AÉROPORT DE TORONTO
BILLY BISHOP
TORONTO CITY AIRPORT

2018 Airport Master Plan

CLEANER

GREENER

QUIETER

80 YEARS
OF MAKING CONNECTIONS

On September 8, 1939, Billy Bishop Toronto City Airport welcomed its first commercial flight—an aircraft from the U.S. carrying renowned conductor Tommy Dorsey and his swing band who were performing at the Canadian National Exhibition. In the 80 years since that flight the airport has grown into an important transportation gateway connecting Toronto to the world and welcoming more than 2.8 million passengers each year.

Providing service to more than 20 destinations in Canada and the U.S. and located less than 3 kilometres from downtown, Billy Bishop Airport is convenient, efficient and one of the only airports in the world that is walkable and bikeable, with more than 40 per cent of our passengers walking, biking, or taking transit or shuttle from the airport.

Billy Bishop Airport offers an award-winning, world-class experience and is just one more thing to love about Toronto.

To read more about the last 80 years at Billy Bishop Toronto City Airport please visit BillyBishopAirport.com

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As an urban airport located in the heart of one of North America's greatest cities, Billy Bishop Toronto City Airport is a unique asset and a source of great opportunity.

As an urban airport located in the heart of one of North America's greatest cities, Billy Bishop Toronto City Airport is a unique asset and a source of great opportunity. The airport drives commerce by connecting Toronto to regional and global centres such as New York, Ottawa, Montreal, Washington D.C., Boston, Chicago and northern Ontario. It encourages tourism and connectivity by bringing people to Toronto from destinations throughout eastern North America. It serves as a base for Ornge Air Ambulance that facilitates urgent patient and organ transfers, which supports health care for Ontarians. It generates revenue, provides jobs for the region, and invests in the community to build infrastructure and support charitable organizations. Billy Bishop Airport plays an integral role in servicing Toronto and contributing to what makes this city great.

With the opportunity that comes with operating an urban airport in one of North America's greatest cities comes heightened expectations and responsibility to conduct our operations in a manner that reflects balance with the surrounding city. It is our commitment to balance that guides us and informs our vision for this airport. Over the years, we have come to refer to this commitment to balance as "managed growth."

Over the past 80 years, history has proven that the airport has adapted to the changing landscape and is well positioned to continue into the 21st century. As for our own aspirations, Billy Bishop Airport's vision is to be the global leader in how a modern airport operates in an urban environment. Billy Bishop Airport has played an important role as a physical and symbolic transportation gateway to the City of Toronto.

In 2012, Billy Bishop Airport completed its first Master Plan. Much has changed in the last five years and our new Master Plan is a more comprehensive look at Billy Bishop Airport and where opportunities exist to make the airport **cleaner, greener and quieter**. The Master Plan is also looking at growth opportunities within the context of the Tripartite Agreement—which is the 1983 agreement between the City of Toronto, Federal Government and Toronto Port Authority (PortsToronto) that governs all operations—and our own Managed Growth Strategy.

VISION

To be the global leader in how a modern airport operates in an urban environment.

MISSION

To invest in the areas that are meaningful to our passengers, community and stakeholders. With a focus on sustainability and innovation, the airport is committed to continuous improvement in noise mitigation; environmental protection and air quality improvements; passenger service and convenience; community initiatives and engagement; and, technology development to make what is already great even better.

To PortsToronto, which owns and operates Billy Bishop Airport, this managed growth approach is informed by regular consultation with government partners including First Nations, the community and stakeholders. This consultation takes the form of: quarterly Community Liaison Committee (CLC) meetings; regular Noise Management Sub-Committee meetings; twice-monthly meetings with City of Toronto staff; regular dialogue with Transport Canada; regular meetings and consultation with Mississaugas of the Credit First Nations; and other such communications to ensure we remain aware of the challenges and opportunities and do what is needed to maintain balance. In addition, the airport management team regularly attends community meetings, which improves our understanding of community and neighbourhood concerns.

It is this regular consultation that has informed changes in operations and procedures as well as prompted much needed investment in infrastructure. For example, concerns raised over traffic led to such infrastructure solutions as the pedestrian tunnel which opened in 2015. The tunnel has mitigated traffic and congestion associated with the airport by normalizing the flow of passengers that had previously arrived and departed in waves associated with the ferry.

The Ground Run-up Enclosure (GRE) is another such investment. Identified as a mitigation measure in the 2012 Airport Master Plan to address community noise concerns, City of Toronto Council unanimously endorsed the construction of this noise mitigation infrastructure, and PortsToronto agreed to build the structure. The construction of the GRE was completed in 2017 and has led to a marked decrease in noise complaints associated with ground engine run-ups.

Investments in technology such as WebTrak and additional Noise Monitoring Terminals (NMTs) have also empowered the community to confirm aircraft activity and report sources of noise.

Balance is also about working with airline partners and tenants, including Porter Airlines, Air Canada Jazz, and Nieuport Aviation Infrastructure Partners to support their business objectives, as well as listening to our passengers to meet and exceed their expectations for our airport. Billy Bishop Airport is consistently ranked as one of the best regional airports in North America and the world through such organizations as Skytrax, Condé Nast and Airport Council International. In 2018, Billy Bishop Airport achieved a satisfaction rating of 97 per cent among passengers.

In terms of accommodating future growth and community balance, the City of Toronto's TOcore Downtown Plan has identified Toronto as Canada's largest employment cluster with over 500,000 jobs. Over the past five years, 7,500 residents annually are being added to the almost 240,000 residents that currently call downtown Toronto their home. By 2041, the population is projected to nearly double to a potential population of 475,000. This together with the development of Liberty Village neighbourhood and South of Eastern (including the Port Lands) neighbourhood, means there is the potential to reach between 850,000 and 915,000 jobs in the TOcore study area.

For its part Billy Bishop Airport contributes more than $470 million in Gross Domestic Product (GDP) and generates 4,740 jobs in the region, including 2,080 jobs directly associated with the airport. This translates into $280 million in wages. But our economic impact goes even further. With frequent daily flights to economic sectors such as New York and technology hubs such as Boston, the airport has become an important factor in attracting new business to Toronto. Billy Bishop Airport and the city of Toronto are a compelling proposition for companies looking to base operations in a city with urban energy, excellent quality of life, and quick connections to where employees need to travel.

GROWING IN BALANCE

In 2019, Billy Bishop Airport celebrated its 80th Anniversary. The airport opened in 1939 in the days leading into the Second World War. During the war, the airport served as an important military facility including hosting the Royal Norwegian Air Force and providing military training. After the war, the airport reverted back to civilian use and was a regional base of operations for commercial operations and flight schools. In the early 1960s, a hangar and a new 3,988-foot runway was built. At the time, the island airport was Canada's busiest airport, based on the number of take-offs and landings.

In 1983, the island airport was the 10th largest airport in Canada based on passenger travel. It was at this time that the Tripartite Agreement among the then Toronto Harbour Commission, City of Toronto and Government of Canada was signed to govern the airport. This agreement codified what has always been the case: the need for cooperation among at the airport, the municipal government and the federal government.

Source – City of Toronto 2015 TOcore Report

It was not until 2006 when the true potential of the airport was realized with the introduction of Porter Airlines. However, the significant progress of the airline and passenger growth at the airport was not without its growing pains as we attempted to address the needs and expectations of an increasing passenger base and the effect that growth was having on the neighbourhood. In the last five years, considerable energy, effort and expense has gone into making the airport cleaner, greener and quieter for the community and driving efficiency, convenience and customer service for our passengers and partners.

In response to this passenger growth, PortsToronto made many enhancements including: Changes to the passenger pick-up and drop-off area including the introduction of a complimentary shuttle bus to promote modal share options; optimization of the taxi corral on the Canada Malting Site lands; enhanced parking for the airport, the Waterfront School and community; and the installation of a noise barrier to mitigate noise from airport operations on the local community.

That meant consistent infrastructure investment, regular public consultation, and policy improvements to address irritants such as traffic, air and noise pollution, which has driven a 46 per cent decrease in complaints from 2013 to 2018. It meant welcoming new passenger terminal owners Nieuport Aviation who would invest in services and amenities such as upgrading the lounges to accommodate growth experienced since the terminal first opened and introducing new food and beverage concessions. It meant investing in a three-year airfield upgrade to rehabilitate the runways, taxiways and aprons, reconfigure taxiways, and introduce new technology and sustainability upgrades to modernize the airfield for the safety and service of our passengers.

The airport of today is cleaner, greener and quieter than the airport of five years ago. The airport of tomorrow will be cleaner, greener and quieter than the airport of today. This Master Plan looked at Billy Bishop Airport from a variety of angles to report on current operations and future opportunities in such areas as land use, ground access and airfield functionality. It also looked at opportunities to introduce further enhancements to our operations that support our sustainability mandate.

In 2016, PortsToronto published its first Sustainability Report in which impacts were assessed and targets were set for Billy Bishop Airport. The airport has long embraced measures large and small to reduce its environmental footprint—measures such as being 100 per cent powered by clean renewable energy via Bullfrog Power, and daily operational improvements such as spent glycol containment and hybrid service vehicles. This effort will continue in the years ahead, with the biggest opportunity being the conversion of the airport ferry, from diesel to bio-fuel and then to electric power, which we hope to achieve by early 2020.

Our mission at Billy Bishop Airport is to invest in the areas that are meaningful to our passengers, community and stakeholders. With a focus on sustainability and innovation, Billy Bishop Airport is committed to continuous improvement in noise mitigation; environmental protection and air quality improvements; passenger service and convenience; community initiatives and engagement; and, technology development to make what is already great even better.

This Master Plan is a key component that will guide how we get there. The Master Plan has been developed by WSP Canada Inc., a global leader in this area, and focuses on the airport and its operations as managed and stipulated within the parameters of the Tripartite Agreement. The content within this plan is a reflection of a comprehensive public consultation effort that included more than 90 meetings with members of the community, government partners, First Nations communities, airport partners and stakeholders. This included three public meetings that were held on February 7, 2018, June 25, 2018, and June 12, 2019. At these meetings, we heard about challenges, concerns, opportunities, ideas for improvement, how we could communicate better and suggestions on how to manage growth. These consultations provided us with a one on one opportunity to hear from individuals, groups and community leaders about what we should do to improve airport operations. We also heard about concerns with growing the airport, and if there was any rationale for growth.

