



QUANTIFYING THE ECONOMIC IMPACT OF A MANAGED GROWTH STRATEGY AND US PRE-CLEARANCE FACILITY AT BILLY BISHOP TORONTO CITY AIRPORT



Nieuport Aviation

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Contents

	Page
Foreword	i
0. Executive Summary	1
1. Introduction	7
2. The Potential for Passenger Growth at Toronto City Airport	9
3. GDP, Employment, and Tax Revenue Impacts	16
4. Wider Strategic Impacts	25
5. Conclusions	28
6. Appendix A: Calculation of Tax Impacts	29
7. Appendix B: Globalisation and World City Network Rankings 2020	32
8. Appendix C: Calculation of Economic Impacts (Assumptions)	33
9. Appendix D: Estimating Wider Economic Impacts (Connectivity Benefits)	34

Foreword

I was asked to review this report prepared by York Aviation and share my comments with the authors of this report. It was a privilege for me to do so for three reasons in particular. In late 1999 and the early part of 2000, I was part of the original group that helped create the business model that became Porter Airlines. During this period, we met weekly to try to figure out if there was a model that might succeed. I remember a meeting in March when one of the members of our group looked out the window of the room in which we met and pointed out below the Toronto City Centre Airport, which later became Billy Bishop Airport. That was the Eureka moment for our group and the creation of the business model. A second reason is that I got to meet, virtually, the consultants behind this Report. I am very impressed with their professionalism, diligence and openness to comments and advice. Finally, during the past 40 years I have learned the importance of the aviation industry – airports, airlines, manufacturers, maintenance companies – to the growth and success of regional, national and global economies. Transportation is one of the four critical industries for all economies and connectivity is critical for productivity and economic growth.

York Aviation, using leading-edge methodologies for evaluating the economic contributions of airports, especially for the role of connectivity, has clearly demonstrated the potential value and importance of investments to expand the capacity and quality of air services at Billy Bishop Airport. This study is the latest addition to many others, across Canada and around the world, that have always shown the importance of the aviation sector. The potential economic payoffs, including employment and generation of tax revenues, of the recovery, continued growth and expansion of Billy Bishop Airport will be significant. This potential is even more important now, as the city of Toronto, the province of Ontario and Canada recover from the Covid-19 recession.

The City of Toronto is on the cusp of becoming a major financial, technology and healthcare research centre. Billy Bishop Airport is a unique asset that will play a key role in helping put the city on the world stage in these areas. Very few cities around the world have a similar asset and opportunity.

Finally, the potential of Billy Bishop Airport and the magnitude of its contributions depend critically on whether the air services will attract the demand assumed in the report, and whether most, if not all, of the demand will be incremental to the growth at Toronto Pearson Airport. When we developed our traffic projections for Porter, even our most optimistic projections fell far short of the actual numbers. Within a few years of start-up, the actual number of passengers almost doubled the expected number, and during this time, traffic continued to grow at Pearson. I am confident that the projected recovery and growth at Billy Bishop Airport under the Managed Growth Strategy will materialize and will supplement the continuing recovery and growth at Pearson. Indeed, I believe, as happened during the first 10 years of Porter's existence, that the actual numbers may exceed the projections used by York Aviation, thus generating even greater positive impacts for the city, province and country.

Professor Fred Lazar

Associate Professor of Economics, Schulich School of Business, York University

0. Executive Summary

Overview of the Report

- 0.1. Nieuport Aviation, the owner-operator of the passenger terminal at Billy Bishop Toronto City Airport (referred to herein as Billy Bishop Airport, Toronto City Airport or the Airport), commissioned York Aviation, a leading consultancy specialising in airport economic impact assessment, to examine the potential economic impacts of the Airport's operations that could be unlocked through continued planned investments. The report has been reviewed and endorsed by Fred Lazar, Associate Professor of Economics at the Schulich School of Business, York University.
- 0.2. PortsToronto is the owner and operator of Billy Bishop Airport and accountable to the Canadian Federal government through Transport Canada. PortsToronto oversees all operations for the Airport including slots and has chosen to adhere to a Managed Growth approach to the Airport to ensure that it remains in balance with the surrounding community and infrastructure. The current Master Plan for Billy Bishop Airport (the 2018 Master Plan) was completed in November 2019 and outlines a 20-year vision for the Airport that is inclusive of growth, infrastructure investment and environmental sustainability.
- 0.3. The research considered the economic impact of Managed Growth at the Airport, in line with the 2018 Master Plan. This assumes modest investment is made in the development of air service markets, and, with this increased investment, market demand enables full utilization of the 246 slots per day proposed in the PortsToronto Master Plan by 2023. The demand growth and economic benefits are achieved through further investment in the Airport's infrastructure, primarily the planned US Customs and Border Pre-Clearance facility.

The Economic Impact of Managed Growth at Billy Bishop Airport in 2025

4.6 million
passengers



A net impact of
C\$4.8bn
in annual GDP



32,400
net jobs
across the
economy



C\$69M
investment in
infrastructure



3,350
total on-site
jobs



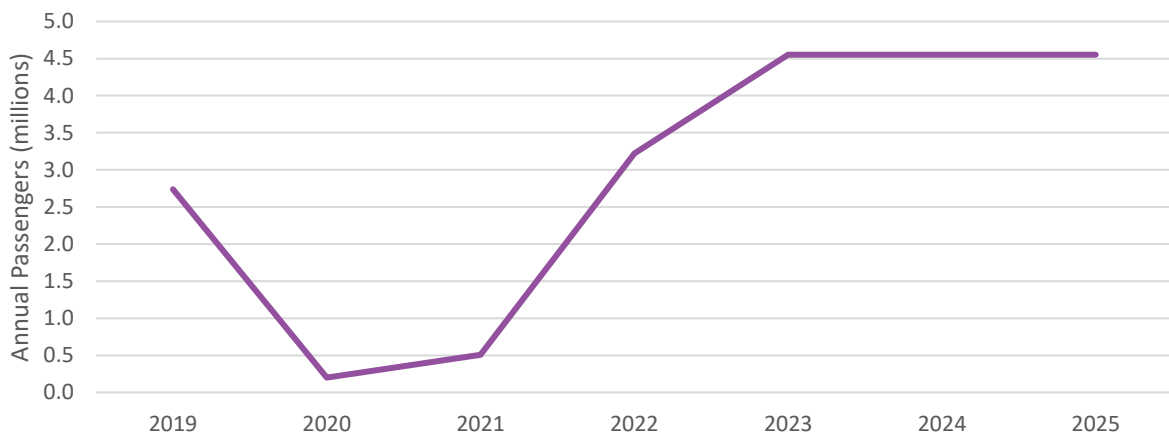
0.4. This report highlights the substantial economic opportunity on offer from future investment at the Airport under a Managed Growth strategy, which results in:

- a net impact of **C\$4.8 billion in annual GDP** by 2025;
- a net impact of **32,400 jobs** across the economy by 2025;
- a total impact on annual tax revenues from activities at the Airport of **C\$150 million** by 2025;
- a significant increase in transborder **connectivity to key business centres**, such as New York, Chicago, Boston, Philadelphia and Atlanta.

The Potential for Passenger Growth at Billy Bishop Airport

0.5. COVID-19 had a significant impact on the aviation industry in 2020 and continues to do so in 2021. Nieuport Aviation has prepared a demand forecast reflecting a level of fulfilment of the travel needs of the Toronto market through the Toronto City Airport in line with the Managed Growth Strategy described above. This is shown in Figure 0.1.

Figure 0.1: Managed Growth Passenger Forecast



Source: Nieuport Aviation.

- 0.6. Managed Growth at the Airport would see passenger volumes grow to 4.6 million passengers per annum, effectively fulfilling underlying market demand for travel to and from the US. This demand is accommodated more efficiently through investment in the construction of the planned US Customs and Border Pre-clearance (USCBP) facility, providing a faster and improved passenger experience, while relieving peak period capacity constraints at Toronto Pearson. However, even with this increased investment, the Airport's ability to meet market demand is constrained by the 246 slot per day limit in 2023. At this point passenger volumes stabilize due to full utilization of the available slots.
- 0.7. It is also important to note that recovery and growth at the Airport is expected to substantially increase its connectivity to major business destinations in the USA. This will assist in capturing a significant increase in the wider economic benefits through facilitating trade and foreign direct investment flows.
- 0.8. The accommodation of growth at the Airport through increased slot limits via the 2018 Master Plan and the investment in development of air services and required facilities over the next few years is likely to enable passenger growth additional to that which would otherwise be experienced amongst the Southern Ontario Airport Network. This is because Toronto Pearson is historically constrained during the peak hours and is pursuing a different business model, which sees growth coming through the operation of larger aircraft, a focus on facilitating transfer traffic, and a reduction in the number of smaller regional services, which the Toronto City the Airport is better placed to serve. This means that a significant proportion of the economic benefits enabled through further investment at the Airport are forecast to be net additional to Toronto and Ontario.

Construction Impacts

- 0.9. The estimated capital expenditure, as provided by Nieuport Aviation, based on the construction of additional infrastructure at the Airport passenger terminal under a Managed Growth strategy totals approximately C\$69 million. This investment includes the planned construction of a US Customs and Border Pre-Clearance (USCBP) facility, which is viewed as an important competitive factor for the Airport moving forward. This would also be alongside the other investments outlined in PortsToronto's 2018 Master Plan. This expenditure is likely to occur between 2021 and 2025. This expenditure will support GDP and employment in the economy during the period of construction.
- 0.10. Under the Managed Growth strategy, the expected capital expenditure will support approximately C\$65 million in GDP and an estimated 690 person years of employment over the period to 2025. Most of these impacts would accrue between 2022 and 2024, during the peak construction period. These impacts are a positive but transitory economic impact from future investment at the Airport.

Gross Impacts from On-Going Operations

- 0.11. Initially, we present our assessment of the economic impact under the Managed Growth Strategy in gross terms. These impacts show the total scale of the Airport's impact on the economy before considering the extent to which passenger demand might be served at other airports (referred to as the net impact of the Airport).

Gross Direct, Indirect and Induced (Operational) GDP and Employment Impacts

- 0.12. The on-going economic impact of the operation of the Airport (operational economic impact) is made up of direct, indirect, and induced effects. Direct impacts are employment and GDP supported by activities wholly or largely related to the operation of air services and airport facilities. Indirect impacts are made up of employment and GDP supported within the supply chain to the direct activities. Induced impacts are made up of employment and GDP supported in the economy by the expenditure of wages and salaries earned in relation to the direct and indirect activities.
- 0.13. Table 0.1 shows our estimates of these operational economic impacts in 2019, based on analysis of previous economic impact research at the Airport, and the future economic impacts as the Airport grows under the Managed Growth traffic forecast scenario described.
- 0.14. In 2019, before COVID-19 impacted on the market, we estimate the Airport supported a total of 4,450 jobs (4,050 person years) and C\$460 million in GDP through direct, indirect and induced impacts (total operational economic impacts).
- 0.15. Passenger growth is expected to return at the Airport in 2022. By 2025, we estimate that under the Managed Growth strategy, the Airport will support approximately 7,100 jobs (6,500 person years) and C\$760 million of GDP. This means that the operational economic impact of increased investment in infrastructure and air service development to enable future passenger growth will equate to C\$100 million in GDP and 1,000 jobs (900 person years) in 2025.

Table 0.1: Total Operational Economic Impacts

Year	2019	2021	2022	2023	2024	2025
GDP (C\$ m)	\$460	\$80	\$540	\$760	\$760	\$760
Jobs	4,450	850	5,100	7,150	7,150	7,100
Person Years	4,050	750	4,650	6,550	6,550	6,500

Figures may not sum due to rounding

Source: York Aviation.

Gross Wider GDP and Employment Impacts

- 0.16. In addition to the operational economic impacts, the Airport supports wider economic impacts resulting from the connectivity it offers to passengers travelling to / from Toronto and the surrounding areas. This connectivity enables users to travel for business or leisure more easily, efficiently, and quickly, which has benefits for the economies around the Airport. It enables firms to trade more efficiently, makes the city a more attractive proposition for foreign direct investors, improves productivity, enables competition, and makes the city more attractive to inbound tourists. The Airport's wider economic impact has been estimated based on research undertaken by IATA into the link between airport connectivity and GDP.
- 0.17. Table 0.2 shows our estimates of these wider economic impacts in 2019 and the future economic impacts of the Airport as it grows in line with the Managed Growth Strategy as described. In 2019, before COVID-19 impacted on the market, we estimate that the Airport supported a total of 10,900 jobs (9,750 person years) and C\$1.7 billion in GDP through wider economic impacts. By way of comparison, Toronto Pearson was estimated to support around C\$31 billion in wider economic impacts in 2016. By 2025, we estimate that the Airport will support 26,800 jobs (24,000 person years) and C\$4.3 billion of GDP. This reflects, particularly, the increased focus of the Airport on connectivity to key business centres in the US.

Table 0.2: Wider Economic Impact

Year	2019	2021	2022	2023	2024	2025
GDP (C\$ m)	\$1,650	\$350	\$2,700	\$4,250	\$4,250	\$4,250
Jobs	10,900	2,400	17,550	27,300	27,050	26,800
Person Years	9,750	2,150	15,750	24,450	24,200	24,000

Figures may not sum due to rounding

Source: York Aviation.

