. Employment is reported in terms of number of jobs.

Note: Growth values may not compute due to rounding

Ontario Impact

In addition to the impact benefited directly in Hamilton, activity at the Airport generates an impact that is felt in the broader Province. Table 8 demonstrates the impact in the entirety of Ontario. Including Hamilton's direct impact, capital expenditures supported an additional 910 jobs, \$59.7 million in labor income, and \$184.9 million in industry activity in Ontario, while passenger activity supported 2,560 jobs, \$152.8 million in labor income, and \$697.5 million in industry activity. Similar to the impact within Hamilton, Cargo Operations generated the largest impact across Ontario, supporting 6,343 jobs, \$410.5 million in labor income, and \$1.8 billion in industry activity. Overall, economic activity at the Airport supported 9,810 jobs, \$623.0 million in labor income, and \$2.7 billion in industry activity in Ontario.

Table 8. Total Impacts of Airport-Related Activity, Total Ontario

Spending Category	Employment	Labor Income	Value Added	Industry Activity
Passenger Activity Total	2,560	\$152.8m	\$261.4m	\$697.5m
Passenger Operations	2,300	\$148.8m	\$243.6m	\$657.3m
Visitor Spending	230	\$2.6m	\$15.7m	\$35.8m
Concession Spending	30	\$1.4m	\$2.1m	\$4.4m
Cargo Operations	6,340	\$410.5m	\$672.2m	\$1.8b
Capital Spending	910	\$59.7m	\$91.7m	\$184.9m
Total	9,810	\$623.0m	\$1.0b	\$2.7b

Source: ICF calculation based on IMPLAN analysis. Employment is reported in terms of number of jobs.

Pre-Pandemic Passenger Activity

In addition to analyzing 2021 activity at the Airport, ICF also looked at 2019 pre-COVID-19 passenger activity to understand the potential impacts of this activity across the City of Hamilton. Passenger activity, including Passenger Operations, Visitor Spending, and Concession Spending, all experienced significant growth between 2017 and 2019. In total, passenger activity produced 2,120 jobs and \$578.0 million in industry activity in 2019. Passenger Operations grew 55percent from 2017, employing 842 individuals in 2019 and generating approximately 1,270 jobs, \$94.5 million in labor income and \$467.1million in industry activity in Hamilton. Visitor Spending experienced similar growth, with the direct spend increasing from \$39.9 million in 2017 to \$62.3 million in 2019 for a growth of 56 percent. Concession Spending experienced the most dramatic increase, with the direct spend rising from \$4.9 million in 2017 to \$16.9 million in 2019 for an increase of 243 percent. The tables below detail the growth in Passenger Operations, Visitor Spending, and Concession Spending impacts from 2017 to 2019.

Table 9: 2019 Passenger Operations Impacts, Hamilton

Passenger Operations Impacts	Employment	Labor Income	Value Added	Industry Activity
2017	820	\$60.8m	\$97.4m	\$300.4m
2019	1,270	\$94.5m	\$151.4m	\$467.1m
Growth	450 (+55%)	\$33.7m (+55%)	\$54.0m (+55%)	\$166.7m (+55%)

Source: ICF calculation based on IMPLAN analysis. Employment is reported in terms of number of jobs.

Note: Growth values may not compute due to rounding. 2017 Passenger Operations impacts includes 50 percent of activity associated with both passenger and Cargo Operations

Table 10: 2019 Visitor Spending Impacts, Hamilton

Visitor Spending Impacts	Employment	Labor Income	Value Added	Industry Activity
2017	440	\$20.2m	\$25.1m	\$57.1m
2019	680	\$31.5m	\$39.0m	\$88.9m
Growth	240 (+56%)	\$11.3m (+56%)	\$13.9m (+56%)	\$31.8m (+56%)

Source: ICF calculation based on IMPLAN analysis. Employment is reported in terms of number of jobs.

Note: Growth values may not compute due to rounding

Table 11: 2019 Concession Spending Impacts, Hamilton

Concession Spending Impacts	Employment	Labor Income	Value Added	Industry Activity
2017	50	\$2.3m	\$5.1m	\$6.4m
2019	170	\$7.9m	\$17.6m	\$22.0m
Growth	120 (+243%)	\$5.6m (+243%)	\$12.5m (+243%)	\$15.6m (+243%)

Source: ICF calculation based on IMPLAN analysis. Employment is reported in terms of number of jobs.

Note: Growth values may not compute due to rounding

Comparison to 2021 Passenger Activity

As show in Table 12 below, passenger activity experienced a significant decrease from 2019 to 2021 that can be attributed to the onset of the COVID-19 pandemic. During this time, employment related to Passenger Operations decreased from 842 to 664, Visitor Spending decreased from \$62 million to \$15.5 million, and Concession Spending decreased from \$16.9 million to \$2.0 million. The impact generated by passenger activity similarly declined from 2019 to 2021. Overall, employment generated by passenger activity decreased by 44 percent, and industry activity decreased by 32 percent.