Based on the year and a half of consultations and engagement on the Airport Master Plan, including extensive research and analysis, the rationale for growth factors into several key findings including:

- The continued and forecast residential growth in the downtown core of the city of Toronto;
- The continued rise in air travel with all age groups, to and from Toronto going to business and leisure destinations;
- The ease of access of an urban airport in the downtown core;
- The regional transportation connectivity to rail and public transit; and,
- Offering air service during peak days and times where the commute is minimal for business and leisure travellers.

Given this rationale, Billy Bishop Airport's opportunity is to be a leader in providing regional air service that supports continued international air service provided through Toronto Pearson International Airport. Billy Bishop Airport is providing a service that is utilizing available infrastructure in the city, introducing competition for the traveller and serving an urban market. Billy Bishop Airport's catchment area is intensifying with residential growth and job creation.

Research indicates that demand for air travel will outpace supply. In 2016, 49 million passengers and more than 470,000 tonnes of cargo flowed through Southern Ontario's airports. These figures are estimated to grow to 110 million passengers and a million tonnes of cargo by 2043. By the late 2030s, regional air travel demand is likely to outpace the current capacity of the region's airports resulting in an excess demand of around 20 million passengers per year by the mid-2040s. The negative economic impact of passengers leaving the region to meet their travel needs elsewhere could reach as high as $15 billion in GDP.

SOUTHERN ONTARIO AIRPORT NETWORK

The Southern Ontario Airport Network (SOAN) is a forum for the leading commercial airports in this region to work together, support growth and amplify the overall impact of air service.

2.3 BILLION
federal, provincial and municipal taxes facilitated by activities at SOAN airports

55,300
direct jobs supported by the operations at SOAN airports

51.5 MILLION
passengers in 2017

110 MILLION
passengers by 2043

Billy Bishop Toronto City Airport · John C. Munro Hamilton International Airport · Kingston Airport – from here to anywhere™ · LakeSimcoe Regional Airport · London International – start here. go anywhere. · Niagara District Airport – gateway to the peninsula · Oshawa Executive Airport · Peterborough Airport · Sarnia Ontario · Region of Waterloo International Airport · YQG Your Quick Gateway – Windsor International Airport · Toronto Pearson

Source – Southern Ontario Airports Network

Key Priorities

Our goal is to optimize the airport as a general aviation airport with a mix of general aviation activities and scheduled air service, yet balance operations with the interests of the community and the protection of the environment through initiatives that will mitigate the negative impacts associated with airport operations. As such our priorities include:

- Expand upon PortsToronto's ongoing initiatives towards operating the airport in a sustainable and environmentally responsible manner.
- Improve the operational efficiency of the airside to minimize delays and reduce ground noise.
- Improve operational efficiency with respect to landside curb activities, and encourage greater use of the airport shuttle and public transit.
- Increase scheduled air carrier slots in a manner that minimizes impacts on the community but meets the needs specific to the city of Toronto and the travelling public.
- Provide improved infrastructure and facilities for general aviation.

By responding to opportunities for growth in a balanced way, the addition of more flights would respect the community's request to limit flights during evenings and weekends.

Recommendations

During the 18-month consultation period with stakeholders—including the community, neighbourhood associations, local businesses, airport tenants, airport staff, agencies including First Nations communities —considerable feedback and input was received. Public comment was also received during and following our three public meetings. Given the content and the nature of the majority of feedback received, technical experts WSP developed key recommendations grouped into the three subject areas which appeared to be the most important for those consulted. Those subject areas are:

I. Infrastructure Improvements
II. Access
III. Community Coordination and Environmental Mitigation

I. Infrastructure Improvements

Improve the pedestrian environment and appearance of the airport along the north breakwater west of the ferry slip.

Improve the efficiency of the airport's landside curb operations by implementing dedicated pick-up and drop-off areas.

Improve the efficiency of the taxiway system by providing a parallel taxiway for the main Runway 08-26.

Provide additional apron and tie-down areas for general aviation and provide opportunities for hangar development. This would be based on a study to determine the demand from general aviation users for additional facilities, including a business case for providing such facilities.

Provide improved wayfinding signage.

Provide for a new Combined Services Building and equipment storage shed.

Relocate and renovate historic Terminal A as a multi-purpose facility that potentially could include an airport restaurant, aviation museum and event space, if the business case supports this use.

Undertake the process required by Transport Canada to fulfill the mandate for Runway End Safety Areas at either end of Runway 08-26. This process will include consultation and engagement with agencies including First Nations, the community, and airport stakeholders.

II. Access

Work with the operator of the airport shuttle to optimize its operation including the provision of additional stops or routes, and plan for provisions of utilities through infrastructure projects in the future to support electric powered ground transportation vehicles such as shuttle busses.

Work with the City of Toronto to enforce parking and traffic regulations in areas impacted by the airport.

Work with the Toronto Transit Commission (TTC) to encourage greater awareness among TTC patrons of public transit access to the airport and encourage increased usage by airport patrons. Improvements could include:

- Identifying Billy Bishop Airport on TTC route maps, similar to that provided for Toronto Pearson International Airport;
- Identifying the streetcar stop as 'Billy Bishop Airport' and providing improved amenities to transit riders including enhanced shelters at the TTC streetcar stop locations;
- Improved wayfinding signage; and,
- Providing well-lit pathways between the tunnel pavilion and the TTC streetcar.

III. Community Coordination and Environmental Mitigation

Undertake an environmental noise study that examines and models the sources of airport ground noise, and assesses opportunities to mitigate impacts through the implementation of noise infrastructure and other physical means.

Review potential changes to airport operations and procedures that could mitigate impacts on the neighbouring community. This could include:

- Restricting aircraft that are noisier;
- Managing both airline and general aviation movements during noise sensitive periods such as evenings and weekends; and,
- Enforcing procedures on single engine taxiing and idling.

Introduce fee structures that penalize noisier aircraft and create incentives for quieter aircraft.

Review the opportunity to implement a vehicle ferry operation between the Port Lands and the south side of the airfield in order to eliminate heavy commercial vehicles for both the airport and the City of Toronto from Eireann Quay.

Invest in equipment and vehicles that are electric or operate with reduced emissions.

Invest in innovation that leads to improved airport efficiency and reduced community impacts, which includes: opportunities to invest, support and plan for the development and introduction of electric and hybrid general aviation and regional commercial aircraft, and ground transportation vehicles, and could involve developing partnerships with research agencies, manufacturers and operators.

Master Plan: Subject Areas

Billy Bishop Airport's 2012 Airport Master Plan made recommendations on upgrades to airside and landside operations; provided a review of airport support and commercial development; and made recommendations on aviation activity management in advance of Billy Bishop Airport reaching its theoretical movement capacity. The 2018 Master Plan updates this information and provides a long-term vision for the built environment that guides the appropriate use of lands and will assist airport management in making informed decisions regarding future development.

The key subject areas that make up this Master Plan are as follows:

Section 1

Vision, Mission, Guiding Principles, Governance, Social and Environmental Responsibility, Planning Objectives and Regulatory Requirements.

Section 2

Community Consultation and Engagement.

Section 3

Airport History, Role, Airside Infrastructure, Landside, Air Terminal Building, General Aviation Activity, Airport Support, Services and Utilities.

Section 4

Socio-Economic Profile.

Section 5

The Airport and Community, Overview of Key Planning Studies.

Section 6

Historical Activity, Aircraft Movement Forecasts, Passenger Number Forecasts, Noise Exposure Forecast, Contour Modelling, and Preferred Growth Scenario based on the Managed Growth Strategy.

Section 7

Infrastructure Requirements, Airside, Air Terminal Building, Landside, Airport Support Facilities, General Aviation Development.

Section 8

The Environment, Sustainable Development, Corporate Social Responsibility which includes Noise Management, Air Quality, Water Quality and Greenhouse Gas Emissions.

Section 9

Priorities and Recommendations.

Section 10

Airport Development Plan, Airside, Landside, Terminal Facilities, Airport Support Facilities, General Aviation Development, Airport Land Use Plan.

Section 11

Conclusion.

The 2018 Billy Bishop Airport Master Plan is a flexible blueprint that responds to changes in socio-economic conditions, industry trends and regulatory requirements. It is important to note that an airport Master Plan is not a regulatory document, but rather a planning tool intended to deliver a long-term strategy for the airport that provides a framework for future planning and development within the typical 20-year planning horizon for an airport Master Plan.

This Master Plan adheres to this planning horizon, as it cannot realistically make plans for investments in innovation and balanced growth to ensure the success of this airport with a view that the airport will close in 2033 when the Tripartite Agreement ends. Strategic planning must be undertaken with a longer-term view that provides for the continuation of airport operations to meet the increasing demand for air travel within the city of Toronto. With the continued increase in population, housing and businesses within the city of Toronto and Greater Toronto Area, Billy Bishop Airport has an important role to play into the future, which supports growth at Toronto Pearson International Airport.

In keeping with transportation master plans led by municipal and regional governments, planning and investing in infrastructure requires a commitment towards the future. PortsToronto is committed to making future investments that will support the growing transportation network and meet the increasing demands of air travel, on the ground and in the air.

Billy Bishop Airport provides a unique gateway for business and tourism; it is a service provider for emergency medical services, private aviation and flight training; it is a job creator and economic driver; it is a partner to community organizations which last year benefited from financial and in-kind contributions; and it is an asset that benefits the city of Toronto and the region, all while contributing to its world-class status and aspirations.

PortsToronto is pleased to present the updated 2018 Master Plan for Billy Bishop Airport. We are proud of the approach and rigour that went into the technical studies, public consultation, environmental analysis and market research that informs the conclusions and recommendations contained within.

Much has been accomplished in the last five years to get us closer to our vision and mission for Billy Bishop Airport. Much more will take place in the future to help us achieve our vision of being the global leader in how a modern airport operates in an urban environment. Innovation and partnership will be key to achieving our goals. This means innovation as it pertains to all areas of our business including environmental protection, passenger efficiency and operation impact mitigation. It also means harnessing innovation in new technologies such as the introduction of electric and hybrid aircraft in the future.

This Master Plan will serve as an important component to achieve our vision but so will the practices and policies we have put in place to consult with our community, operate in a transparent manner and strike a balance between commercial imperatives and the community interest. We are on a journey and this plan will be part of the navigation needed to get us to our destination.

1
Introduction

"When designed, executed and operated well, airports will generate more jobs, facilitate increased business interactions, encourage co-located commercial development, support increased trade in goods and will likely open up regions to more cross sector investments."