Total Gross GDP and Employment Impacts

- 0.18. The total GDP and employment impacts from the Airport's ongoing operations are set out in Table 0.3. This combines the operational economic impacts (direct, indirect and induced) with the wider economic impacts. Overall, this assessment clearly demonstrates the economic value of further investment in infrastructure and air service development to enable the Managed Growth Strategy. The airport will support approximately 33,900 jobs (30,500 person years) and C\$5.0 billion of GDP under the Managed Growth Strategy by 2025.

Table 0.3: Total GDP and Employment Impacts

Year	2019	2021	2022	2023	2024	2025
GDP (C\$ m)	\$2,110	\$430	\$3,240	\$5,010	\$5,010	\$5,010
Jobs	15,350	3,250	22,650	34,450	34,200	33,900
Person Years	13,800	2,900	20,400	31,000	30,750	30,500

Figures may not sum due to rounding.

Source: York Aviation.

Tax Revenue Impacts

- 0.19. The research has also considered the tax revenue that would accrue from economic activity at the Airport. In 2019, activities on site at the Airport supported the Canadian economy with around C\$95 million in tax revenues, the majority of which went to the Federal Government. Again, as the Airport grows in future, in line with the Managed Growth strategy, economic activities at the Airport will pay approximately C\$150 million in taxes by 2025.

Net Economic Impact of Future Managed Growth

0.20. If growth occurs at the Airport as a result of increased investment in infrastructure and air service development, this could potentially displace some passenger growth from elsewhere in the airport system around Toronto, notably from Toronto Pearson. This could result in some displacement of economic benefits from being delivered by Toronto Pearson to being delivered by the Toronto City Airport. The GDP and employment impacts described above are expressed in 'gross' terms, without allowing for any such displacement. Table 0.4 shows the total net economic impact provided by the Managed Growth Strategy, adjusted to allow for some displacement from Toronto Pearson. The position at Toronto Pearson in terms of peak hour slots, development strategy and its focus on transfer traffic, along with the Toronto City Airport's different role and product, suggest that most of the growth in the future will be largely additional. Hence, a relatively low displacement factor of 25% has been applied.

Table 0.4: Total Net GDP and Employment Impacts

Year	2019	2021	2022	2023	2024	2025
GDP (C\$ m)	\$2,100	\$440	\$3,000	\$4,740	\$4,760	\$4,780
Jobs	15,350	3,100	21,000	32,650	32,500	32,400
Person Years	13,800	2,800	18,900	29,400	29,250	29,150

Figures may not sum due to rounding.

Source: York Aviation.

0.21. By 2025, the Managed Growth Strategy will see the Airport supporting net GDP of around C\$4.8 billion and 32,400 jobs (29,150 person years).

Monetised Passenger Economic Welfare Benefits

0.22. The Managed Growth Strategy will also result in economic welfare benefits to passengers, notably time savings for transborder passengers in immigration processing stemming from investment in a USCBP. Journey time savings will also accrue to passengers using the Airport given its convenient and quick access to downtown Toronto, further compounded by fast processing times on departure and arrival. These benefits position the Airport as a convenient gateway for Toronto's air passengers, complementing services available at Toronto Pearson. These monetised time savings for passengers using Billy Bishop Airport rather than Toronto Pearson are assumed to accrue to the additional passengers. These are set out in Table 0.5.

Table 0.5: Monetised Passenger Time Savings

	2019	2021	2022	2023	2024	2025
Pre-Clearance Savings (C\$ m)	\$0	+\$1	+\$8	+\$14	+\$14	+\$14
Journey Time Savings (C\$ m)	\$0	+\$1	+\$9	+\$13	+\$12	+\$11
Processing Time Savings (C\$ m)	\$0	+\$0	+\$3	+\$4	+\$4	+\$4
Total (C\$ m)	\$0	+\$2	+\$21	+\$31	+\$30	+\$28

Figures may not sum due to rounding

Source: York Aviation.

0.23. This demonstrates that, by 2025, time savings for passengers would be valued at C\$28 million each year, of which C\$14 million each year would be derived from time savings from the Pre-Clearance facility alone.

0.24. We would also note that there may be additional economic welfare savings from reduced carbon costs associated with the expansion of activities at the Airport. These would come from shorter- journeys to and from the Airport as compared to Toronto Pearson and, potentially, from the reduced contrail-related carbon emissions associated with the aircraft operating at the Toronto City Airport compared to Toronto Pearson. These effects are not, however, estimated here.

Wider Strategic Impacts

- 0.25. There are also wider ‘strategic’ impacts arising from potential increased investment at the Airport which cannot necessarily be quantified but are nevertheless highly significant in supporting the local and regional economy around Toronto and promoting the city as a place to do business.
- 0.26. ‘Shaping Our Future: A Playbook for Rebooting and Reimagining the Regional Economy in Ontario’s Innovation Corridor’ identifies a 10-point action plan to “reboot and reimagine” the Innovation Corridor economy including trade and foreign direct investment strategies. Ease of access to markets will undoubtedly play a significant supporting role in this strategy and growth at Billy Bishop Airport can make an important contribution to this.
- 0.27. Inward investment to Toronto is promoted by ‘Toronto Global’, an arms-length organization representing municipalities in the region, working with partners in the Ontario and Canadian governments. Toronto Global identifies key reasons for companies to locate in Toronto which illustrate its increasingly ‘international’ focus. It also highlights recent success stories about companies locating in Toronto whose focus is clearly international, illustrating the continuing trend for Toronto to become a globally connected city. A growing Toronto City Airport with a larger, more business centre focussed route network can only add to the city’s increasing attractiveness as a place to live and work.
- 0.28. The revitalization of Toronto’s waterfront is the largest urban redevelopment project currently underway in North America and will create approximately 40,000 new residences and 40,000 new jobs, complementing the attributes of a global city. The Waterfront project is another step in the growing international focus and status of the City of Toronto, to which growth at Billy Bishop Airport can also make an important contribution.

Conclusion

- 0.29. Investment in the future growth of the Airport has an important role to play in supporting the revitalisation and recovery of Toronto’s economy.
- 0.30. There are significant quantifiable economic benefits from increased investment in the Airport’s infrastructure and air service development. The construction programme associated with the Managed Growth Strategy will support approximately C\$65 million in GDP and around 690 person years of employment over the period to 2025.
- 0.31. In 2025, the total gross GDP and employment impacts from ongoing operations, in addition to the further positive economic impact that would be generated under the Managed Growth strategy, totals approximately C\$5 billion in GDP and support for approximately 33,900 jobs (30,500 person years). Furthermore, there will be an associated total annual tax revenue from companies based on-site of approximately C\$150 million.
- 0.32. If some displacement of traffic from Toronto Pearson is assumed, the net economic impacts are still highly significant. The Airport’s total net contribution to GDP is estimated to be around C\$4.8 billion and around 32,400 jobs (29,150 person years) in 2025.
- 0.33. There are also wider ‘strategic’ impacts arising from future growth which cannot necessarily be quantified but are nevertheless highly significant in supporting the local and regional economy around Toronto and promoting the city as a place to do business.

1. Introduction

Context

- 1.1. Nieuport Aviation, the owner-operator of the passenger terminal at Billy Bishop Toronto City Airport (referred to herein as Billy Bishop Airport, Toronto City Airport or the Airport), commissioned York Aviation, a leading consultancy specialising in airport economic impact assessment, to examine the potential economic impacts associated with further investment at the Airport, in line with PortsToronto's Managed Growth Strategy in the Master Plan. PortsToronto is the owner and operator of Billy Bishop Airport and accountable to the Canadian federal government through Transport Canada. PortsToronto oversees all operations for the Airport including slots and has chosen to adhere to a Managed Growth approach to the Airport to ensure that it remains in balance with the surrounding community and infrastructure. The current Master Plan for the Airport (the 2018 Master Plan) was completed in November 2019 and outlines a 20-year vision for the Airport that is inclusive of growth, infrastructure investment and environmental sustainability.
- 1.2. The report has been reviewed and endorsed by Fred Lazar, Associate Professor of Economics at the Schulich School of Business, York University.

Scope of the Work

- 1.3. The assessment considers the economic impact of the Airport in terms of a series of Gross Domestic Product (GDP), employment and tax revenue effects, including the direct, indirect, induced, and wider economic impacts. The assessment has considered the potential impact of a Managed Growth strategy during the construction phase and then, following completion of the works, through ongoing operations.
- 1.4. The report also considers, in overview, the economic welfare benefits to passengers generated in the form of monetised time savings to passengers from using Billy Bishop Airport rather than Toronto Pearson Airport. We have also considered the wider strategic benefits that could result from future growth in passenger throughput at the Airport and how that growth can support the city of Toronto's wider economic growth objectives and recovery from the effects of the COVID-19 pandemic.
- 1.5. A passenger forecast associated with the Managed Growth Strategy has been provided by Nieuport Aviation and is set out in Section 2. Nieuport Aviation has a high degree of confidence in this forecast, and it forms the basis for future business planning.
- 1.6. The data used in this analysis have all originated from secondary sources, such as the 2014 and 2017 Economic Impact of the Airport undertaken by InterVistas Consulting, economic data from Statistics Canada and other governmental bodies, including tax and tourism authorities. In addition, it draws on York Aviation's extensive knowledge of the economic impact of airports and air services and in-depth discussions with Nieuport Aviation regarding the nature of the opportunity and its potential effect on the market in Toronto.

About York Aviation

- 1.7. York Aviation is one of Europe's leading specialist aviation consultancies. It is based in the United Kingdom. It provides expert advice to a wide range of organisations including airport operators, airlines, financial institutions, government agencies and regional authorities. The services which York Aviation provides include:
 - aviation policy advice;
 - market assessment and demand forecasting;
 - airport business strategy and business planning;
 - airport master planning;
 - airport capacity assessment, development and planning advice;
 - airport transaction support: privatisation, funding and due diligence;
 - route development and route traffic forecasting;

→ airport economic and social impact assessment and economic appraisal.

- 1.8. York Aviation’s staff comprises a mixture of former aviation industry professionals, with direct experience of managing and running the operation of major UK airports, and career consultants, specialising in key relevant fields such as economics, market assessment and airport capacity development. York Aviation has leveraged its unique skill base to become one of the leading consultancies in Europe specialising in assessing, understanding, capturing and communicating the economic impact of airports, air services and air service connectivity.
- 1.9. Specifically in relation to assessing the economic impact of the Airport, we would highlight our previous experience in assessing the economic impact of airports across Europe for ACI EUROPE and our extensive work for London City Airport in this area, which shares many of the same characteristics as Billy Bishop Airport.

Structure of the Report

1.10. The report is structured as follows:

- in Section 2, we consider future passenger growth at Billy Bishop Airport and the relationship with growth at Toronto Pearson Airport;
- in Section 3, we present our estimates of the GDP, employment and tax effects associated with Managed Growth as identified in Section 2;
- in Section 4, we examine the wider ‘strategic’ impacts of future passenger growth at the Airport and how these can support the local and regional economy around Toronto;
- in Section 5, we present our conclusions in relation to the potential economic impact of future growth in passenger demand at the Airport.

2. The Potential for Passenger Growth at Billy Bishop Airport

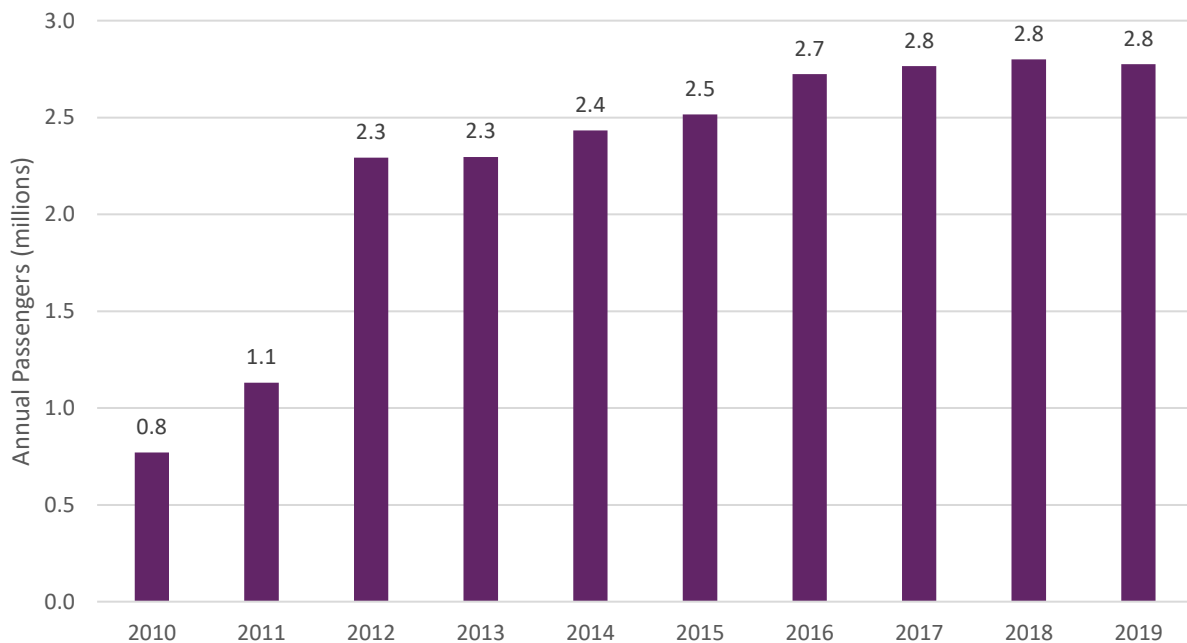
Introduction

- 2.1. In this section, we consider the short to medium term passenger forecasts for the Airport under the Managed Growth Strategy. We also consider the Airport's relationship with Toronto Pearson Airport¹ and the extent to which the forecast growth is likely to be additional across the Toronto market. This is important in relation to the later consideration of the net economic impacts of future passenger growth at the Airport.