Table 12: Comparison of 2019 Passenger Activity Total Impact to Present

Passenger Activity	Employment	Industry Activity
2019 Impact	2,120	\$578.0m
2021 Impact	1,190	\$393.0m
Growth	-930 (-44%)	-\$185.0m (-32%)

Source: ICF calculation based on IMPLAN analysis. Employment is reported in terms of number of jobs.

Note: Growth values may not compute due to rounding

Appendix A: Detailed Discussion of Study Methodology

Introduction to the Model

To estimate the economic impacts of Hamilton International Airport on the local and regional economy, the project team used the multipliers derived during the 2018 economic impact assessment using the modeling software IMPLAN (version 3.1). IMPLAN is created and maintained by the Minnesota IMPLAN Group (MIG). Municipalities across North America regularly use IMPLAN for a variety of applications, including assessing the impact of transportation policies and airports. The IMPLAN model is a static input-output framework used to analyze the effects of an economic stimulus on pre-specified economic regions; in this case both Ontario and Hamilton. The model includes 536 sectors based on the North American Industry Classification System (NAICS). The model uses location-specific multipliers to trace and calculate the flow of dollars from the industries that originate the impact to supplier industries. These multipliers are thus coefficients that “describe the response of the economy to a stimulus (a change in demand or production).” IMPLAN’s outputs include three types of impacts:

- **Direct impacts**, which are impacts in the primary industries where spending by the Airport and its visitors are focused, such as operations, airport employment, lodging, and restaurant/food purchases.
- **Indirect impacts**, which are impacts in the industries that supply or interact with the primary industries, for example when Airport capital projects require the purchase of construction-related building materials.
- **Induced impacts**, which represent increased spending by workers who earn money due to the proposed projects, such as when airport staff use their wages at local restaurants.

Model Inputs

The total economic impact of the Airport is driven by three key spending categories:

- Passenger Activity
 - Passenger Operations
 - Visitor Spending
 - Concession Spending
- Cargo Operations
- Capital Spending

Input Methodology and Sources

Model inputs for each spending category were derived from multiple data sources, and therefore required different approaches for transitioning the direct activity data into IMPLAN multiplier-ready inputs. This section describes the data source(s) for each input category and any relevant assumptions and calculations made to prepare inputs for the model.

For all categories except Visitor Spending, the direct spending was assumed to initiate within Hamilton.

The multipliers for all input categories except direct employment associated with operations were originally modeled in IMPLAN at the SAM model value to account for leakage to other regions. Operational employment was run using 100% local purchase percentages. Setting the model’s local purchasing coefficients to 100% acknowledges that all on-airport and surrounding industry employment associated with operations occurred within Hamilton.

Operational Employment



Operational employment inputs were broken out into cargo operational activity and passenger operational activity. Employment data for Airport tenants and vendors was provided by Airport staff and totaled by ICF according to business type. In all, ICF accounted for 2,495 badged employees, 1,831 of which were in Cargo Operations and 664 were in Passenger Operations. In cases where employment pertained to both Cargo and Passenger Operations, values were split according to Airport staff feedback and included in the respective categories.

Visitor Spending

Using Stats Canada, ICF calculated the average spending ratio among five sectors: Transportation, Lodging, Dining, Gifts/Souvenirs and Entertainment. Multiplying the average visitor spend in each of the five sectors by the annual number of Hamilton visitors, ICF was able to develop direct Visitor Spending values.

Concession Spending

Concession Spending data was provided by Airport staff. Total Visitor Spending on concessions totaled approximately \$2.0 million.

Capital Expenditures

The input value for capital expenditures was provided by Airport staff. The figure provided is approximately \$84 million and covers spending from TradePort, Airport partners, and government infrastructure investment.

Study Impacts

Output Metrics

The impact of each spending category was calculated by applying the multipliers determined during ICF's 2018 analysis to each spending category input for 2021. The IMPLAN-derived multipliers were used to assess the economy-wide impacts of the direct spending associated with Airport capital expenditures, passenger activities (operational employment, Concession Spend and Visitor Spending) and Cargo operational Employment. The results of this analysis are reported using four commonly-used metrics, consistent with best practices across economic impact analysis. A summary of each metric is provided below:

- **Employment:** Represents the jobs created across the economy based on the output per worker for each industry.
- **Labor Income:** Includes all forms of employment income generated by the direct input, including employee compensation (wages and benefits) and proprietor income.
- **Value Added:** The net value of output, including labor income, indirect business taxes, and business income. It is also known as Gross Regional Product (GRP).
- **Industry Activity:** Represents the total value of industry activity generated by the direct spending.

To gain a better understanding of the drivers of impact, the results include impacts for each of the spending categories: Capital expenditures, Passenger Activities and Cargo Operations.

Downscaling Hamilton Results

Because IMPLAN does not have a Hamilton-specific model, IMPLAN's Ontario model was used. Hamilton impacts are presented as scaled down indirect impacts using outside data on Real GDP and employment suggesting Hamilton accounts for approximately 5% of the overall Ontario economy.