—Future-Ready Airports, PWC, January 2017

1.1
Preface

Located at the foot of Toronto's downtown core, Billy Bishop Airport is Canada's ninth-busiest airport and welcomed 2,807,208 business and leisure travellers in 2018. The airport offers direct, non-stop, and one-stop flight service to more than 20 cities in Canada and the U.S. with connection opportunities to more than 80 international destinations through connecting airlines' networks. As Canada's sixth-busiest airport with passenger service to the United States, Billy Bishop Airport provides key connections to regional centres that do not have connections to international destinations.

A base for commercial air carriers Porter Airlines and Air Canada, Billy Bishop Airport is known throughout the travelling community for its word-class customer service and amenities. The airport's proximity to downtown, in conjunction with the state-of-the-art pedestrian tunnel, enhanced shuttle service, shorter passenger queue lines and recently upgraded passenger lounges, have made Billy Bishop Airport the travel hub of choice.

The airport also supports a wide variety of general aviation activities. Billy Bishop Airport serves as a base for Ornge (the provincial air ambulance service), two Fixed Base Operators, FlyGTA, Cameron Air, Trans Capital Air and Heli Tours, and is home to a personal/general aviation community that includes approximately 50 private planes and one flight school.

In addition to direct economic benefits, the airport stimulates significant economic benefits by providing connections between cities, which in turn promote economic growth and competitiveness, and expand leisure travel opportunities into the future. The airport is an important part of the regional air transportation system and provides significant contributions to Toronto's economy. Each year, the airport generates more than $470 million in Gross Domestic Product (GDP) and supports 4,740 jobs, including 2,080 directly associated with airport operations.

Billy Bishop Airport, with its unique character and close proximity to the heart of Toronto, has not gone unnoticed. Billy Bishop Airport has won a series of passenger-driven awards, including being named one of the top airports in North America in both the Airports Council International's (ACI) Airport Service Quality Awards and Skytrax World Airport Awards. Billy Bishop Airport has also been ranked as the fourth Best International Airport by Condé Nast Traveler and was recognized as having one of the Top Ten Most Beautiful Airport Approaches by Private Fly for the fifth consecutive year.

The significant growth in passenger activity over the past twelve years is also a testimony to the popularity of Billy Bishop Airport among the travelling public, and its value to the Southern Ontario air travel network.

1.2
Governance

Billy Bishop Airport is owned and operated by the Toronto Port Authority, doing business as PortsToronto. PortsToronto is the successor agency of the Toronto Harbour Commissioners (THC), which managed the Toronto Harbour from 1911 to 1999. As part of a broad strategy developed by the federal government to modernize the administration of ports, the Toronto Port Authority, now PortsToronto, was established in 1999 to operate the port, marina, airport and its land holdings.

Established under the Canada Marine Act, PortsToronto is a Government Business Enterprise that is mandated to be financially self-sufficient and receives no federal, provincial or municipal funding. PortsToronto operates in accordance with the Canada Marine Act and Letters Patent issued by the federal Minister of Transport in addition to a series of specific policies and procedures. The Letters Patent include requirements related to PortsToronto's board of directors and outlines the activities that can be undertaken by the organization.

PortsToronto is accountable to the federal government through Transport Canada, and is guided by a nine-member board of directors composed of individuals appointed by all levels of government —federal, provincial and municipal. Six members of the board are appointed by the Minister of Transport in consultation with committees representing four identified user groups—commercial, recreation, airport and port operations. The City of Toronto and the Province of Ontario have a direct governance relationship with PortsToronto via their appointees to the PortsToronto board of directors.

The board of directors is appointed as follows:

- One appointee nominated by the federal Minister of Transport
- One individual appointed by the City of Toronto
- One individual appointed by the Province of Ontario
- Six individuals appointed by the federal Minister of Transport in consultation with user groups

All individuals nominated by the Minister of Transport are appointed by the Governor in Council.

The following four standing committees oversee various organizational matters, various facets of our operations and assess recommendations from management:

- Audit and Finance
- Governance and Human Resources
- Communications and Outreach
- Pension

The board relies on these committees to facilitate business and guide its decisions.

PortsToronto has long adhered to best practices around governance, financial reporting, and executive and Board expense disclosures. This includes designing a new User Group Director Nomination process that harmonizes the nomination framework established in our Letters Patent with the federal government's open, transparent and merit-based process for public appointments. This User Group Director Nomination process was endorsed by Transport Canada and has been suggested as a best practice for other Canadian Port Authorities. Additionally, in an effort to continuously improve our governance practices, PortsToronto revised our corporate by-law, updated our director orientation program and Board self-assessment process and developed a conflict of interest reporting protocol applicable to Board members and management. PortsToronto's Corporate Governance Manual was also revised, consisting of the Board Mandate and Committee Charters, to reflect best practices from other industry leaders and are publicly available on our website.

PortsToronto, including the operation of Billy Bishop Airport, receives no government funding. Beyond PortsToronto's community and infrastructure investments, PortsToronto contributed approximately $3.3 million in Payments in Lieu of Taxes (PILTs) to the City of Toronto in 2018, as well as paying $2.6 million toward realty taxes and more than $2.9 million to the federal government for the Gross Revenue Charge. This resulted in a total contribution slightly under $9 million that can be used to benefit taxpayers in Toronto and across the country.

1.3
Social and Environmental Responsibility

PortsToronto, including its operations at Billy Bishop Airport, is committed to environmental sustainability and giving back to the community it serves. Key environmental initiatives include the use of renewable energy through Bullfrog Power, which provides 100 per cent green electricity, and through the adoption of best practices that include the use of energy efficient vehicles and equipment.

With respect to social responsibility, PortsToronto strives to engage in an open, transparent and two-way dialogue with its neighbours and stakeholders. In the fall of 2010, the Community Liaison Committee (CLC) was established to expand community engagement and communication with the residents and businesses near Billy Bishop Airport. The CLC holds quarterly meetings that are open to the public, and are represented by local community leaders and airport stakeholders. A Noise Management Sub-Committee of the CLC, formed in 2016 and re-engaged in mid-2018, meets bi-monthly to research, understand and address noise impacts from airport operations. As well, PortsToronto regularly meets with local neighbourhood associations, community groups, business associations, and agencies including the City of Toronto, Transport Canada, Mississaugas of the Credit First Nation, Waterfront Toronto, and the Toronto and Region Conservation Authority.

Through its community investment initiatives, PortsToronto provides donations, sponsorships and in-kind contributions to local community initiatives, activities and events to support the long-term growth and development of the local community. PortsToronto has contributed $11 million since 2009, which is an average of $1.2 million per year.

"A positive future for our airport, our neighbourhood, and our environment are behind all of our sustainability efforts".

—Gene Cabral, Executive Vice President, Billy Bishop Toronto City Airport

In 2018, Doors Open welcomed more than 24,000 people through its doors for a behind -the-scenes look at airport operations.

Billy Bishop Airport continued to sponsor the Waterfront Neighbourhood Centre's Community Connect Garden, which engaged more than 400 people and produced 125 kg of organic fruits and vegetables for marginalized families on the waterfront.

ALS SLA CANADA

The Billy Bishop Airport Plane Pull to End ALS event raised more than $285,000 for ALS research and awareness.

1.4
Vision, Mission and Guiding Principles

1.4.1
Vision Statement

PortsToronto's Vision Statement for Billy Bishop Airport is as follows:

To be the global leader in how a modern airport operates in an urban environment.

1.4.2
Mission Statement

PortsToronto's Mission Statement for Billy Bishop Airport is as follows:

To invest in the areas that are meaningful to our passengers, community and stakeholders. With a focus on sustainability and innovation, the airport is committed to continuous improvement in noise mitigation; environmental protection and air quality improvements; passenger service and convenience; community initiatives and engagement; and, technology development to make what is already great even better.

1.4.3 Guiding Principles

The corporate objectives for Billy Bishop Airport inform and support the guiding principles that direct this Airport Master Plan and shape the recommendations detailed within this document. These guiding principles are as follows:

BRAND AND VALUE PROPOSITION

Billy Bishop Airport will continue to be an award-winning, world-class airport. Billy Bishop Airport is located less than three kilometres from downtown Toronto which benefits our passengers in terms of convenience, ease of access, and efficiency. It also serves an environmental imperative by taking cars off the road given passengers can walk, bike, shuttle or take transit to/from the airport—a dynamic that is truly unique in air travel.

FUTURE GROWTH AND COMMUNITY BALANCE

With the innumerable benefits of a downtown airport comes a heightened responsibility to conduct operations in a manner that mitigates noise, limits air quality impacts, reduces congestion and remains mindful of the surrounding community. Future growth for Billy Bishop Airport will be done in balance. This balance will be established by weighing community interests and passenger needs, with airline business goals, suitability of existing infrastructure, investment in future infrastructure, stakeholder needs, environmental targets, and noise forecasts. To ensure the airport operates effectively, the focus on ensuring continued success looks beyond the current expiry of the Tripartite Agreement in 2033. Similar to other government bodies that manage infrastructure, planning for the future is not based on a theoretical end date, rather it is based on the need for the service or public good. It would be challenging for any service provider to invest in infrastructure without securing a longer-term commitment. As such, PortsToronto will continue to make strategic investments and planning premised on a vision that goes well beyond 2033.

NOISE

Billy Bishop Airport will explore all options to address concerns raised during consultation with the surrounding community with regard to ground-based noise from its operations. This includes investment in infrastructure. Billy Bishop Airport will continue to explore opportunities to ensure operations, specifically around noise-sensitive times in the late evenings and weekends, are balanced with the surrounding community.

ENVIRONMENT

Billy Bishop Airport will strive to be as clean and green as is possible by using technology, process and infrastructure enhancements to enable balance between airport operations, the needs of the travelling public, and the vibrant community at our doorstep. For Billy Bishop Airport, being clean and green contemplates all areas of impact including environment, noise, air quality, water quality and community engagement.

BUSINESS OPERATIONS

Billy Bishop Airport is exceedingly proud of the key role it plays in offering the main base of operations to Ornge Air Ambulance services which provides emergency care, patient transfer and organ transportation that is directly responsible for saving thousands of lives in Ontario each year. We will continue to ensure our infrastructure supports this mission-critical service.

Billy Bishop Airport will continue to foster positive relationships with the general aviation community and will work with this important group to implement processes and infrastructure that mitigates the noise impact associated with general aviation aircraft and flight activity, while ensuring the continued commercial viability of this type of aviation.