Historic Passenger Growth

- 2.2. Porter Airlines commenced commercial operations at the Airport in 2006, and since that time the Airport has grown strongly to become an important part of the air transport market in Toronto (see Figure 2.1). Passenger traffic grew rapidly between 2006 and 2012, reaching around 2.3 million passengers per annum. Since that time, growth has been steady, with passenger throughput reaching around 2.8 million passengers per annum in 2019.

Figure 2.1: Historical Traffic at the Airport

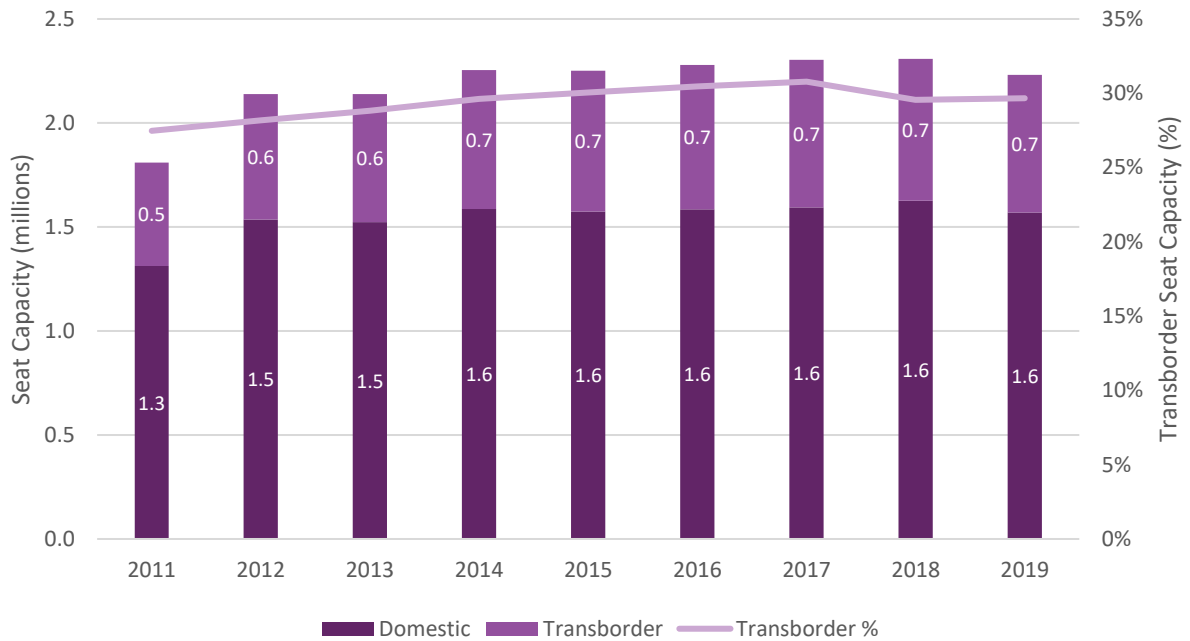


Source: ACI Airports, PortsToronto.

- 2.3. Figure 2.2 shows domestic and transborder departing seat capacities at the Airport since 2011. Over the period, the Airport has maintained a relatively even balance between domestic and transborder capacity, reflecting its role as a city airport offering regional connectivity to key centres.

¹ Hamilton and Waterloo airports have not been considered in detail in this analysis as it is unlikely that they would act as competitors to the Toronto City Airport given its specific connectivity offer and city centre focus.

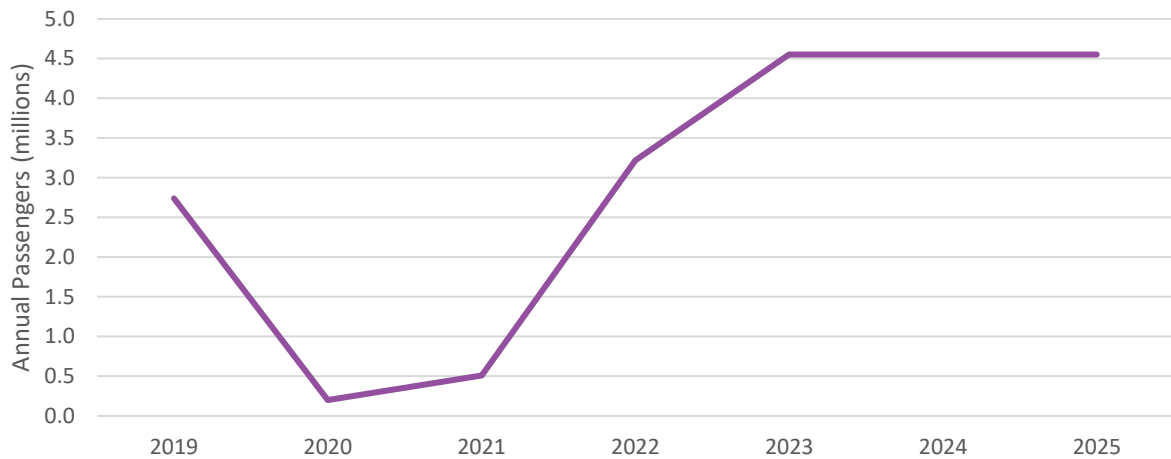
Figure 2.2: Domestic and Transborder Departing Seat Capacity since 2011



Source: OAG.

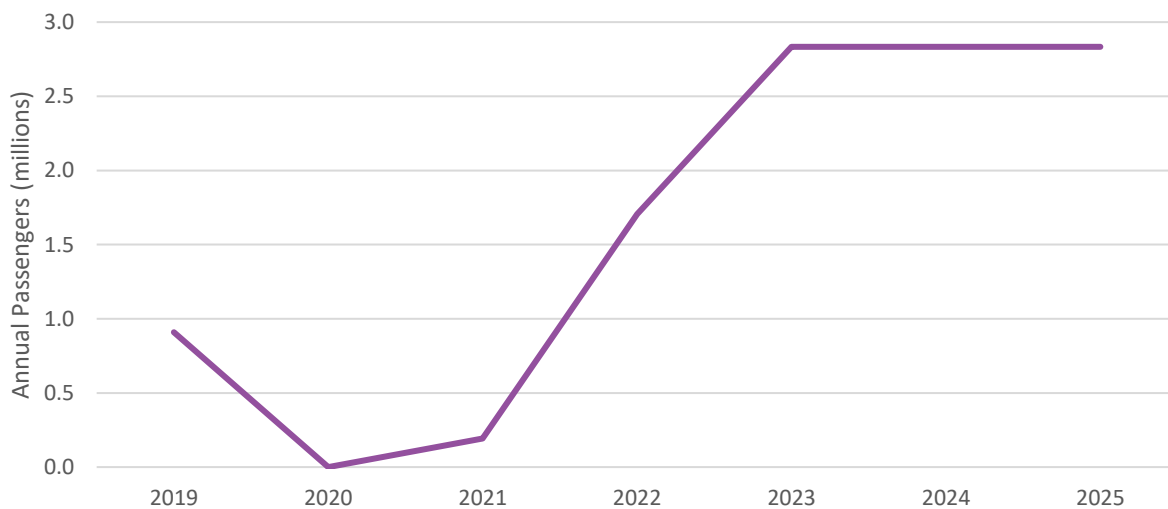
Headline Passenger Forecasts for the Airport

- 2.4. COVID-19 had a significant impact on the aviation industry in 2020 and continues to do so in 2021. The impacts that COVID-19 has had, and continues to have, on the aviation industry is reflected in the future forecasts for the Airport. What is important going forward, however, is how the industry can recover from the effects of the downturn and what actions can be taken by airports and airlines that will support and advance that recovery. The Airport is currently working with a range of airlines to secure recovery and increased air services to meet the travel needs of the Toronto market. For example, Connect Airlines, a new airline start-up, is currently set to launch flights from the Airport in March 2022 to US Midwestern and East Coast cities with Q400 turboprop aircraft.
- 2.5. Further investment in the Airport’s infrastructure and in air service development is seen as essential to driving growth at the Airport. It will provide capacity for growth, bring new airlines to the Airport and ensure that the Airport can maximise its locational advantage by offering maximum convenience for passengers. Nieuport Aviation has prepared a demand forecast that reflects a balanced level of fulfilment of the travel needs of the Toronto market through the Airport.
- 2.6. Under this Managed Growth Strategy, the Airport grows in line with the PortsToronto’s 2018 Master Plan. Modest investment is made in market development of air service markets and with this increased investment, market demand enables full utilization of the 246 slots per day proposed in the PortsToronto Master Plan by 2023. This results in some investment in its infrastructure (e.g., a US Customs and Border Pre-clearance facility) to accommodate this growth and facilitate the economic benefits associated with it.
- 2.7. The passenger forecast for the Managed Growth strategy is shown in Figure 2.3. The effect of increased investment in the Airport’s infrastructure and in air service development can be observed clearly, seeing the Airport handle 3.2 million passengers in 2022. With this increased investment, the Airport becomes constrained by the 246 slot per day limit in 2023. At this point, the Managed Growth Strategy sees the Airport handling around 4.6 million passengers per annum and this remains constant moving forward.

Figure 2.3: Passenger Forecasts Under Managed Growth

Source: Nieuport Aviation.

- 2.8. Particularly important within the forecast is the growth of transborder traffic, which forms a significant proportion of overall growth, as can be seen from Figure 2.4 below.

Figure 2.4: Transborder Route Passenger Forecasts Under Managed Growth

Source: Nieuport Aviation.

- 2.9. Transborder passenger traffic is forecast to be around 2.8 million passengers in 2025, making up around two thirds of total passenger throughput. This illustrates the importance of transborder traffic to recovery and growth and the importance of further investment at the Airport, notably in the potential US Customs and Border Pre-Clearance (USCBP) facility, to enable that growth. It also shows how the Airport is expected to change in character in the future. Historically, it has been dominated by domestic traffic, but further investment has the potential to reverse the balance, enabling the Airport to be much more focussed on flights to and from the United States. This shift in focus over time is also, in part, a reflection of the fact that many domestic destinations that are within range of the aircraft type operating at the Airport are already served. There are, however, substantially more transborder opportunities.

The Future Route Network

2.10. The forecast future route network resulting from Managed Growth at the Airport is set out in Table 2.1. This is compared to the route network served in 2019. For information, the table also shows the Globalisation and World City Network (GaWC)² ranking of each of the cities in the future forecast route network. This provides a high-level assessment of the importance of each destination as a business destination. The forecast route network reinforces the point made above, that the Airport is to change in character, becoming substantially more focussed on transborder markets that are significant business destinations. This change will ultimately drive growth in the wider economic benefits supported by the Airport.

Table 2.1: The Forecast Future Route Network

	2019 Destinations	2025 Destinations Under Managed Growth	GaWC Ranking
Domestic	Montreal	Montreal	Alpha-
	Ottawa	Ottawa	Gamma
	Thunder Bay	Thunder Bay	
	Quebec City	Quebec City	Sufficiency
	Sudbury	Sudbury	
	Windsor	Windsor	
	Halifax	Halifax	Sufficiency
	Mont Tremblant		
	Muskoka	Muskoka	
	Sault Ste Marie	Sault Ste Marie	
	Niagara		
	Timmins	Timmins	
Transborder	New York (Newark)	New York (Newark & La Guardia)	Alpha++
	Boston	Boston	Alpha-
	Washington DC (Dulles)	Washington DC (Dulles)	Beta+
	Chicago (Midway)	Chicago (Midway & O'Hare)	Alpha
	Melbourne		
	Myrtle Beach		
		Minneapolis	Beta-
		Philadelphia	Beta
		Raleigh	High Sufficiency
		Baltimore	Gamma+
		Detroit	Beta-
		Atlanta	Beta+
		Nashville	Gamma
	Pittsburgh	Sufficiency	

Source: Nieuport Aviation and York Aviation.

The Relationship with Toronto Pearson Airport

2.11. It is important to understand the extent to which growth in the future is likely to be additional to the overall market in Toronto. In other words, if the Airport is not able to grow, would growth simply be transferred to Toronto Pearson Airport?

² The Globalisation and World Cities Network undertakes detailed research into the world city status of cities around the world, examining the location patterns of key advanced service firms. This analysis provides a useful indicator of the economic importance of destinations. It ranks cities between Alpha (high) and Sufficiency (low). The latest GaWC rankings from 2020 are set out in Appendix B.