ECONOMIC CONTRIBUTION

Billy Bishop Airport will strive to sustain and expand its economic contribution. As an economic driver for the City of Toronto and surrounding region, Billy Bishop Airport is an important asset to the local economy and a creator of high-paying jobs. In 2017, Billy Bishop Airport contributed $470 million in Gross Domestic Product (GDP) and generated 4,740 jobs and $280 million in wages. This includes 2,080 direct jobs at the airport.

Billy Bishop Airport is Toronto's city airport and we welcome a deeper partnership with the elected officials and staff of the City of Toronto to ensure the airport continues to be a valuable asset, key economic driver and facilitator of global connectivity for business travel and tourism alike.

With easy connection to markets such as New York, Boston, Washington D.C., Chicago, Montreal and Ottawa, as well as regional connections to tech-hubs such as Waterloo, Billy Bishop Airport fuels business and attracts companies looking to base operations in a city with urban energy, excellent quality of life, and quick connections to everywhere employees need to go. Porter's service to Thunder Bay is one of the airport's busiest routes as a link to Northern Ontario's hub, which connects First Nations and Indigenous communities.

Billy Bishop Airport is also proud to participate in the Southern Ontario Airport Network. SOAN, as it is called, is an important initiative to ensure airports can meet the significant growth within the region for air travel by collaborating and specializing. Billy Bishop Airport is already doing this by focusing on regional, short-haul air transport that enables Toronto Pearson International Airport to grow into a mega hub on the scale of some of the largest international airports in the world. By becoming a mega hub, Toronto-Pearson further increases connectivity to global markets and centres of commerce and supports Toronto as one of the premier global cities.

COMMUNITY AND CONSULTATION

Billy Bishop Airport will continue to make meaningful investments in the community that enhance the surrounding neighbourhood and will continue to ensure that the airport grows in balance with the surrounding community.

Billy Bishop Airport will also continue to build on its strong reputation of consulting the community on matters of shared interest. This consultation to date has resulted in 32 CLC meetings, more than 90 meetings specific to this Master Plan.

Of note, PortsToronto and Billy Bishop Airport meet regularly with the Mississaugas of the Credit First Nation—Department of Consultation and Accommodation management and staff to ensure territorial treaty land rights and water interests are discussed and accommodated, through mutual collaboration.

INNOVATION

Billy Bishop Airport will welcome opportunities to invest, support and plan for the development and introduction of electric and hybrid aircraft and technology, most immediately with General Aviation aircraft and commercial aircraft in the more distant future. Billy Bishop Airport will continue to innovate to achieve its goals by continuing to update its fleet to hybrid/electric vehicles and encourage ground transportation operators to transition towards the use of electric vehicles. This means innovation as it pertains to all areas of our business including environmental protection, passenger efficiency and operational impact mitigation.

REGULATORY COMPLIANCE

Billy Bishop Airport will ensure compliance with regulatory requirements. Transport Canada is likely to mandate Runway End Safety Areas (RESA) be implemented at specific Canadian airports, which will include Billy Bishop Airport. The Master Plan will elaborate on compliance with this mandate and provide studied options for the effective implementation of RESA, which could necessitate the extension of the existing landmass.

Brand and Value Proposition
Future Growth and Community Balance
Noise
Environment
Business Operations
Economic Contribution
Community and Consultation
Innovation
Regulatory Compliance

1.5
Planning Objectives

1.5.1
The Purpose of an Airport Master Plan

The purpose of an airport Master Plan is to establish a rational development concept for an airport that protects and preserves the long-term operational and business objectives, while accommodating short to medium-term improvements. As a management tool, an airport Master Plan assists operators in making informed decisions about the requirement for, timing, and costs associated with future improvements. Airport Master Plans typically identify the projected needs of an airport over a specified planning horizon and are typically updated every five to ten years. An airport Master Plan is also a key source of information that provides the community, government agencies, operators, and other airport stakeholders with a clear understanding of the intent and direction of the airport.

An airport Master Plan is not a regulatory document, but rather a flexible blueprint that responds to changes in socio-economic conditions, industry trends and regulatory requirements. The typical planning horizon for an airport Master Plan is 20 years.

Unlike the 26 National Airport System (NAS) airports in Canada, such as Toronto-Pearson, Ottawa, and Winnipeg, PortsToronto is not obligated by Transport Canada to prepare an airport Master Plan for Billy Bishop Airport. However, following a sound industry practice, PortsToronto proposes to prepare airport Master Plans every ten years with updates every five years.

As the airport Master Plan is an overall guiding document and vision for the airport, PortsToronto is not bound to implement any of the recommendations contained within the document. Rather, the implementation and phasing of recommendations will be reviewed with respect to a number of criteria including necessity, financial capability, cost/benefit, and associated environmental and community impacts. Implementing specific recommendations may trigger a requirement for additional stakeholder and community consultation.

PortsToronto proposes to prepare airport Master Plans every ten years with updates every five years.

An airport Master Plan is not a regulatory document but rather a blueprint that responds to changes and opportunities

1.5.2
The Billy Bishop 2018 Airport Master Plan

This Airport Master Plan is an update to the 2012 Billy Bishop Airport Master Plan, and adheres to the principles, limitations and requirements of the Tripartite Agreement.

Objectives of the Airport Master Plan include:

- Enhance safety and security by ensuring a safe and secure environment for passengers, operators, employees and the public;
- Provide a comprehensive airport Development Plan that addresses the needs of airport stakeholders in a rational and cost-effective manner;
- Improve the efficiency of the airport through infrastructure and operational improvements;
- Interface with the community in a manner that lessens the impacts associated with the airport's operation;
- Reinforce the airport's economic contribution;
- Enhance opportunities to improve environmental performance and sustainability; and,
- Encourage innovation.

1.5.3
Planned Upgrades Recommended in the 2012 Airport Master Plan

The 2012 Airport Master Plan for Billy Bishop Airport carried with it a number of recommendations, many of which have been implemented by PortsToronto. Recommendations that have been implemented include:

- The decommissioning of Runway 15-33 and its conversion into a taxiway;
- The rehabilitation of Runway 08-26;
- The expansion of the apron to the south;
- The rehabilitation of Runway 06-24 including the provision of new edge lighting;
- Provision of a Ground Run-up Enclosure (GRE);
- Enhancements to the taxiway system to better accommodate Q-400 aircraft operations; and,
- Improvements to landside access and curbs.

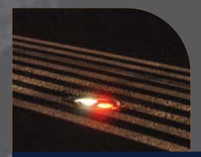
As part of the planning process post 2012 Master Plan, PortsToronto identified additional enhancements that could be made airside, which complemented the recommendations in the master plan. Some of these enhancements included items that would promote more environmentally sustainable operations, plan for future infrastructure needs and provide efficiencies in airside operations. It was decided that a program to rehabilitate the aging airfield infrastructure at the airport was required and was consequently implemented during the recently completed Airfield Rehabilitation Program.

Airfield Rehabilitation by the Numbers

Removed approximately 6,000 trucks carrying asphalt or granular materials from the airport's neighbourhood streets through barging operation

450 actual working days on site

Replaced 70 old incandescent airfield signs with new LED signage



Installed 80 new LED runway inset lighting

2,000 tri-axle trucks of asphalt

Over 3000 night-time hours worked (11pm-6am)

2018

2017

Over 20km of cabling

Over 100 construction progress meetings

2016

1 Barge

800 barge trips (one-way)

20,000 tonnes of recycled asphalt millings were reused

Ground Run-up Enclosure

45,000 tonnes of asphalt

Replaced approximately 345 old incandescent with new energy efficient LED elevated airfield lights

1.5.3.1 Implementation of 2012 Master Plan Recommendations

A milestone project that addressed a large number of 2012 Master Plan recommendations was undertaken through the Airfield Rehabilitation Program. The Airfield Rehabilitation Program was planned as a three-year construction project based on the amount of construction work required coupled with the operational limitations of the airport. Given that Billy Bishop Airport has a single runway to accommodate commercial aircraft, the majority of airfield work had to be undertaken when the airport is closed, between 11:00 p.m. and 6:45 a.m.

Airfield Rehabilitation Program—Year 1

In the first year of the Airfield Rehabilitation Program, the following milestones were achieved:

RUNWAY 08-26 REHABILITATION

The main runway utilized by commercial airlines and the general aviation community, was fully resurfaced by milling and paving, and included the final addition of runway centreline LED lighting.

RUNWAY 06-24 RECONSTRUCTION

Full pavement reconstruction and the addition of runway edge LED lighting providing improved service to the general aviation community using the airport.

PERIMETER SERVICE ROAD CONSTRUCTION

Milled and paved material from on-site runway works were used as base material for the upgrading of the Perimeter Service Road. This work continued during each year of the program.

RUNWAY 15-33 CLOSURE

As identified in the 2012 Airport Master Plan, Runway 15-33 was decommissioned, with the existing pavements reconstructed and converted into the new Taxiway Echo.

2400 V FEEDER REPLACEMENT

To accommodate current and future infrastructure airside, it was determined that the current electrical supply needed to be replaced and upgraded.

1.5.3.1
Implementation of 2012 Master Plan Recommendations *(continued)*

Airfield Rehabilitation Program—Year 2

As part of the second year of the Airfield Rehabilitation Program, the following milestones were achieved in 2017:

GROUND RUN-UP ENCLOSURE (GRE)

Construction of the GRE facility took approximately seven months and the facility was operational on April 19, 2017.

RUNWAY 08-26 GROOVING

This is a safety feature intended to improve the macro-texture of the pavement surface, reduce water film thickness during rainfall and provide an escape channel for water that may become trapped between the pavement surface and an aircraft tire. These effects reduce the potential for aircraft hydroplaning under wet conditions. Grooving also improves aircraft braking performance on a wet runway.

NEW APRON 6 FOR FIXED BASE OPERATIONS

This work involved construction of a general aviation aircraft apron between Taxiways Alpha, Bravo and Echo.

COMPLETE CONVERSION OF RUNWAY 15-33 TO A PERMANENT TAXIWAY ECHO

It was determined that a full reconstruction of the old runway pavements was needed for conversion to a new Taxiway Echo. This included installation of required taxiway edge LED lighting.

ELECTRICAL INFRASTRUCTURE REPLACEMENT ON TAXIWAY ALPHA

Aging electrical infrastructure on Taxiway A required replacement, and it was decided that new LED taxiway edge lights, transformers and cabling was advanced from 2018 into the 2017 work program.

OVERFLOW PARKING ENHANCEMENTS SOUTH OF GRE

Enhancements for marking of pavements for overflow parking in the south area of the airfield was completed.

1.5.3.1
Implementation of 2012 Master Plan Recommendations *(continued)*

Airfield Rehabilitation Program—Year 3

As part of the third and final year of the Airfield Rehabilitation Program, the following milestones were completed in 2018:

APRON WIDENING AND RECONSTRUCTION

The main terminal apron pavement was fully reconstructed and the southern portion of the apron was widened by 11.5 metres to allow additional room for aircraft and service vehicle movement behind the terminal gates. The project phasing and approach for this area was adjusted through careful planning to accomplish full depth reconstruction to eliminate original requirements for closing the terminal gates one at a time.

COMPLETION OF IMPROVEMENTS TO PERIMETER SERVICE ROAD

Due to the impacts of high water levels in 2017, a portion on the Perimeter Service Road adjacent to Runway 08-26, was moved into the 2018 work program.

TAXIWAY A REHABILITATION

The rehabilitation of Taxiway A pavements between the Apron and Taxiway E, was completed in 2018.

TAXIWAYS C AND F REHABILITATION

The rehabilitation of Taxiways C and F included minor adjustments to their geometry, which have provided improvements that enhance aircraft operations. The pavements were rehabilitated for both of these taxiways as well and the new LED taxiway edge lighting was added.

ELECTRICAL INFRASTRUCTURE REPLACEMENT ON TAXIWAY DELTA

The replacement of aging electrical infrastructure with new LED taxiway edge lights was undertaken on Taxiway D.

CLOSEOUT WORKS

This work required restoration of all areas to their pre-construction state, which included restoration of: contractor's yard; stockpiles; temporary haul roads; and barge dock area. The one-year maintenance period has commenced with minor outstanding items to be completed in the spring of 2019.

This three-year, $35 million Airfield Rehabilitation Program rehabilitated/reconstructed the majority of airfield surfaces and electrical infrastructure. The third and final year of this significant construction project was substantially completed on September 1, 2018, two months ahead of schedule and within the allocated budget.

The program also received two Environmental Awards from Airport Council International—one for noise mitigation efforts and one for the overall innovation.

ASQ AIRPORTS COUNCIL INTERNATIONAL 2019 WINNER

ASQ AIRPORTS COUNCIL INTERNATIONAL 2017 WINNER

1.5.4
The Planning Process

Figure 1-1 describes the planning process, which advances through a progression of phases. The process is typical of most planning studies and follows recommended industry practices. Key phases include:

PHASE 1—DATA COLLECTION

In Phase 1- Data Collection, PortsToronto identified the key objectives of the planning process and, with its consultants, collected relevant background data including existing condition reports, activity statistics, updates to base mapping, and industry trends analysis. The stakeholder/community engagement process was initiated in separate consultations with multiple airport and community stakeholders as well as government agencies, elected officials and First Nations communities. During this period a dedicated-project website was created. The first of three public meetings was held as part of this phase in February 2018.

PHASE 2—CAPACITY/DEMAND ASSESSMENT & REQUIREMENTS

In this phase, consultants prepared a number of draft activity scenarios and noise exposure forecasts that were developed within the limits and conditions set out in the Tripartite Agreement. Opportunities and constraints were identified at this time, along with future infrastructure requirements and development options.

Consultations with stakeholders, community groups and First Nations communities continued during this phase.

PHASE 3—PREPARE AND EVALUATE DEVELOPMENT OPTIONS

Stemming from requirements identified in the previous phase, a number of development options were prepared in Phase 3. Environmental and community impacts associated with each of the options were considered.

The second public event was held during this phase with a meeting held in June 2018.

PHASE 4—SELECT AND REFINE RECOMMENDED DEVELOPMENT OPTION

In Phase 4, a preferred development concept was selected and refined. A draft airport Master Plan was prepared, reflecting the objectives, findings and recommendations of the master planning process.

A draft of the Master Plan was released in June 2019, concurrent with a third public meeting. This meeting kicked off a 60-day* comment period when all stakeholders could formally submit comments regarding the Master Plan and its recommendations.

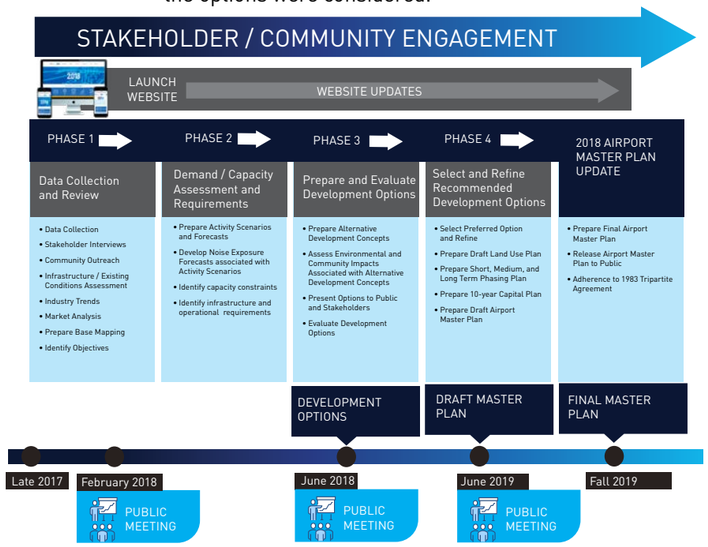


Figure 1-1
Planning Process

**The Comment period was initially 30 days but was extended to 60 days at the request of the community.*

1.5.5
Provincial and Municipal Planning Initiatives

Several provincial and municipal planning initiatives, although not specifically relating to the airport, do have an influence on the airport planning process. These initiatives include:

- Province of Ontario—Provincial Policy Statement.
- Province of Ontario—Ontario Place Redevelopment
- City of Toronto—TOcore Study
- City of Toronto—Bathurst Quay Neighbourhood Plan
- City of Toronto/Toronto Transit Commission—Waterfront Transit Reset Project
- Waterfront Toronto—Waterfront Revitalization which includes the Port Lands Redevelopment and the Don Mouth Naturalization Project
- Toronto District School Board – Waterfront School Master Plan
- Toronto Island Master Plan

1.6
Regulatory Requirements

The airport's physical attributes and operations are governed by a number of regulatory requirements and agreements. Key documents include the 1983 Tripartite Agreement and the Canadian Aviation Regulations (CARs) Part III.

1.6.1
Tripartite Agreement

In June 1983 the federal government, City of Toronto and PortsToronto, signed a Tripartite Agreement that obligates PortsToronto to operate Billy Bishop Airport as a permanent public airport for a period of 50 years, until June 2033. Further, PortsToronto must administer and operate the airport in an efficient and businesslike manner, and all parties to the Agreement are committed to not undertaking anything that would interfere with the operation and safe use of the airport.

As required under the Tripartite Agreement, there are a number of special conditions and limitations, which have a direct bearing on the Airport Master Plan. These include:

- The construction of additional runways or extensions to existing runways is not permitted;
- The expansion of lands beyond the airport's present land area is not permitted;
- Jet-powered aircraft, with the exception of Medevac operations and other emergency uses, are not permitted to operate from the airport; and,
- To curb the level of activity at the airport, the actual 28 NEF noise contour associated with aviation activity must remain within the boundary of the official 1990 25 NEF contour as contained within the Tripartite Agreement.

1.6.2
Canadian Aviation Regulations

As a certified aerodrome under Transport Canada, Billy Bishop Airport must adhere to the regulations and standards contained within the Canadian Aviation Regulations (CARs), a compilation of regulatory requirements and standards designed to enhance safety. With respect to airports, the Canadian Aviation Regulations regulate everything from the design of airport infrastructure to the provision of Aircraft Rescue and Fire Fighting (ARFF) services and implementation of Safety Management Systems (SMS).

1.6.3
Canadian Aviation Security Regulations

As a Class 2 airport under the Canadian Aviation Security Regulations, Billy Bishop Airport is required to adhere to specific requirements with respect to security procedures and practices. This includes the screening of passengers, non-passengers (employees) and baggage, and access control of vehicles and personnel into restricted areas. In addition, personnel working in restricted areas must carry Restricted Area Identity Cards.

2
Community Consultation and Engagement

2.1
Consultation Process

An important element of the Airport Master Plan was the consultation and engagement process with the community and airport stakeholders. This process assisted PortsToronto in understanding issues associated with the airport and its operations, and helped identify key opportunities and constraints to be addressed in the process. The consultation and engagement process included in this Airport Master Plan is likely the most extensive and robust ever carried out for an airport in Canada.

In the beginning, discussions focussed on the planning process itself and some of the key concerns that stakeholders and the community had with respect to the airport and its operations. As the planning process progressed, the discussions turned to development and operational topics, and finally, the recommended airport Development Plan.

2.2
Stakeholder and Community Engagement

From the start of the planning process, PortsToronto and its consultant WSP, engaged in open and transparent communication with government agencies, including First Nations, community groups, airport stakeholders, airlines, the terminal operator, special interest groups, representatives from municipal agencies, elected officials and the public at large. In all, more than 90 meetings and presentations were held during the planning process.

2.3
Agencies

Early consultation and engagement included discussions with agency representatives responsible for administering the Tripartite Agreement, which included:

- Transport Canada (Ontario Regional Office and Ottawa) including Minister's Office and Air Policy;
- City of Toronto Divisions including, City Planning (Waterfront Secretariat, Community Planning, Transportation Planning), Environment and Energy, Real Estate Services, Economic Development and Toronto Public Health; and,
- Elected officials such as, Member of Parliament Adam Vaughan, and local City Councillors Joe Cressy, Mike Layton, Paula Fletcher, Brad Bradford, and Stephen Holyday.

As well, consultation and engagement with agencies that have territorial treaty rights, a mandate to manage waterfront resources or issue approvals including:

- Mississaugas of the Credit First Nation—Department of Consultation and Accommodation
- Waterfront Toronto
- Aquatic Habitat Toronto which includes Department of Fisheries and Oceans Canada, Environment Canada, Toronto and Region Conservation Authority, Ontario Ministry of Natural Resources and Forestry, City of Toronto Water and City of Toronto Wastewater.

In addition, the consultation process included discussions with multiple agencies and authorities having jurisdiction. They included Transport Canada, NAV CANADA, Canadian Air Transport Security Authority (CATSA), and Canada Border Services Agency (CBSA).