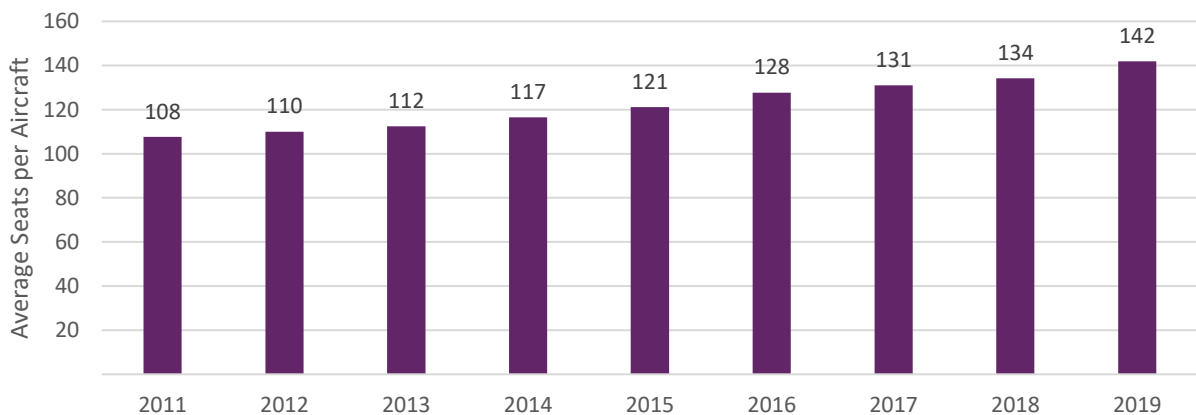
2.12. In assessing this, it is important to note that Billy Bishop Airport provides a very different proposition to Toronto Pearson Airport and is likely to be used by a different type of passenger to some degree. Billy Bishop Airport is a city centre airport with fast transit times that will be particularly attractive to business users, whose time is at a premium, and to those making single day trips without overnight stays. In this respect, the Airport focuses on regional, short-haul air connectivity, complementing Toronto Pearson's focus on developing its international hub capability and long-haul routes.

2.13. Toronto Pearson's Master Plan refers to the Southern Ontario Airport Network (SOAN) and the way in which the various airports in Southern Ontario need to work together to provide the right sort of capacity in the right place:

*"In managing these dimensions of growth, Southern Ontario must prepare for an increase in aviation requirements that will be too intense and wide-ranging for any single airport to handle...Recognizing the need to meet these challenges, Toronto Pearson and 10 other airports [including Billy Bishop Airport] have formed the Southern Ontario Airport Network (SOAN). By working together as a coordinated system, we'll be better positioned to support the social and economic needs of the region, the province and all of Canada."*³

2.14. Furthermore, Toronto Pearson is already constrained in the peak hours, as hub (transfer) activity concentrates in banks to facilitate connections. The concentration on connecting traffic means a reduction in seats available at these key travel times to serve the needs of local origin and destination passengers. Smaller aircraft operating shorter segments are consequently likely to be 'squeezed out'. This can be seen in the rapid increase in average aircraft size in recent years at Toronto Pearson, as illustrated in Figure 2.5, and the stagnation of capacity growth on domestic and US routes, as illustrated in Figure 2.6.

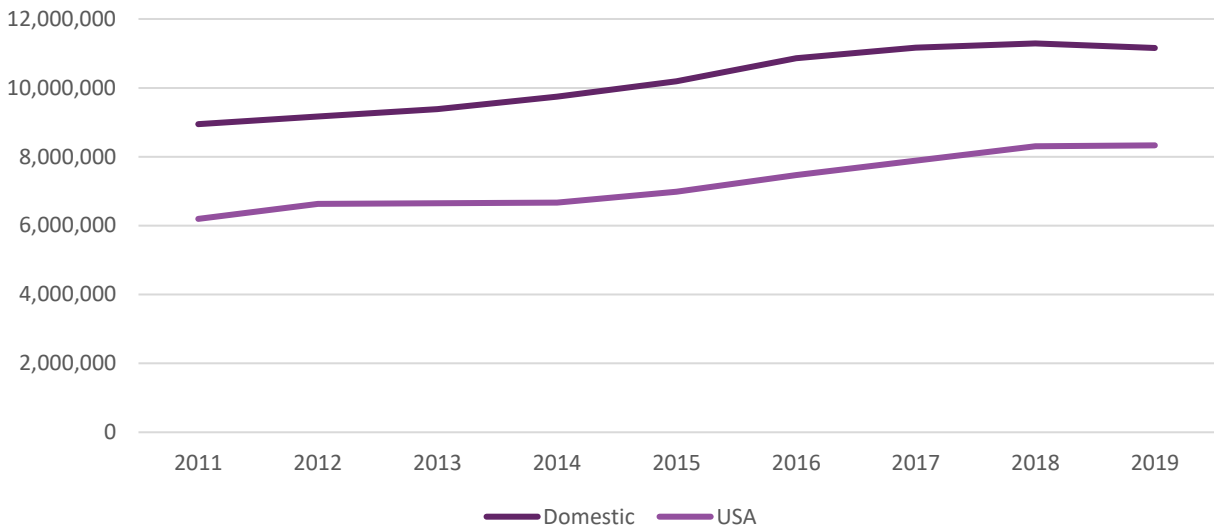
Figure 2.5: Average Aircraft Size Trend at Toronto Pearson



Source: OAG.

³ Toronto Pearson International Airport Master Plan 2017-2037, page 117.

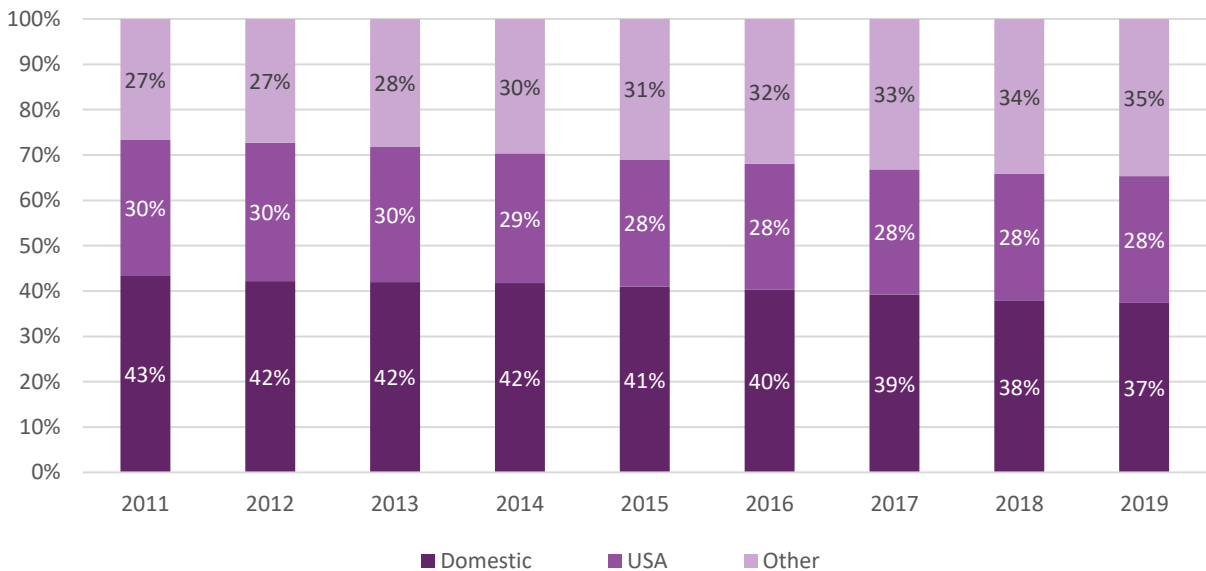
Figure 2.6: One Way Seat Capacity at Toronto Pearson Airport on Domestic and US Routes



Source: OAG.

2.15. Figure 2.7 illustrates how Toronto Pearson is increasingly focussing on longer haul markets to drive growth, again reflecting optimisation of capacity. Domestic and US routes have been falling as a percentage of total seat capacity for some time, as the airport has focussed on the development of connections to other destinations further afield, in line with its position as Toronto’s international airport. This pattern is likely to be reinforced as more overseas long-haul airlines seek to increase services to Toronto Pearson Airport, notably the three Gulf airlines and Turkish Airlines. This pattern also reflects Toronto Pearson Airport’s hub role, with the airport focussing on feeding short haul traffic onto its expanding long-haul network at the expense of origin and destination traffic, which can instead be served at Billy Bishop Airport.

Figure 2.7: Seat Capacity Share by Geographic Area at Toronto Pearson Airport



Source: OAG.

2.16. Overall, this analysis suggests that the anticipated growth at the Airport is likely to be largely additional in the Toronto market in the coming years. The Toronto Pearson's focus on expanding international services, the constraints in peak periods and its hub role, mean that the Toronto City Airport is an important alternative location for domestic and regional transborder services for incumbent airlines and new airlines seeking to grow the Toronto market. We discuss the implications of this for the net economic impact of potential growth on the Ontario economy in Section 4.

Conclusions

2.17. Further investment in airport infrastructure and in air service development is expected to be a significant spur to future growth at the Airport, in particular giving confidence to airlines to develop a broader and more extensive range of transborder services, providing capacity and maximising the Airport's locational advantages.

2.18. Managed Growth at the Airport is expected to be largely additional to growth at Toronto Pearson Airport. Toronto Pearson's existing constraints at peak times, its strategy of focussing on longer haul markets and its focus on transfer traffic at the expense of origin and destination traffic, suggest that the Managed Growth Strategy at Billy Bishop Airport would be complementary to growth at Toronto Pearson Airport and not significantly displace demand. Billy Bishop Airport offers an opportunity for incumbent airlines to grow the domestic and regional origin and destination market, while Toronto Pearson Airport focuses its capacity on supporting international services and bringing new overseas airlines to the market.

3. GDP, Employment, and Tax Revenue Impacts

Introduction

- 3.1. In this section, we set out our estimates of the GDP, employment and tax effects associated with the Managed Growth Strategy at the Airport, as set out in Section 2. These include the impacts relating to both the construction of the necessary infrastructure to support this strategy and then its ongoing operation through to 2025.
- 3.2. Initially, in this section, the ongoing operational economic impacts set out are expressed in gross terms. These gross economic impacts reflect the total economic activity supported by the Airport. This assessment is made before making any adjustment to allow for potential displacement of passenger demand from Toronto Pearson Airport, which would result to some degree in economic impacts simply being delivered by Billy Bishop Airport rather than Toronto Pearson Airport. The net impacts of the Managed Growth Strategy, following adjustment for the displacement of passenger demand, are set out later in the section.
- 3.3. We also set out our estimates of the monetised time benefits to travellers of using the Toronto City Airport.

Construction Impacts

- 3.4. The estimated capital expenditure, as provided by Nieuport Aviation, on the construction of additional infrastructure at the Airport to deliver the Managed Growth Strategy totals approximately C\$69 million. These investments include the potential construction of a USCBP facility at the Airport, which is viewed as an important competitive factor for moving forward. This expenditure is likely to occur between 2021 and 2025. This expenditure will support GDP and employment in the economy during the period of construction.
- 3.5. We have estimated the GDP and employment impacts supported by the construction of the facility using total GDP and jobs multipliers from Statistics Canada. The multipliers relate specifically to the impact of the non-residential building construction sector in Ontario.
- 3.6. Table 3.1 highlights that, under the Managed Growth Strategy at the Airport, the expected capital expenditure will support approximately C\$65 million in GDP and around 690 person years⁴ of employment over the period to 2025. Most of these impacts would accrue between 2022 and 2024, during the peak construction period. These impacts are a positive but transitory economic impact from investment in future passenger growth at the Airport.

Table 3.1: Construction Impacts with the Managed Growth Strategy

	2019	2020	2021	2022	2023	2024	2025	Total
GDP (C\$ m)	-	-	\$10	\$10	\$20	\$20	\$5	\$65
Person Years	-	-	120	120	200	200	50	690

Note: Rows may not sum due to rounding.

Source: York Aviation & Nieuport Aviation.

Gross Impact from Ongoing Operations

- 3.7. The economic impacts from ongoing operations at the Airport have been estimated based on a well-recognised, industry standard analytical framework for assessing economic impact.

⁴ A person year of employment represents the number of hours of full-time work in a one-year period typically worked by an individual. GDP reflects the economic activity generated by person years.

Definition of Effects

- 3.8. Table 3.2 below explains each component of the economic impact and outlines examples of these impacts. The impacts can be broadly distinguished between operational impacts and wider impacts. Operational impacts are those that result from the actual provision of air services and related functions at the airport and are composed of direct, indirect, and induced impacts. Wider economic impacts are benefits to the economy that flow from the connectivity that the Airport provides to passengers travelling to / from Toronto and surrounding areas. They reflect the role that an airport plays in facilitating trade, foreign direct investment, competition, agglomeration and tourism, which is ultimately reflected in the level of productivity in the economy.