PortsToronto and the airport management and staff meet regularly with agencies to ensure early consultation and engagement, and to ensure approval requirements are clearly identified. PortsToronto will consult and engage with Transport Canada and the City of Toronto early in the planning process and prior to construction, to ensure conformity with provisions of the Tripartite Agreement. Proactive discussions with respect to planned facility, infrastructure improvements, and land use changes that affect landside and groundside operations at the airport, are part of our routine updates. Currently, there are several projects that PortsToronto is working closely with agencies to collaborate and fund enhancements to the waterfront's public realm and streetscapes in the airport's vicinity.

2.4
Other Stakeholders

- Building Residents—Arcadia Housing Co-Operative, Windward Co-Operative and Kings Landing
- Bathurst Quay Neighbourhood Association
- York Quay Neighbourhood Association
- Port Credit Yacht Club
- Toronto District School Board representatives, including the Waterfront School Principal
- Waterfront School Parent Council
- Lake Ontario Waterkeepers
- Canadian Business Aviation Association
- Tourism Toronto
- Southern Ontario Airports Network
- Ornge
- Nieuport Aviation Infrastructure Partners
- Porter Airlines
- Air Canada/Jazz
- Stolport/Transcapital Air
- Island Air Flight School and Charters
- FlyGTA Airlines
- Canadian Owners and Pilots Association/Toronto Island Pilots Association
- Toronto Heli Tours
- Float Plane Operations
- First Air
- Private Air
- Toronto Council of Commodores
- Waterfront BIA
- Members of the general public who visited our Master Planning booth at Doors Open Toronto in May 2018.

2.5
Public Outreach

As part of the outreach to the general public, three meetings/open houses were held. The first meeting, held on February 7, 2018 provided an overview on the airport master planning process and described other planning initiatives that were being undertaken by the City of Toronto, TTC and Waterfront Toronto. These included the Bathurst Quay Neighbourhood Plan (BQNP) and the Waterfront Transit Reset Project. The presentation also included a discussion on PortsToronto's Managed Growth Strategy for Billy Bishop Airport. The public meeting was attended by approximately 100 people.

The second public meeting was held on June 25, 2018. The focus of this meeting was to update the public on the planning process and to present preliminary airport development concepts. In addition to a general plenary session, there were three break-out sessions that focussed on: 1) airport development plans; 2) Runway End Safety Areas (RESA's); and, 3) City of Toronto planning initiatives associated with the waterfront and Bathurst Quay Neighbourhood.

The third and final public meeting was held on June 12, 2019. The focus of this meeting was to present the Draft Airport Master Plan.

2.6
Website

A website dedicated to the Billy Bishop Airport Master Plan was launched in 2017. The intent of the website was to provide a forum where the public and airport stakeholders would have ongoing access to reports and presentations prepared by PortsToronto and their consultants. In addition, the website provided a forum for the public to ask questions and offer comments.

The link to the Airport Master Plan website is: **www.billybishopairportmasterplan2018.com**

2.7
What We Heard

The following describes some of the topics that were raised in discussions with community groups, the public and airport stakeholders.

To ensure the process was accountable and transparent, PortsToronto hired LURA Consulting to:

- Facilitate all three public meetings;
- Record comments and questions raised by members of the public and stakeholders at the public meeting and from follow up correspondence/emails; and,
- Prepare a Final Summary Report after each public meeting, which is posted on the project website for any interested parties.

2.7.1 Community Consultation

Through engagement with various community groups and through public meetings, PortsToronto received a number of responses with respect to the airport and its ongoing operations. Common topics that emerged from the discussions included:

- Noise is a major concern for those that live in close proximity to the airport, especially ground noise generated by aircraft, the ferry and other noise sources at the airport.
- Air quality, specifically the airport's contribution to air pollutants and odours and its impact on public health.
- The level of activity at the airport and its impact on the surrounding neighbourhood with respect to traffic congestion, and parking, as well as general impacts on the use of outdoor amenities along the waterfront.
- Fuel trucks and other large commercial vehicles accessing the airport and Toronto Islands on behalf of the City of Toronto via Eireann Quay.
- Impacts on the surrounding environment and natural habitats.
- The future of the airport beyond 2033.
- The airport is a convenient asset for those living and working in the downtown and waterfront.

2.7.2 Airport Stakeholder Consultation

In discussions with airport tenants, operators and pilots, the single greatest concern was the airport's physical constraints and the lack of available infrastructure including aprons, terminal gates, tie-downs and hangar space. Other topics that emerged from the discussions included:

- Need to expand facilities for general aviation that are physically separated from air carrier activities and to offer greater flexibility with respect to the provision of facilities and services.
- Improve airport wayfinding signage directing public to general aviation businesses.
- Improve facilities for helicopters.
- Provide access to the south field to allow for potential general aviation development.
- Provide additional airline slots.
- Need for a new and expanded Combined Services Building for the airport

2.7.3 Environics public opinion survey of Toronto residents

In 2018, PortsToronto retained Environics to survey Toronto residents to determine public attitudes towards, and experiences with, the airport. The purpose of the study was to gather opinions and determine usage of the airport among Torontonians, as well as gauge attitudes towards having a downtown city airport. Almost three-quarters of residents surveyed, 73 per cent, have a favourable impression of the airport.

Those who have a positive impression of the airport praise it for its convenience and accessibility to downtown. The small proportion of those with a negative view of the airport, 8 per cent, raise concerns regarding airplane noise and the negative environmental impacts of the airport.

On average, Torontonians estimate that two-thirds of the flights they take from the airport are for leisure, with the remaining one-third of the flights for business. These results are consistent with an increase in the proportion of flights from the airport being to leisure destinations.

Versus a 2016 study, a greater proportion of Torontonians who have flown from the airport report they have used public transit to get to the airport. Usage of ride-sharing apps to connect to the airport has also increased while the proportion of respondents who previously took a taxi or a personal vehicle are opting for different modes of transportation including transit, bike or walking.

More than eight in ten Torontonians agree the airport is a valuable asset for the City of Toronto and a gateway that supports business and tourism. Over three-quarters of Toronto residents agree the airport is an important driver of economic growth and job creation, with a similar proportion agreeing the city's business community relies on the airport.

In conclusion, the findings of the survey highlighted that:

- Recognition of the economic benefits associated with the airport appears to be well understood and embraced by most residents of the city, including those living in closest proximity to the airport;
- The proportion of trips residents say they have taken from the airport for leisure travel is twice the amount of that for business travel, which supports the notion that the airport is not just a hub for business travellers; and,
- A significant and growing proportion of Torontonians use alternative modes of transportation, including public transit and ride-sharing, to access the airport.

3
Billy Bishop Airport Today

3.1
Setting

Located on the Toronto Islands, Billy Bishop Airport is separated from the mainland by the Western Gap, a 121 metre-wide channel of water that provides boat access from Toronto's Inner Harbour to Lake Ontario.

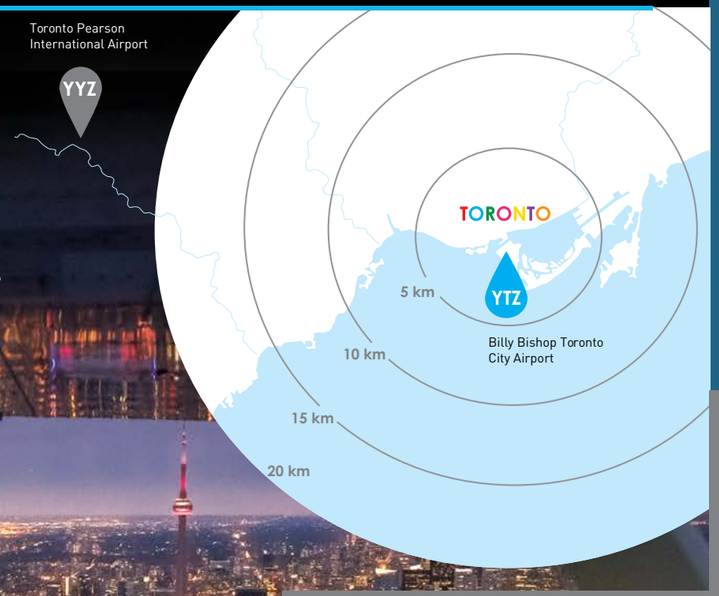


Figure 3-1 illustrates the location of the airport in context to the city of Toronto.

The airport is surrounded by water on three sides and is adjacent to lands associated with the Toronto Islands Park system. The total land area of the airport is approximately 85 hectares, of which, 66.8 hectares (78.6 per cent) are owned by PortsToronto, 17 hectares (20 per cent) by the City of Toronto, and 1.2 hectares (1.4 per cent) by the federal government.

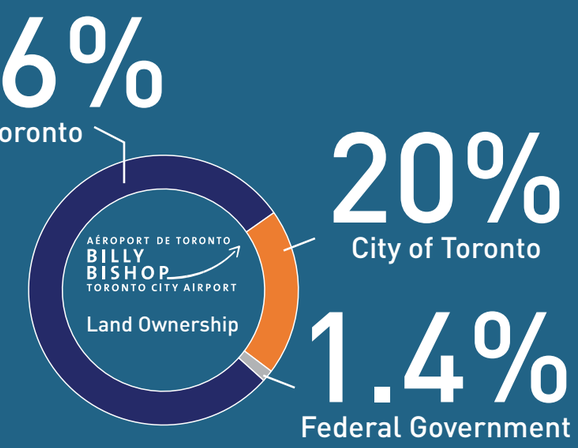
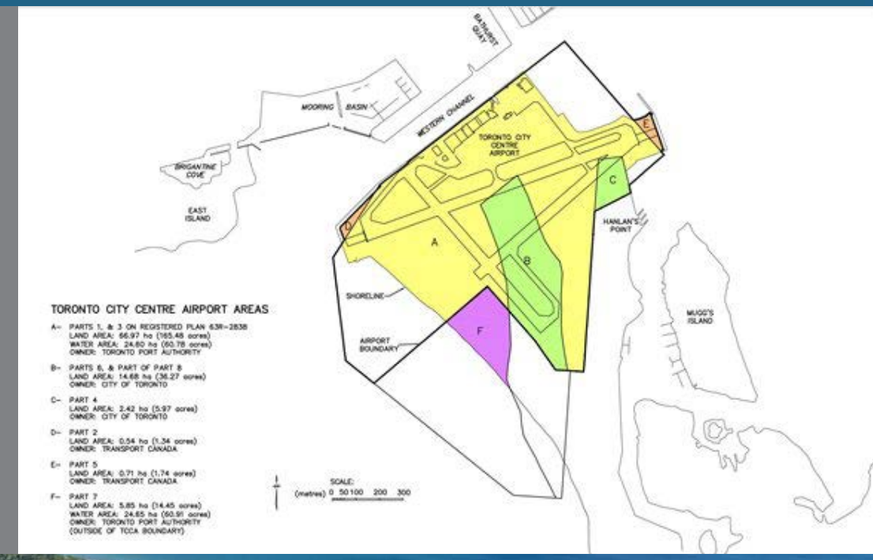


Figure 3-2 Land Ownership Map of Billy Bishop Airport



3.2 History

Construction of an airport on the Toronto Islands began in 1937 when the airport was planned as the city's primary airport. In 1939, the airport began operations under the name Port George VI Island Airport. Infrastructure included two runways, taxiways, a wood frame terminal building as well as facilities to accommodate seaplanes. Operations began on February 4, 1939, and the first commercial flight occurred on September 8, 1939, when a charter flight from the U.S. arrived with Tommy Dorsey and his swing band. At that time, access to the airport from the mainland was by a cable ferry, which remained in operation until 1963.