Table 3.2: Definitions of Economic Impacts

<i>Type</i>	<i>Definition</i>	<i>Examples</i>
Direct	Employment and GDP supported by activities wholly or largely related to the operation of the air services and located at the airport or in the immediate vicinity. Essentially, this is the airport related economic activity that occurs at the site.	Companies where effects might be felt include the airport company, airlines, handling agents, aircraft maintenance and engineering, terminal retailing and cleaning or car hire firms.
Indirect	Employment and GDP supported in the supply chain to the direct activities. The companies that generate the direct impacts need to buy goods and services from others to produce their output, who in turn have their own supply chains. These purchases in turn support jobs and GDP in a wide range of sectors	The types of economic activity that might be included is broad ranging. Examples might include utilities and energy, advertising, manufacturing, professional services or construction.
Induced	Employment and GDP supported in the economy by the expenditure of wages and salaries earned in relation to the direct and indirect activities. People working in the companies in the direct and indirect effects spend money in their local economies. This expenditure injection also supports GDP and jobs.	Impacts are likely to be felt across all sectors. Particular beneficiaries might include general retailing, food and beverage, leisure activities, utilities, banking and finance costs and insurance.
Wider	Employment and GDP supported in the economy by air connectivity. This influences the ability of the broader economy to trade, attract foreign direct investment, compete and attract tourism. It is ultimately reflected in the level of productivity in the economy.	Impacts are felt across a wide range of sectors but will be mainly focussed in sectors with exposure to the international economy.
Tax	The additional government receipts resulting from the increase in economic activity stimulated by the additional air services, primarily based on the direct on-site activities. The end recipients are both the federal government, provincial government, and municipal government.	Examples of taxes included are harmonized sales tax, personal income tax, corporate income tax, operating income tax.

Direct Impact

- 3.9. Our estimate of direct on-site employment at the Airport has been developed based on previous research undertaken by InterVistas Consulting in 2014 and 2017. We have identified the employment density at the Airport in each study and estimated the extent of labour productivity growth relating to the increase in passenger throughput between the two years. This has then been used to estimate a baseline direct employment impact in 2019.
- 3.10. The direct GDP impact associated with the on-site employment has been derived using data from Statistics Canada. We have estimated the GDP per job for relevant sectors in Ontario using data on GDP per hour by sector and the typical hours worked by sector. The relevant GDP per job measure is then applied to the estimated breakdown of employment at the Airport by function, which has been based on evidence from the 2014 and 2017 studies.

- 3.11. In Table 3.3 we set out our estimates of the direct economic impact of the Managed Growth Strategy at the Airport. The Airport is estimated to have supported 2,000 direct on-site jobs in 2019, equivalent to 1,900 person years, and C\$230 million in direct GDP. The impact of COVID-19 meant that a significant proportion of these jobs and this economic activity was lost in 2020. However, with the expected easing of travel restrictions and growth in air services between Canada and the US, the direct impacts are expected to recover quickly and surpass 2019 levels by 2022.

Table 3.3: Direct Economic Impact

Year	2019	2021	2022	2023	2024	2025
GDP (C\$ m)	\$230	\$40	\$260	\$370	\$370	\$370
Jobs	2,000	400	2,400	3,350	3,350	3,350
Person Years	1,900	350	2,250	3,150	3,150	3,150

Figures may not sum due to rounding

Source: York Aviation.

- 3.12. By 2025, we estimate that the Managed Growth Strategy will support approximately 3,350 direct jobs (3,150 person years) and C\$370 million of direct GDP.

Indirect and Induced Impact

- 3.13. The indirect and induced impacts have been calculated using a series of multipliers. These multipliers are calculated using a range of economic data on the nature of spending in supply chains and by consumers in the economy, and the extent to which this expenditure is captured within the geographic area under consideration. Calculating appropriate multipliers is a complex exercise and a range of approaches can be adopted. In this case, we have used multipliers for Ontario as calculated by Statistics Canada using input-output tables. The latest version of these tables provides estimates for 2017 but we would not expect significant changes by 2019.
- 3.14. The GDP multipliers identified range between 1.76 and 3.06 depending on the economic sector being considered. This means that for every C\$1 generated in direct onsite activity, a further C\$0.76 to \$2.06 is generated through indirect and induced impacts. The employment impacts are grown in line with the GDP impacts.
- 3.15. Table 3.4 sets out the estimated indirect and induced impacts of the Managed Growth Strategy at the Airport. In 2019, the Airport is estimated to have supported 2,400 indirect and induced jobs (2,150 person years) and C\$230 million in indirect and induced GDP. By 2025, we estimate that the Airport will support approximately 3,750 indirect and induced jobs (3,350 person years) and C\$380 million of indirect and induced GDP.

Table 3.4: Indirect and Induced Economic Impact

Year	2019	2021	2022	2023	2024	2025
GDP (C\$ m)	\$230	\$40	\$270	\$380	\$380	\$380
Jobs	2,400	450	2,750	3,800	3,800	3,750
Person Years	2,150	400	2,450	3,400	3,400	3,350

Figures may not sum due to rounding

Source: York Aviation.

Total Gross Operational GDP and Employment Impact

- 3.16. The combined gross direct, indirect, and induced impacts are set out in Table 3.5 below. This equates to the total gross operational GDP and employment impact of the Airport. In 2019, before COVID-19 impacted on the market, we estimate the Airport supported a total of 4,450 jobs (4,050 person years) and C\$460 million in GDP through direct, indirect and induced impacts combined.
- 3.17. By 2025, we estimate that the Airport will support approximately 7,100 jobs (6,500 person years) and C\$760 million of GDP through direct, indirect, and induced impacts combined.

Table 3.5: Total Gross Operational Economic Impact

Year	2019	2021	2022	2023	2024	2025
GDP (C\$ m)	\$460	\$80	\$540	\$760	\$760	\$760
Jobs	4,450	850	5,100	7,150	7,150	7,100
Person Years	4,050	750	4,650	6,550	6,550	6,500

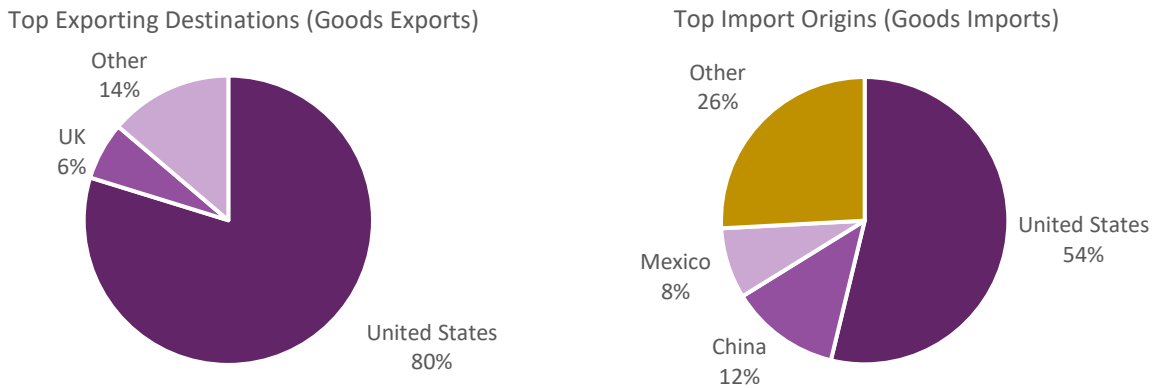
Figures may not sum due to rounding

Source: York Aviation.

Wider Impacts

- 3.18. Wider economic impacts are different from the effects we have considered so far. They are not a result of the economic activity generated by operating the air services themselves but stem from the connectivity that is provided to passengers from those services. This connectivity enables users to travel for business or leisure more easily, efficiently, and quickly. This has benefits for the economies around airports. Numerous studies have highlighted the importance of airports in supporting these wider benefits, including research around Toronto Pearson Airport, Singapore Changi, the London airports, Dubai International and Amsterdam Schiphol. These benefits are summarised well in the ATAG research, *Aviation: Benefits Beyond Borders*, which highlights the role of air services in supporting global trade links and foreign direct investment, enabling global supply chains, driving productivity and facilitating tourism.
- 3.19. For business travellers, air services can enable them to access new markets or to travel to existing markets more efficiently, which ultimately enables trade, foreign direct investment, knowledge and labour market flows, and competition. Together, these help to develop a more efficient and effective allocation of resources in the economy, driving productivity and long-run economic growth. These benefits tend to accrue in high value-added sectors that are reliant on air services, such as professional and financial services, education, technology, advanced manufacturing, and creative industries.
- 3.20. For leisure travellers, improved air services mean being able to visit new destinations or being able to reach existing destinations more quickly. From the destinations' perspective, this means growth in tourism numbers and potentially increases in average length of stay and / or average expenditure. The overall effect is an increase in consumer expenditure, which in turn supports GDP and employment in the destination economy. These effects are felt across the tourism sector, particularly in sectors such as accommodation, food and beverage, retail, surface and other transportation, and leisure activities.
- 3.21. Prima facie, the evidence that air service connectivity and, by extension, the Airport is important to the Toronto and Ontario economies is strong. Toronto is a major international city with strong international links. This suggests that the airports that serve it are likely to support significant wider economic benefits. We have considered briefly below Toronto and Ontario's economic linkages with the USA, as the primary transborder market for the Airport.
- 3.22. Figure 3.1 highlights the trading relationship between Ontario and the USA. The USA is the biggest overseas trading partner for the state of Ontario, accounting for around 80% of the region's goods exports and around 54% of the province's total imports.

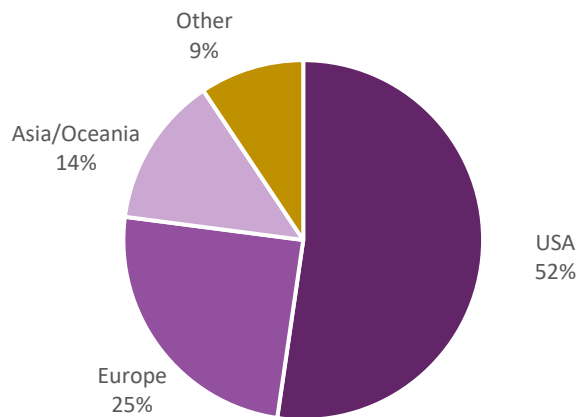
Figure 3.1: Top Export and Import Origins and Destinations for Goods Trade with Ontario



Source: Statistics Canada Factsheet.

- 3.23. Ontario’s largest trading relationship is with the state of Michigan, which accounts for roughly 22% of Ontario’s total exports of goods and around 8% of Ontario’s total imports of goods. Michigan is followed by New York, Ohio, California, and Illinois, as the top trading partner states in the USA.
- 3.24. Overseas tourism is also a significant contributor to the Toronto economy. The USA is the single biggest overseas tourism market for the city of Toronto, accounting for around 55%⁵ of overnight and day visits to the city in 2018.
- 3.25. The extent of foreign direct investment is difficult to accurately assess at a provincial level. However, at a national level, the USA is by some margin the single largest investor in Canada, with an investment book value of \$473 billion in 2019, just over half of all the overseas investments in Canada (see Figure 3.2).

Figure 3.2: Foreign Direct Investment in Canada by Ultimate Investor Country



Source: Statistics Canada.

- 3.26. The wider economic impacts associated with the connectivity offered by the Airport have been estimated based on research undertaken by IATA into the econometric relationship between air connectivity and labour productivity. The research showed that there was a statistically significant, positive relationship between air connectivity and GDP. It demonstrated that a 10% growth in air connectivity, relative to a country’s GDP, improves productivity by 0.5%. In this context, air connectivity is defined as the sum of seat capacity by destination, weighted by the number of passengers handled by the destination airport. This means that connections to large airports, which tend to serve large and important economic centres, are more highly valued in terms of connectivity.

⁵ Tourism Economics: Toronto’s Visitor Economy, An Economic Catalyst for the City and the Region (2018)

- 3.27. The IATA connectivity index has been used to estimate the connectivity levels across all airports in Ontario, reflecting the study area for our work and recognising that the Airport is only one part of the overall air connectivity offer for Toronto and the surrounding areas. Moving forward, seat capacities at the Airport grow in line with the passenger forecast scenario set out, while other airports are assumed to recover to 2019 levels by 2024, before growing in line with the long run trend. The relationship to GDP has then been applied to estimate the Airport's contribution to GDP growth through the growth in its connectivity. Corresponding employment impacts were estimated using research undertaken by the Canadian Government into the economic effects of free trade deals, which suggested an average GDP per job for trading sectors of around C\$150,000.
- 3.28. Table 3.6 shows our estimates of these wider economic impacts in 2019 and the future economic impacts of the Managed Growth Strategy at the Airport. In 2019, we estimate the Airport supported a total of approximately 10,900 jobs (9,750 person years) and C\$1.7 billion in GDP through wider economic impacts⁶.
- 3.29. With the growth forecast under the Managed Growth Strategy at the Airport by 2025, we estimate that it will support approximately 26,800 jobs (24,000 person years) and C\$4.3 billion of GDP.

Table 3.6: Wider Economic Impacts

Year	2019	2021	2022	2023	2024	2025
GDP (C\$ m)	\$1,650	\$350	\$2,700	\$4,250	\$4,250	\$4,250
Jobs	10,900	2,400	17,550	27,300	27,050	26,800
Person Years	9,750	2,150	15,750	24,450	24,200	24,000

Figures may not sum due to rounding

Source: York Aviation.

Total Gross GDP and Employment Impacts from Ongoing Operations

- 3.30. The total GDP and employment impacts from the Airport's ongoing operations are set out in Table 3.7. This combines the operational economic impacts (direct, indirect and induced) with the wider economic impacts.
- 3.31. In 2019, we estimate that the Airport supported C\$2.1 billion in GDP and 15,350 jobs (13,800 person years). This is expected to grow substantially in the future as it recovers from COVID-19 and returns to growth. Overall, this assessment clearly demonstrates the economic value of investing in future growth at the Airport. We estimate that under the Managed Growth Strategy, the Airport will support approximately 33,900 jobs (30,500 person years) and C\$5.0 billion of GDP by 2025.

Table 3.7: Total GDP and Employment Impacts

Year	2019	2021	2022	2023	2024	2025
GDP (C\$ m)	\$2,110	\$430	\$3,240	\$5,010	\$5,010	\$5,010
Jobs	15,350	3,250	22,650	34,450	34,200	33,900
Person Years	13,800	2,900	20,400	31,000	30,750	30,500

Figures may not sum due to rounding

Source: York Aviation.

Combined Construction and Ongoing Operations Impacts

- 3.32. The total GDP and employment impacts from the Airport's ongoing operations and construction activity on-site up to 2025 to enable Managed Growth are set out in Table 3.8. This combines the operational and wider impacts in Table 3.7 with the construction impacts in Table 3.1. It should, of course, be remembered that the construction impacts are transitory.
- 3.33. We estimate that through the Managed Growth Strategy, the Airport will support approximately 33,950 jobs (30,550 person years) and C\$5.0 billion of GDP by 2025.

⁶ By way of comparison, Toronto Pearson Airport was estimated to support around C\$31 billion in wider economic impacts in 2016.

Table 3.8: Construction and Ongoing Impacts

Year	2019	2021	2022	2023	2024	2025
GDP (C\$ m)	\$2,110	\$470	\$3,260	\$5,020	\$5,020	\$5,010
Jobs	15,350	3,350	22,800	34,650	34,350	33,950
Person Years	13,800	3,050	20,550	31,200	30,950	30,550

Figures may not sum due to rounding

Source: York Aviation.

Tax Revenue

- 3.34. The research has also considered the tax revenues that would accrue from economic activity at the Airport. Our estimates of the tax revenue impacts associated with activities on-site are set out in Table 3.9. Further details of the tax calculations can be found at Appendix A.
- 3.35. In 2019, activities on-site at the Airport supported the Canadian economy with around C\$95 million in tax revenues, the majority of which went to the Federal Government. Again, as the Airport grows under the Managed Growth Strategy in the future, the taxes paid in relation to economic activities undertaken on-site at the Airport will also increase. Under the Managed Growth Strategy, economic activities based at the Airport will pay approximately C\$150 million in taxes by 2025.

Table 3.9: Direct Tax Impacts under Managed Growth

Year	2019	2021	2022	2023	2024	2025
Federal (C\$ m)	\$60	\$10	\$70	\$95	\$100	\$100
Provincial (C\$ m)	\$30	\$5	\$30	\$45	\$45	\$45
Municipal (C\$ m)	\$5	\$5	\$5	\$5	\$5	\$5
Total (C\$ m)	\$95	\$25	\$110	\$150	\$150	\$150

Figures may not sum due to rounding.

Source: York Aviation.

Net Economic Impact of the Managed Growth Strategy

- 3.36. The economic impacts set out so far are expressed in gross terms. That is to say, they do not consider what the effect of growth at the Airport would be on the whole of the Ontario airports system. If growth occurs because of further investment in the Airport's infrastructure and in air service development, this could potentially displace some passenger growth from elsewhere in the system, most likely from Toronto Pearson Airport. Below, therefore, we consider the likely net economic impact of future passenger growth at the Airport in Ontario as a whole in the event of such displacement.
- 3.37. In Section 2, we examined the relationship between Billy Bishop Airport and Toronto Pearson Airport. We highlighted statements from the Southern Ontario Airport Network (SOAN) setting out the way in which the various airports in Southern Ontario work together to meet the needs of air travellers in the province. We also noted that Billy Bishop Airport and Toronto Pearson Airport are quite different propositions as airports, with the Toronto City Airport focussing on regional origin and destination markets needing rapid access to the city centre, compared with Toronto Pearson Airport's focus as the city's major international / intercontinental airport and a significant North American hub airport. We also noted that Toronto Pearson Airport is constrained in peak hours and that, as such, there is evidence of regional, origin and destination type traffic beginning to be pushed out from the airport. Billy Bishop Airport is clearly in a strong position to service growing demand in these key markets.

- 3.38. Hence, while Toronto Pearson Airport would be able to accommodate the growth in passengers expected at Billy Bishop Airport each year by 2025, this growth is more likely to be complementary to growth at Toronto Pearson Airport. Overall, we concluded that the forecast growth at the Airport is, therefore, unlikely to result in significant displacement of demand from Toronto Pearson Airport and, hence, the economic benefits associated with its future growth are also likely to be largely additional. However, it remains prudent to assume that some limited displacement is likely.
- 3.39. Displacement is ultimately a concept in economic impact analysis rather than a value that can be easily defined. It is difficult to say ‘a priori’ exactly how much displacement will occur in any specific case and the analysis of these effects is potentially complex. Therefore, to allow for displacement to some degree, in line with our analysis, we have reduced the additional operational and wider GDP and employment impacts associated with the additional passengers seen in the Managed Growth Strategy at the Airport by 25%. Table 3.10 shows the total net economic impact provided by the Managed Growth Strategy, adjusted to allow for some displacement from Toronto Pearson.

Table 3.10: Total Net GDP and Employment Impacts

Year	2019	2021	2022	2023	2024	2025
GDP (C\$ m)	\$2,100	\$440	\$3,000	\$4,740	\$4,760	\$4,780
Jobs	15,350	3,100	21,000	32,650	32,500	32,400
Person Years	13,800	2,800	18,900	29,400	29,250	29,150

Figures may not sum due to rounding.

Source: York Aviation.

- 3.40. By 2025, the Managed Growth Strategy will see Toronto City Airport supporting net GDP of around C\$4.8 billion and 32,400 jobs (29,150 person years).

Monetised Passenger Economic Welfare Benefits

- 3.41. Managed Growth at the Airport will also result in economic welfare benefits to passengers, notably:
- **pre-clearance time savings:** the development of a USCBP facility is seen as an important driver of future passenger growth. One of the key benefits of pre-clearance is the resultant time savings to transborder passengers in the immigration/customs control area. We have estimated these time savings by analysing the weighted average wait times for domestic and international passengers at each of the forecast destination airports in the USA. We have used the wait time data from US Customs and Border Control and estimated the weighted average wait time for each destination airport in the summer and winter seasons. On average, a USCBP is estimated to save a passenger around 9 minutes;
 - **journey time savings:** the location of the Toronto City Airport provides more convenient and quicker access to the city of Toronto, the Airport’s core passenger market, than Toronto Pearson Airport. Using Google Maps, we estimate that on average each passenger travelling to or from the city centre saves around 17 minutes in travel time by using the Toronto City Airport rather than Toronto Pearson. Previous discussions with the Toronto Board of Trade and Nieuport suggest that this may in fact be conservative given traffic congestion at peak times. This assessment is based on travel by road to / from each airport. We note that Toronto Pearson Airport is, of course, served by rail from downtown Toronto. The current journey time for the Union Pearson Express is around 25 minutes. This would reduce the differential in travel time between Billy Bishop Airport and Toronto Pearson Airport slightly. However, if the wait time associated with using the train is included, then rail is in fact a slower option. Typically, the Union Pearson Express runs every 15 minutes. Assuming a wait time of half the headway between services (a commonly used assumption in transport appraisal), this would increase the real journey time to 32.5 minutes, rather longer than a typical road access time to Toronto Pearson Airport;
 - **processing time savings:** the compact size and layout of the Airport allows for quicker processing times for departure and arrivals, in terms of the passenger screening process on departure, baggage handling, and boarding/deplaning times. After discussion with Nieuport Aviation, we estimate that departing passengers

will save a further 15 minutes in processing time compared with using Toronto Pearson Airport and arriving passengers will save a further 5 minutes. It should be noted that these estimates are likely to be conservative in terms of the differential to Toronto Pearson, particularly at peak times.

- 3.42. We have not been able to identify appropriate values of time for air travellers in Canada. However, as a proxy, we have used U.S. Department of Transport estimates of values of time for air travellers⁷ (adjusted to 2019 Canadian dollars) to estimate the pre-clearance, journey time and processing time savings for passengers.
- 3.43. These monetised time savings from Managed Growth at the Airport compared to without development are set out in Table 3.11.

Table 3.11: Passenger Time Savings

	2019	2021	2022	2023	2024	2025
Pre-Clearance Savings (C\$ m)	\$0	+\$1	+\$8	+\$14	+\$14	+\$14
Journey Time Savings (C\$ m)	\$0	+\$1	+\$9	+\$13	+\$12	+\$11
Processing Time Savings (C\$ m)	\$0	+\$0	+\$3	+\$4	+\$4	+\$4
Total (C\$ m)	\$0	+\$2	+\$21	+\$31	+\$30	+\$28

Figures may not sum due to rounding

Source: York Aviation.

- 3.44. This demonstrates that, by 2025, Managed Growth at the Airport would result in time savings for passengers worth approximately C\$28 million each year, of which approximately C\$14 million would be generated from time savings related to a Pre-Clearance facility.
- 3.45. We would also note that there could be potential additional economic welfare savings from reduced carbon costs associated with expansion of activities at the Airport. These would come from shorter journeys to and from the Airport compared with Toronto Pearson Airport and, potentially, from the more lower contrail-related carbon emissions associated with the aircraft operating at Billy Bishop Airport compared with Toronto Pearson. These effects are not, however, estimated here.

Conclusions

- 3.46. The Airport is already a significant economic driver for the Toronto economy, supporting an estimated C\$2.1 billion in GDP and 15,350 jobs (13,800 person years) in 2019. Investment in future growth has the potential to significantly increase the role that the Airport can play in supporting the economy moving forward.
- 3.47. It is estimated that the construction impacts alone will support approximately C\$65 million and approximately 690 person years of employment over the period to 2025. These construction impacts are a positive but transitory economic impact of investing in future growth at the Airport.
- 3.48. In gross terms, before allowing for passenger demand displacement, we estimate that the Managed Growth Strategy will see the Airport support approximately 33,950 jobs (30,550 person years) and C\$5.0 billion of GDP by 2025.
- 3.49. In net terms, allowing for displacement of passenger demand from Toronto Pearson Airport, we estimate that the Managed Growth Strategy will support net GDP of around C\$4.8 billion and 32,400 jobs (29,150 person years).
- 3.50. In addition, we have also identified that there would be benefits to passengers from time savings associated with using the Toronto City Airport rather than Toronto Pearson Airport. The Managed Growth Strategy would result in time savings for passengers' worth around C\$28 million each year in 2025.

⁷ Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis - Office of the Secretary of Transportation (2016)

4. Wider Strategic Impacts

Introduction

- 4.1. Toronto is already a major global city. GaWC ranks it as an Alpha world city, the highest broad classification. Investment in further growth at the Airport will unlock new markets and economic opportunities for trade and tourism to the USA and global markets and will support the city of Toronto's wider economic growth objectives and recovery from the effects of the COVID-19 pandemic. These wider 'strategic' impacts cannot necessarily be quantified but are nevertheless highly significant in supporting the local and regional economy around Toronto and promoting the city as a place to do business, and Toronto as a major global financial centre, medical research centre and technology hub.
- 4.2. In a previous report, in September 2019, we considered the economic impact of introducing several new air services from the Airport to a number of destinations in the United States and we consulted with the Toronto Board of Trade on the role that the Airport plays in supporting the city's economy. Those discussions highlighted several key points including the strong foreign direct investment links with the United States. A growing Toronto City Airport with an enhanced route network would strengthen these links and support Toronto's international economy.

Shaping the Future

- 4.3. A key document setting out how the Toronto economy can be 're-booted' after the damaging effects of the pandemic is 'Shaping Our Future: A Playbook for Rebooting and Reimagining the Regional Economy in Ontario's Innovation Corridor'. This document was prepared by the Toronto Region Board of Trade in partnership with Toronto Global in September 2020 and focuses on Toronto's Innovation Corridor, which is:

"Canada's largest and most economically diverse regional economy. With a population of almost 8 million residents and more than 3 million jobs, the region is an interconnected economic zone made up of the five Census Metropolitan Areas (CMAs) of Oshawa, Toronto, Hamilton, Guelph and Kitchener-Cambridge-Waterloo...the Corridor is Canada's largest and most economically diverse urban region. It represents more than 20% of Canada's population, 64% of Ontario's Gross Domestic Product (GDP) and 25% of the nation's Gross Domestic Product."⁸

- 4.4. This document goes on to note the strength of the Corridor's pre-pandemic economy and its global reach:

"For two years in a row, CBRE ranked Toronto as one of North America's fastest-growing tech markets, adding more tech jobs in 2018 than the San Francisco Bay Area, Seattle, and Washington DC, combined. Venture capital (VC) markets were on the rise, with 2019 culminating in the single largest year for VC deals, topping \$3.5 billion for the Corridor as a whole. Further fueling its stature as a global tech hub, North America's fastest growing tech conference, Collision, made its debut in Toronto in 2019...As a powerhouse of research and development (R&D), post-secondary institutions in the Corridor became increasingly attractive to international students, with an increase of 55 percent, or nearly 15,000 university students, between 2014 and 2018. Colleges saw an even more dramatic increase in international enrolments, increasing 133 percent, or over 20,400, during the same period. The region drew investment from some of the largest tech companies, including Microsoft, Uber, and Google."⁹

- 4.5. The document identifies a 10-point action plan to "reboot and reimagine" the Innovation Corridor economy including the development of a regional economic strategy for recovery to align corridor-specific sector strategies, workforce development, the innovation ecosystem, and trade and foreign direct investment strategies. Ease of access to markets will undoubtedly play a significant role in this strategy and a more internationally focussed, growing the Airport can make an important contribution to this.