With the outbreak of the Second World War, the airport became a training facility initially for the Royal Norwegian Air Force. Barracks constructed on the mainland became known as "Little Norway." Later in the war, the airport was used by the Royal Canadian Air Force. At the same time, Toronto's secondary airport at Malton became Toronto's primary airport because it had additional lands upon which to construct aircraft manufacturing facilities in support of the war effort.

With the end of the war, the airport reverted to its previous civilian use and became the base for a number of flight schools, flying clubs and small general aviation operators.

During the 1950's and 60's several improvements were made to the airport. These included the extension of the runway to 3,988 feet and replacement of the cable ferry with a larger self-propelled ferry. In 1961, the airport was the busiest in Canada with nearly 213,000 movements, much of this being flight training. In 1962 the Toronto Harbour Commission (now PortsToronto) assumed responsibility for the management and operation of the airport.

In 1975, commercial scheduled flights were initiated by Otonabee Airways. Operating 19-seat aircraft, the airline provided scheduled flights to Montreal via Peterborough. In the early 1980's, the airline was reorganized as City Express and expanded its operations providing direct flights to Ottawa and Montreal utilizing de Havilland Canada (DHC) 50-seat Dash 7 and 37-seat Dash 8-100 aircraft.

In 1983 the City of Toronto, the Government of Canada and the Toronto Harbour Commission signed the Tripartite Agreement, which established the parameters by which the airport would operate until the year 2033. Key to the Agreement was the restrictions on the use of the airport. These restrictions included the prohibition of jet movements (with the exception of Medevac flights) and limitations on the level of aircraft movement activity based on prescribed noise exposure levels as defined by Transport Canada's Noise Exposure Forecast (NEF) model.

In 1990, Air Ontario (later becoming Air Canada Jazz) introduced scheduled service at the airport providing service to Ottawa and Montreal utilizing Dash 8 aircraft. With the direct competition from Air Canada, City Express ceased its operations in 1991. Air Canada Jazz continued its operations until 2006 when it lost access to the terminal building, which had been acquired by REGCO Holdings, the parent company of Porter Airlines. Porter Airlines later began operations in 2006 operating 70-seat Bombardier Q-400 series aircraft. At the same time, Porter Airlines announced plans to construct and operate a new 10-gate airport terminal building. The new terminal facility opened in 2011 and was sold in 2015 to Nieuport Aviation, which now owns and operates the terminal building. The terminal building was upgraded in 2018 and has the capacity to accommodate the planned growth contained within this Airport Master Plan.

In 2011, Air Canada resumed scheduled passenger activity at Billy Bishop Airport as Air Canada Express with daily flights to Montreal. In 2017, FlyGTA initiated scheduled air taxi service between Billy Bishop Airport and Niagara District Airport. The service was subsequently expanded in 2018 to include scheduled flights to Waterloo, Muskoka, Wiarton and Barrie Ontario.

3.3 Role

Billy Bishop Airport serves a number of important roles. As a gateway to Toronto, the airport offers the travelling public direct and quick access to/from the city's downtown core, providing non-stop scheduled flights to a number of Canadian and U.S. destinations, including Ottawa, Montreal, Quebec City, Mont Tremblant, Thunder Bay, Sault Ste. Marie, Sudbury, Timmins, New York, Chicago, Boston, Washington D.C., Myrtle Beach and Orlando-Melbourne.

One-stop routes include Halifax, Moncton, Saint John, Fredericton, Muskoka, St. John's, and Stephenville. The airport is home to Porter Airlines which has approximately 86 daily departures, and FlyGTA with approximately ten daily departures. Air Canada Express also operates from Billy Bishop Airport and has approximately 15 daily departures to Montreal. Figure 3-3 illustrates the current routes served by Porter Airlines and Air Canada Express.

In addition to scheduled air service, the airport accommodates a number of general aviation activities. They include:

- A number of smaller air charter and corporate aviation firms based at the airport or use the airport on a regular basis.
- Air ambulance operators which use the airport to transfer patients and organs to/from downtown hospitals and treatment facilities. Ornge has a base of operations at the airport, utilizing three AW139 helicopters, providing air ambulance service to south and central Ontario. Billy Bishop Airport is Ornge's busiest base, which is twice as busy as their second busiest facility in Ontario.
- Billy Bishop Airport is home to a flight training school.
- Trans Capital Air, which provides flight operations around the world for the United Nations and NGOs, has a base of operations and aircraft overhaul facility located at the airport.
- Billy Bishop Airport is home to two fixed base operators (FBOs)—Stolport and Porter FBO, which provide various services to the general aviation community including fuel, hangar space and tie-downs.
- Billy Bishop Airport is home to approximately 50 privately-operated aircraft that are used for both business and recreation, and the airport is frequented by visiting private and commercial aircraft. With direct access to Toronto Harbour, floatplanes also make use of the airport.

Figure 3-3
Air Service Destinations

3.3.1 Air Ambulance

Billy Bishop Airport, and its proximity to downtown, serves a key role in providing air ambulance access to Toronto's major downtown acute care and trauma hospitals. In addition to the Ornge Air Ambulance base located at the airport, Billy Bishop Airport regularly receives fixed-wing and rotary-wing Medevac flights transporting both patients and organs. In 2018 the airport recorded 3,907 rotary-wing movements on behalf of the Ontario Ministry of Health, and 207 jet movements, which are permitted under the Tripartite Agreement.

3,907

Ornge Air Ambulance Helicopter movements in 2018.

207

207 Medevac jet movements in 2018, which are permitted under the Tripartite Agreement.

3.4
Airside Infrastructure

Billy Bishop Airport's airside system is comprised of two runways and associated taxiways and aprons. Much of this infrastructure has been upgraded over the past three years. The existing runway system has an approximate theoretical capacity of 225,000-250,000 annual movements depending on the mix of aircraft and meteorological conditions. However, the theoretical capacity of the runway system is constrained by the Noise Exposure Forecast (NEF) contours described in the Tripartite Agreement, which limits annual aircraft movements based on a formula with variables that include: The time of day, the noise generated by take-off and landings, and the noise generated by the mix of aircraft.

Runway utilization is split between the two runways. Air carrier movements by Porter Airlines and Air Canada Express utilize Runway 08-26 exclusively, whereas general aviation activity utilizes both runways. Table 3.1 describes current runway utilization in 2017.

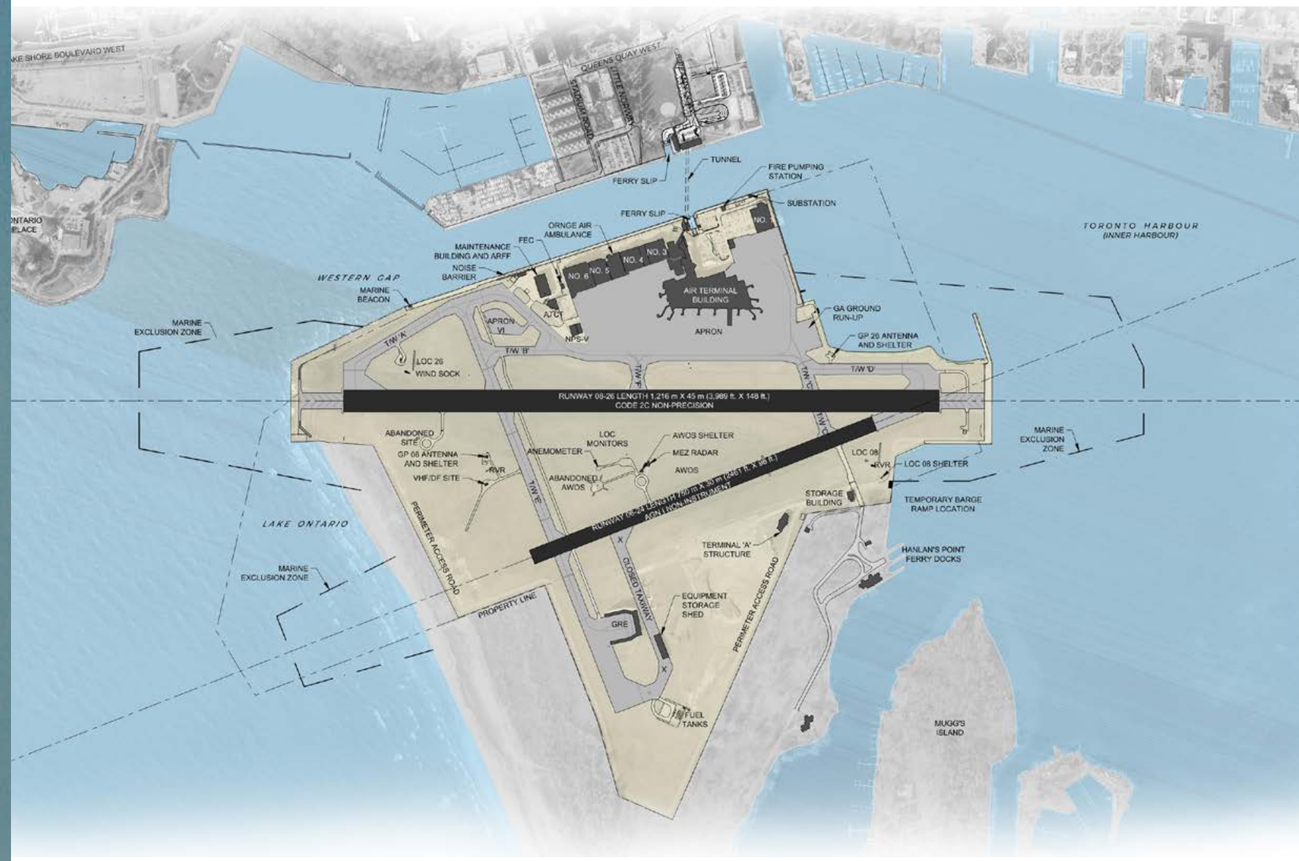
Table 3.1 Runway Utilization

TRAFFIC TYPE	RUNWAY	PERCENTAGE OF MOVEMENTS
Air Carrier (Slot Allocated)	08	34.5%
	26	65.5%
General Aviation Itinerant	06	0.4%
	08	32.8%
	24	3.5%
	26	63.4%
General Aviation Local	06	2.0%
	08	33.5%
	24	10.4%
	26	54.1%

Itinerant Movement: Where aircraft arrives or departs to/from another airport or leaves the airport's control zone.