⁸ 'Shaping Our Future', Toronto Region Board of Trade in partnership with Toronto Global, September 2020, page 10

⁹ Ibid, page 10.

Toronto Global

4.6. Inward investment to Toronto is promoted by ‘Toronto Global’, an arms-length organization representing municipalities in the region, working with partners in the Ontario and Canadian governments to provide a comprehensive, customized service that allows for a smooth transition for international companies wishing to do business in the Toronto region. Toronto Global lists a set of reasons for international business to consider locating in Toronto that are worth re-producing here:

- over 6.4 million people;
- a labour force of more than 4.7 million;
- over 800,000 businesses;
- 38% of Canada’s business headquarters;
- 18.5% of Canada’s GDP;
- a C\$332 billion economy;
- nearly 100,000 new immigrants annually;
- a diverse population with over 51% foreign-born;
- over 180 languages and major dialects spoken;
- over 240 ethnic groups;
- 130 million people within a 500-mile radius;
- fourth-largest city in North America;
- third-largest tech sector in North America;
- second-largest financial centre in North America;
- second-largest food and beverage industry in North America;
- two airports serving 200 global destinations in 55 countries;
- trade agreements that provide access to nearly 1.7 billion consumers with a combined GDP of more than US\$62 trillion or more than one-half of the world’s output of goods and services;
- five world-renowned universities and six internationally recognized colleges.

4.7. These reasons for companies to locate in Toronto illustrate its increasingly ‘international’ focus. Although the city of Toronto is less internationally renowned than some other world cities, it has successfully transformed its old industrial base into a new ‘knowledge’ economy, drawing people and business from all over the world.

4.8. Toronto Global’s website highlights several recent ‘success stories’ of companies that have decided to locate to or expand in Toronto. We highlight three of these stories below:

“Ascent, a New York City-headquartered SaaS [software as a service] company offering fintech products that have revolutionized the operations and quality standards of many leaders in the banking and finance industries, has announced the expansion of its headquarters into Toronto. Ascent plans to establish its office in the Toronto Region as the company’s Sales and Delivery Centre to service clients in North America, with a long-term vision of growing its presence and team in Toronto (September 2020)”;

“HCL recently announced the creation of 2,000 new technology jobs across Canada, of which 1,000 will be located in Ontario, and up to 500 at its new centre in Mississauga. HCL is an international IT company with over 160,000 employees across 50 countries”;

“In 2020, intelliHR, an Australian HR technology business, brought its next-generation cloud-based people management and data analytics platform to Toronto. The company worked closely with Toronto Global to select Toronto as a strategic expansion location in North America to support its existing and future international customers around the clock”.

4.9. The focus of these companies is clearly international, illustrating the continuing trend for the city of Toronto to become a globally connected city. Growth at the Airport can only add to the city’s increasing attractiveness as a place to live and work.

Toronto's Waterfront

- 4.10. The revitalization of the city of Toronto's waterfront is the largest urban redevelopment project currently underway in North America, and it is one of the largest waterfront revitalization efforts ever undertaken in the world. Expected to take 25 years to complete, the waterfront initiative will create approximately 40,000 new residences and 40,000 new jobs and will complement and leverage the attributes of a global city.

"When the vision for the waterfront is fully realized, it will provide lasting economic benefits for our city, province and country by creating new employment opportunities, attracting private investment and drawing tourism dollars. Toronto's revitalized waterfront leverages Ontario's existing competitive advantages. The province already boasts the G7's most educated workforce and is the third-largest financial centre and fourth-largest media centre in North America. And Canada is a world model for diverse societies living in harmony. It all adds up to a cost-effective business environment that attracts the best and brightest companies and people."¹⁰

- 4.11. The Waterfront project is another step in the growing international focus and status of the city of Toronto, to which growth at the Airport can also make an important contribution.

Toronto as a Place to Do Business

- 4.12. The city of Toronto is already an important centre for the conventions and exhibition market. The 192-acre Exhibition Place campus is a prime example of the city's focus on this market. It includes an extensive range of venues and associated facilities, attracting 40,000 events and 5.5 million visitors each year. It is the largest convention centre in Canada with over 1 million square feet of space. On its own, it contributes around C\$500 million to the economy each year. It is located only around 2 km from the Airport. Exhibition Place has a substantial presence in the international convention and corporate market, attracting transborder business from the US. International connectivity is vital in the conventions and exhibitions market, with visitors needing fast and efficient access to the venue from a range of destinations. The Airport is already an important tool in this regard, with connections to other major cities in Canada and key centres in the USA. The growth that is expected to come with further investment at the Airport will further embed it as a core asset for the city in this market, improving its competitive position and allowing it to extend its reach.

¹⁰ Waterfront Toronto website, <https://www.waterfronttoronto.ca/nbe/portal/waterfront/Home/waterfronthome/our-vision/growth/economic+growth>

5. Conclusions

- 5.1. COVID-19 had a significant impact on the aviation industry in 2020 and continues to do so in 2021. What is important going forward is how the industry can recover from the effects of the downturn and what actions can be taken by airports and airlines that will support and advance that recovery.
- 5.2. Further investment in the Airport's infrastructure and in air service development is expected to be a significant spur to future growth, in particular giving confidence to airlines to develop a broader and more extensive range of transborder services.
- 5.3. Growth at the Airport is expected to be largely additional to growth at Toronto Pearson Airport. The existing constraints at peak times, its strategy of focussing on longer haul markets and its focus on transfer traffic at the expense of origin and destination traffic, suggest that the expected growth would be complementary to growth at Toronto Pearson Airport and not significantly displace demand.
- 5.4. The Airport is already a significant economic driver for the Toronto economy, supporting an estimated C\$2.1 billion in GDP and 15,350 jobs (13,800 person years) in 2019. Investment in future growth has the potential to significantly increase the role that the Airport can play in supporting the economy moving forward.
- 5.5. Under the Managed Growth Strategy, the expected capital expenditure will support approximately C\$65 million in GDP and around 690 person years of employment over the period to 2025. Most of these impacts would be felt in 2023 and-2024, during the peak construction period. These impacts are a positive but transitory economic impact from investment in future passenger growth at the Airport.
- 5.6. In gross terms, before allowing for passenger demand displacement, we estimate that the Managed Growth Strategy will see the Airport support approximately 33,950 jobs (30,550 person years) and C\$5.0 billion of GDP by 2025.
- 5.7. In net terms, allowing for displacement of passenger demand from Toronto Pearson Airport, we estimate that the Managed Growth Strategy will see the Airport support net GDP of around C\$4.8 billion and 32,400 jobs (29,150 person years).
- 5.8. Future growth will also result in an increase in tax revenues from economic activities based on-site. This equates to a total tax revenue of approximately C\$150 million in 2025 under Managed Growth.
- 5.9. In addition, we have also identified that there would be benefits to passengers from time savings associated with using the Toronto City Airport rather than Toronto Pearson Airport. Managed Growth would result in time savings for passengers worth approximately C\$28 million each year in 2025.
- 5.10. There are also wider 'strategic' impacts arising from future passenger growth at the Airport which cannot necessarily be quantified but are nevertheless highly significant in supporting the local and regional economy around Toronto. Ease of access to transborder and other international markets will play a significant supporting role in the revitalisation and recovery of Toronto's economy post-pandemic and a growing Airport with an enhanced route network would make an important contribution to this.

6. Appendix A: Calculation of Tax Impacts

Tax Revenues Attributable to Airport Employers

Personal Income Tax (Federal and Provincial)

- 6.1. Due to the complexities involved in credit adjustments and other contributions, we have estimated personal income tax revenues by using the total personal tax revenue earned by the Federal and Ontario government from Statistics Canada and extracted the employment in 2017. We then estimate the average personal income tax per employee paid to both governments.
- 6.2. In Ontario, the average Federal income tax collected per employee was C\$8,854 and the Provincial income tax per employee was C\$5,177. Total Personal Income Tax is estimated to around C\$738,000 including around C\$465,000 in Federal tax and around C\$272,200 in Provincial tax.

Corporate Income Tax (Federal and Provincial)

- 6.3. A similar approach to estimating personal income tax was used to estimate corporate income tax. In Ontario, the average Federal corporate income tax collected per employee was nearly C\$3,050 and the Provincial income tax collected per employee was C\$1,950. Estimated Federal income tax is around C\$160,300 and Provincial income tax is around C\$102,400. Total corporate income tax adds up to nearly C\$263,000.

Employment Insurance Premiums

- 6.4. In Canada, the 2019 Federal employment insurance premium rate is 1.62% of earnings up to a maximum of C\$860.22 per year, with maximum insurable earnings being C\$53,100. Employers paid 1.4 times the premium with a maximum of C\$1,204.31.
- 6.5. We initially refer to the average salary in the air transport industry, which is estimated to around C\$56,500 per annum and is higher than the maximum earnings. We therefore use the maximum employer and employee premium to estimate a total premium of C\$2,064 per employee. This average is then applied to the total on site person years to yield a total employee premium of nearly C\$103,000.

Canada Pension Plan Contributions (CPP)

- 6.6. The present employer and employee contributions to the CPP is 5.1% of pensionable salary each party (i.e., a total of 10.2%). Pensionable earnings are actual earnings less C\$3,500 to a maximum of C\$57,400 with the maximum annual employee contribution being C\$2,748.9.
- 6.7. Using the average income in the air transport industry, we estimate the annual pension contribution per employee to be around C\$5,400. Estimated total employer and employee contribution is around C\$270,000.

Workplace Safety and Insurance Board Contributions (WSIB)

- 6.8. We use the 2019 Ontario WSIB premium rates manual, which states that the premium rate for Air Transportation industry is C\$1.84 for every C\$100 of insurable earnings. We use the maximum insurable earnings of C\$53,100 to estimate a premium of around C\$977 per employee. The estimated total WSIB contributions amount to nearly C\$49,000.

Health Insurance Premiums

- 6.9. With an average industry income of C\$56,500, we estimate the monthly premium to be around C\$53.5 per employee per month, using the assumptions used in the 2014 InterVistas report of C\$50 per month on an average income of C\$52,800. The estimated total contributions equal to over C\$32,000.

Aviation Fuel Tax

6.10. The table below outlines the taxes on jet fuel by each government:

Federal	Ontario
\$/Litre	
\$0.05	\$0.067

6.11. We then estimate the fuel consumption with a day return frequency on the six selected routes using the fuel burn rates for ATR42-600, given the flight distances. We estimate that nearly 3.8 million litres of fuel would be consumed each year. However, not all the fuelling activity would be taken place at the Airport. So, we have assumed that only half the fuel requirements would be purchased at Toronto City Airport. Applying the fuel tax rates on the 1.9 million litres of fuel yields a total tax revenue of around C\$224,300, of which around C\$96,000 goes to the Federal government and around C\$128,000 goes to the Government of Ontario.

6.12. It is also worth noting that fuel sales are subject to Harmonized Sales Tax (HST), which is made up of Goods and Services Tax (GST) of 5% and Provincial Sales Tax (PST) of 13%. To estimate these revenues to the Federal and Provincial governments, we apply these tax rates on the sale price for jet fuel at the Airport, which is around C\$1.97 per litre and adjusted to the fuel tax, the taxable price is C\$1.85 per litre. By applying the tax rates on the total pre-duty sales of fuel, we estimate the total tax revenue to be around C\$461,000, which includes around C\$177,000 GST and around C\$284,000 PST.

Tax Revenues Attributable to Airport Users

HST on Air Fares and the Airport Improvement Fee (AIF)

6.13. We note that for transborder journeys only the GST of 5% is applied for each air fare. We first estimate the one-way base revenue per departing passenger, which on average is around C\$156. We estimate that the total tax on airfares to be nearly C\$1.1m.

6.14. Airport Improvement Fee (AIF) is charged by PortsToronto per departing passenger. In the 2018 PortsToronto Annual Report, it was noted that the company has now set the AIF to C\$15 per person. However, due to the nature of the charge, only outbound passengers would face this charge. In this case the full HST would be charged to the AIF revenues. We estimate the total tax revenue of around C\$138,000 including around C\$53,000 GST and around C\$85,000 PST.

HST on Air Traveller Security Charge (ATSC)

6.15. The ATSC for transborder journeys is still charged at a flat fee of C\$12.10 per enplanement for flights originating in Canada and C\$12.70 for flights originating in the U.S. Assuming half the flights originate in Canada, we estimate the total tax revenue on ATSC to around C\$227,500, which includes around C\$87,000 GST and C\$140,000 PST.

Tax on Airport Operating Fees

6.16. We note that the HST is also applied to the net revenue from Airport operations. Although, it is difficult to estimate the exact impact of the air services on the profitability of the Airport, we can extrapolate the HST based on the profitability per passenger. In 2018, PortsToronto achieved a net revenue of C\$8.16 per passenger, which equals to nearly C\$1.2m for the 141,000 passengers in this study. The total tax is estimated to be around C\$150,000, of which nearly C\$58,000 would be earned by the Federal Government and around C\$92,000 would be earned by the Government of Ontario.

Tax on Aircraft Landing Fees

6.17. Based on landing fees for a turbine aircraft of C\$10.41 per tonne, we estimate a total tax revenue of around C\$55,000, including C\$21,000 GST and around C\$34,000 PST.

Tax on Parking Fees

6.18. We assume 2% of the passengers use car parks, from the Spring 2018 passenger survey, and assuming a daily parking rate of C\$15, we estimate the total tax revenues of around C\$5,500 including C\$2,100 GST and around C\$3,400 PST.

HST on Tourism Spend

6.19. Assuming each tourist from the U.S. spends around C\$360 per trip, we estimate a total spend of around C\$7.6 million and thus tax revenues of nearly C\$985,000 including C\$380,000 GST and around C\$605,000 PST.

7. Appendix B: Globalisation and World City Network Rankings 2020

Alpha ++	London, New York
Alpha +	Hong Kong, Singapore, Shanghai, Beijing, Dubai, Paris, Tokyo
Alpha	Sydney, Los Angeles, Toronto, Mumbai, Amsterdam, Milan, Frankfurt, Mexico City, Sao Paulo, Chicago, Kuala Lumpur, Madrid, Moscow, Jakarta, Brussels
Alpha -	Warsaw, Seoul, Johannesburg, Zurich, Melbourne, Istanbul, Bangkok, Stockholm, Vienna, Guangzhou, Dublin, Taipei, Buenos Aires, San Francisco, Luxembourg, Montreal, Munich, Delhi, Santiago, Boston, Manila, Shenzhen, Riyadh, Lisbon, Prague, Bangalore
Beta +	Washington DC, Dallas, Bogota, Miami, Rome, Hamburg, Houston, Berlin, Chengdu, Dusseldorf, Tel Aviv, Barcelona, Budapest, Doha, Lima, Copenhagen, Atlanta, Bucharest, Vancouver, Brisbane, Cairo, Beirut, Auckland
Beta	Ho Chi Minh City, Athens, Denver, Tianjin, Abu Dhabi, Perth, Casablanca, Kiev, Montevideo, Oslo, Helsinki, Chennai, Hanoi, Nanjing, Philadelphia, Cape Town, Hangzhou, Nairobi, Seattle, Manama, Karachi, Rio de Janeiro, Chongqing, Panama City
Beta -	Wuhan, Manchester, Geneva, Osaka, Stuttgart, Belgrade, Calgary, Monterey, Kuwait City, Caracas, Changsha, Bratislava, Sofia, San Jose (CR), Zagreb, Dhaka, Xiamen, Tampa, Zhengzhou, Tunis, Almaty, Shenyang, Lyon, Minneapolis, Nicosia, San Diego, Amman, Xi'An, Guatemala City, Dalian, St Petersburg, Lagos, Quito, Jinan, San Salvador, Kampala, George Town (Cayman), Muscat/Ruwi, Detroit, Edinburgh, Jeddah, Hyderabad (India), Lahore, Austin
Gamma +	San Jose, Kolkata, Charlotte, Saint Louis, Pune, Antwerp, Rotterdam, Adelaide, Porto, Baku, Guadalajara, Ljubljana, Qingdao, Algiers, Suzhou, Belfast, Glasgow, Medellin, Cologne, Phnom Penh, Islamabad, Phoenix, Riga, Tbilisi, Kunming, Ahmedabad, Dar Es Salaam, Hefei, Orlando, Baltimore
Gamma	Durban, Vilnius, Gothenburg, San Juan, Nantes, Ankara, Santo Domingo, Wroclaw, Ottawa, Dakar, Malmo, Bristol, Tirana, Colombo, Turin, Valencia (Spain), Guayaquil, Taizhong/Taichung, Managua, La Paz, Nashville, Tegucigalpa, Haikou, Wellington
Gamma -	Port Louis, Accra, Asuncion, Bilbao, Maputo, Douala, Nassau, Harare, Poznan, Luanda, Cleveland, Fuzhou, Nagoya, Kansas City, Katowice, Malaga, Queretaro, Harbin, Milwaukee, Penang, Salt Lake City, Columbus (Ohio), Kaohsiung, Limassol, Sacramento, Belo Horizonte, Lausanne, Taiyuan, Edmonton
High Sufficiency	Birmingham (UK), Krakow, Abuja, Tijuana, Port of Spain, Abidjan, Curitiba, Ningbo, Hartford, Yangon/Rangoon, Seville, Puebla, Raleigh, Indianapolis, Brasilia, Johor Bahru, The Hague, Yerevan, Strasbourg, Macau, San Antonio, Leeds, Lusaka, Ulan Bator, Damman, Cincinnati, Porto Alegre
Sufficiency	Tallinn, Aberdeen, Astana, Bologna, Marseille, Cebu, Leipzig, Utrecht, Merida, Newcastle (UK), Ciudad Juarez, Surabaya, Nurnberg, Cali, Florence, Naples, Canberra, Pittsburgh, Izmir, Sarajevo, Portland (Oregon), Las Vegas, Liverpool, Hanover, Urumqi, Aguascalientes, Minsk, Christchurch, Jacksonville, Richmond, Skopje, Campinas, Tashkent, Toulouse, Alexandria, Zhuhai, San Luis Potosi, Chisinau, Guiyang, Cordoba, Leon, Cochin/Kochi, Valparaiso/Vina del Mar, Oklahoma City, Des Moines, Nanning, Changchun, Nanchang, Bishkek, San Pedro Sula, Southampton, Montpellier, Tulsa, Podgorica, Valencia (Ven), Lodz, Buffalo, Graz, Genoa, Louisville, Winnipeg, Rochester, Windhoek, Vientiane, Fukuoka, Halifax, Linz, Shijiazhuang, Hamilton, Gabarone, Port Elizabeth, Birmingham (Alabama), Nottingham, Pretoria, Recife, Wuxi, Kigali, Santa Cruz, Mexicali, Lille, Bordeaux, Bursa, Dresden, Libreville, Port Harcourt, Nice, Hsinchu City, New Orleans, Aarhus, Quebec, Liege, Bergen, Basel, Labuan, Jerusalem, Hohhot, Bandar Seri Begawan, Lanzhou, Bremen, Saskatoon, Kingston (Jamaica), Rosario, Grenoble, Haifa, Baghdad, Barranquilla, Cardiff, Mannheim, Chihuahua, Memphis, Palo Alto, Omaha, Bern, Tainan, Honolulu, Dushanbe, Kabul, Sheffield, Kinshasa, Harrisburg, Salvador, Kazan, Reykjavik, Dortmund, Goiania, Port Moresby, Hobart, Sapporo, Kyoto, Brazzaville, Novosibirsk, Blantyre, Essen, Kobe, Malacca/Melaka, Lome, Palermo, Pusan/Busan, Yokohama, Sendai, Trieste, Sanaa, Suva

Source: The World According to GaWC (2020).

8. Appendix C: Calculation of Economic Impacts (Assumptions)

GDP per Person Year

- 8.1. The table below shows the estimated assumptions for labour productivity (expressed as GDP per Person Year) in Ontario by key sectors.

Estimated Labour Productivity (GDP per FTE) by Sector in Ontario

Statistics Canada Sector	GDP per Person Year (2019 Prices)
Air transportation [BS481]	\$135,279
Transit, ground passenger and scenic and sightseeing transportation [BS48Z]	\$53,504
Retail trade [BS4A]	\$50,337
Government sector [GS00]	\$102,926
Accommodation services [BS721]	\$78,573
Construction [BS23B]	\$102,863
All industries	\$108,205

Source: Statistics Canada. Table 36-10-0594-01 Input-output multipliers, detail level

GDP & Jobs Multipliers

Direct GDP and Job Multipliers – Construction

- 8.2. The table below highlights the assumption for the Direct Multipliers used to convert the CAPEX spend to construction GDP and job impacts. These are taken from Statistics Canada multipliers for GDP and jobs in Ontario.

Direct GDP and Job Multipliers

Statistics Canada Sector	Direct GDP Multiplier (per dollar of output)	Direct Jobs Multiplier (per million dollars of output)
Non-residential building construction [BS23B000]	0.52	4.78

Source: Statistics Canada. Table 36-10-0594-01 Input-output multipliers, detail level

Indirect & Induced GDP and Job Multipliers

- 8.3. The table below outlines the assumptions for Type II multipliers. These are taken from Statistics Canada multipliers for GDP and jobs in Ontario.

Type II GDP and Job Multipliers by Sector in Ontario

Statistics Canada Sector	Type II GDP Multiplier (per dollar of output)	Type II Jobs Multiplier (per million dollars of output)
Air transportation [BS481]	1.88	2.10
Transit, ground passenger and scenic and sightseeing transportation [BS48Z]	1.77	1.27
Retail trade [BS4A]	2.05	1.31
Government sector [GS00]	3.06	3.75
Accommodation services [BS721]	1.76	1.45
Non-residential building construction [BS23B000]	1.84	1.90
All industries	1.79	1.82

Source: Statistics Canada. Table 36-10-0594-01 Input-output multipliers, detail level

9. Appendix D: Estimating Wider Economic Impacts (Connectivity Benefits)

Introduction

- 9.1. This appendix provides a worked example of how the wider impacts of Toronto City Airport have been calculated using the IATA connectivity index methodology. It explains the calculation of the index and how this is then used to estimate the impact on GDP.

IATA Connectivity Index

Calculating the Baseline Index

- 9.2. To estimate the IATA connectivity index, we require the total passenger throughput at the destination airport and the seat capacity to the destination for each airport considered in the city/region being considered.
- 9.3. Airport A operates air services to Destination D, with an annual seat capacity of 3,000 seats and Airport B operates services to the same destination with an annual seat capacity of 5,000 seats. The passenger throughput at Destination D is 20,000 passengers. However, Airport B also operates air services to Destination E, with an annual seat capacity of 10,000 seats and the passenger throughput for Destination E is 50,000.
- 9.4. First, we identify the connectivity index for each airport by calculating the overall throughput weight of each destination as a proportion of the largest destination airport by throughput. In this case, this is Destination E, with 50,000 passengers. The weight is then multiplied by the seat capacity between the origin airport and the destination airport to estimate the connectivity index. The total connectivity index for the city/region being considered is the sum of the indices for all routes. An example is outlined in the table below:

Airport	Route Seat Capacity	Destination Throughput	Throughput of Largest Destination	Destination Weight	Index
Airport A					
Destination D	3,000	20,000	50,000	0.4	1,200
Airport A Connectivity Index					1,200
Airport B					
Destination D	5,000	20,000	50,000	0.4	2,000
Destination E	10,000	50,000	50,000	1	10,000
Airport B Connectivity Index					12,000
Total City/Region Connectivity Index (Airport A +B)					13,200

Estimating the Impact of New Route Benefits

- 9.5. Once the overall base connectivity is established, we now consider the implication of an additional international route added to Airport A, Destination F. This is a scenario where the new route is launched from Airport A and everything else remains the same in Airport B and in the region. It is assumed that the new service will operate with capacity of 7,000 seats and the passenger throughput at Destination F is 30,000. We now add this new service to the overall connectivity index calculation, highlighted in the table below:

Airport	Route Seat Capacity	Destination Throughput	Throughput of Largest Destination	Destination Weight	Index
Airport A					
Destination D	3,000	20,000	50,000	0.4	1,200
Destination F	7,000	30,000	50,000	0.6	4,200
<i>Airport A Connectivity Index</i>					<i>5,400</i>
Airport B					
Destination D	5,000	20,000	50,000	0.4	2,000
Destination E	10,000	50,000	50,000	1	10,000
<i>Airport B Connectivity Index</i>					<i>12,000</i>
Total City/Region Connectivity Index (Airport A +B)					17,400

- 9.6. As can be seen, with the addition of a new international destination from Airport A, the overall connectivity index across the region has grown from 13,200 previously to 17,400. This represents an increase in the overall connectivity index of approximately 32%.

Estimating the Resultant GDP impacts

- 9.7. The research has identified an elasticity of 0.05 between the connectivity index and GDP per capita. In the example above, the addition of the new route at Airport A results in a 32% increase in connectivity. Based on this increase, the relationship would suggest a resulting increase in GDP per capita of 1.6%. If other things remain equal, this will translate to a 1.6% increase in GDP. In other words, if our example region had a GDP of C\$10,000,000, then the wider economic impact associated with increased connectivity offered by Airport A from the new route would be C\$160,000.

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