Local Movement: Where aircraft remains within the airport's control zone, typically associated with flight training or sightseeing.

Figure 3-4 Existing Conditions



3.4.1 Runways

Runway 08-26

Billy Bishop Airport's primary is Runway 08-26 with a length of 3,988 feet (1,215.5 metres) and a width of 150 feet (45 metres). The runway was resurfaced in 2016 and equipped with high intensity edge and centreline lighting as well as threshold/runway end lighting. In addition, the runway surface has been grooved to improve performance during wet conditions. Under Transport Canada's TP312 3rd Edition, the runway is certified as Code 2C Instrument Non-Precision, and is the only runway available for scheduled air carrier operations.

Runway 06-24

Runway 06-24 is the airport's secondary runway. It has a length of 2,460 feet (750 metres) and a width of 100 feet (30 metres). The runway was reconstructed in 2016 and provided with medium intensity LED edge lights as well as LED threshold/runway end lighting. With the reconstruction, the runway length was reduced from its original length of 2,933 feet and the runway width was reduced from 150 feet. This runway is used by smaller single engine and light twin engine general aviation aircraft and the new length and width are adequate for these types of aircraft. Under TP312 5th Edition, the runway is certified as an AGN 1 Non-Instrument.

3.4.2 Taxiways

The airport's two runways are supported by a system of taxiways to accommodate the maneuvering of aircraft on the ground Taxiways Alpha and Delta are the primary taxiways, providing access from the terminal apron and hangar line to the thresholds of Runway 08-26. Taxiway Delta does not meet the minimum separation distance from the runway as required by Transport Canada. Therefore, during instrument flight rule (IFR) conditions, NAV CANADA holds aircraft departing on Runway 26 on the terminal apron when arriving aircraft are on the approach. This in turn can create congestion on the apron.

Secondary taxiways Bravo, Charlie and Foxtrot provide additional access to the runways. These taxiways' fillets were widened as part of the recent airside upgrades. Taxiway Echo was formally Runway 15-33, which was closed in 2016. This taxiway, which was reconstructed in 2016, provides access to the Ground Run-up Enclosure and to the southern portion of the airfield.




3.4.3 Aprons

Billy Bishop Airport is served by a single apron area that is shared between the air terminal building and a number of general aviation operators including Porter FBO, Stolport FBO, and Ornge. In 2018, the depth of the apron was increased by 11.5 metres to the south to provide improved aircraft maneuvering adjacent to the air terminal building.

A small aircraft tie-down apron (Apron 6) is located within a triangular area formed by Taxiways Alpha, Echo and Bravo. The apron has the capacity to accommodate up to ten light general aviation aircraft.

3.4.4 Seaplane Ramp

The seaplane ramp serves floatplane operations that take place in the Inner Harbour. The ramp, along with a dock, were replaced in 2017. Aircraft utilizing the seaplane ramp are typically towed to and from the site using a dolly.

3.4.5 G Round Run-Up Enclosure

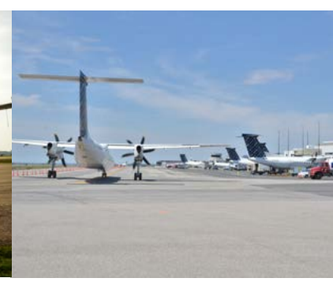
The Ground Run-up Enclosure (GRE), constructed in April 2017, is only the second of its kind in Canada. The custom three-sided open enclosure, was constructed to reduce the noise levels associated with aircraft undertaking engine run-ups as part of routine maintenance which is required and regulated by Transport Canada as part of standard aircraft maintenance. The high-walled enclosure is designed with a series of engineered acoustic panels that absorb noise generated from the aircraft engines and propellers, and can accommodate aircraft up to and including the Bombardier Q-400 under their own power. The open side of the GRE faces Lake Ontario, which optimizes the aerodynamic performance of the facility and mitigates impacts to the community.

3.4.6 Navigational Aids

Billy Bishop Airport has a number of navigational and approach aids. This includes instrument landing (ILS) systems, including glide path and localizers, on Runway 08 and 26. The localizers are offset by three degrees due to land mass constraints at the ends of the runway, which result in increased approach minima, or decision heights, for the two runways. In addition to the ILS equipment, the airport is provided with an off-site non-directional beacon (NDB) and on-site distance measuring equipment (DME), both of which can be used for approaches.

In addition to the land-based navigational aids, the airport has GPS-based area navigation (RNAV) approaches to Runway 08-26. Area navigation is a method of instrument flight rules navigation that allow an aircraft to choose any course within a network of navigation beacons, rather than navigate directly to and from the beacons. Visual aids include touchdown and centreline lights on Runway 08 and 26, as well as PAPI approach lights on Runway 08 and APAPI approach lights on Runway 26.



3.5 Landside

As part of the Bathurst Quay Neighbourhood Plan (BQNP), the City of Toronto, with input from PortsToronto has introduced a plan to improve the use of Eireann Quay and the Canada Malting site area for the mutual benefit of the community, airport users and visitors to the waterfront. The plan is being implemented over the next two years. This program includes changes to the taxi corral, Canada Malting parking lot and the finger lot, and the provision of expanded public open space and streetscaping that will connect people to the water's edge at the western gap from Queens Quay and the Waterfront School and community centre.

In the long-term it is the intention of the BQNP to develop the Canada Malting site as a community and cultural hub that could include a possible aquatic centre. As part of this long-term development, elements such as the taxi corral and parking could potentially be relocated underground.

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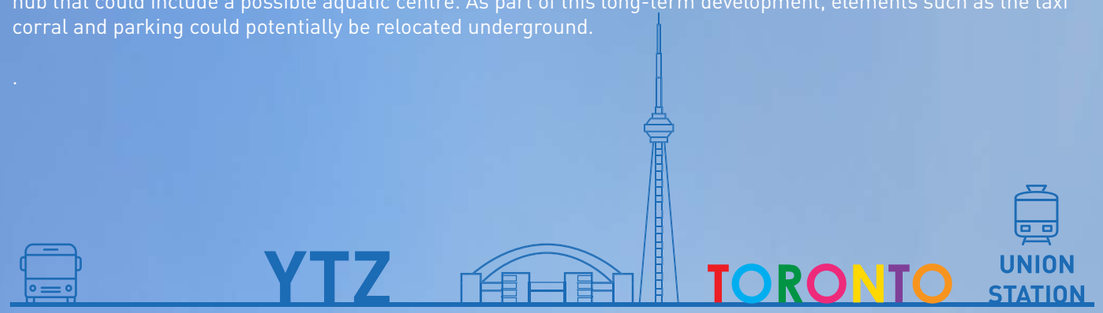


3.5.1 Ground Access

Ground access to Billy Bishop Airport is via Eireann Quay, which extends from Bathurst Street, south of Queens Quay. This access route is used by taxis, private vehicles, the airport shuttle, pedestrians, cyclists, and by commercial vehicles serving the airport as well as the Toronto Islands.

A survey undertaken in June 2018 determined that 32 per cent of trips to the airport and 41 per cent of trips from the airport were made using non-automobile modes, including the airport shuttle, public transit, bicycles and walking. This represents the highest non-auto usage of any airport in North America.

Approximately 35 per cent of trips to the airport and 39 per cent of trips from the airport were by taxi or app-based services, such as Uber and Lyft, and 31 per cent of trips to the airport and 18 per cent of trips from the airport were by private auto.

Only 2 per cent of trips to the airport were by private autos that parked at the airport.

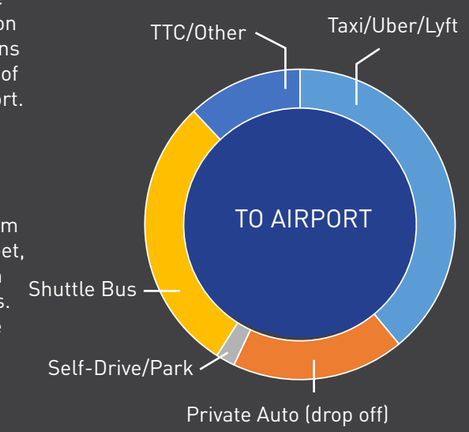
During the morning peak period, Eireann Quay carries approximately 700 vehicles per hour. This peak occurs between 7:00 and 8:00 a.m. In the afternoon peak, between 4:00 and 5:00 p.m. Eireann Quay carries approximately 850 vehicles per hour. Prior to the introduction of the pedestrian tunnel, traffic flows were characterized by regular surges every 15 to 20 minutes that corresponded to the arrival of the ferry on the mainland. With the introduction of the pedestrian tunnel, traffic is better dispersed, which has resulted in fewer and shorter traffic queues on Eireann Quay.

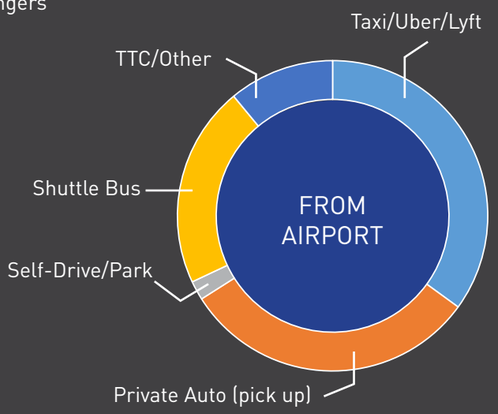
A similar study undertaken in 2015 determined that airport traffic makes up approximately 10-12 per cent of all traffic in the surrounding area, with the greatest concentration being on Bathurst Street north of Queens Quay, where up to 30 per cent of traffic was related to the airport.

The closest public transit to the airport is the 509 Harbourfront streetcar that travels along Queens Quay from Union Station to Bathurst Street, north to Fleet Street, and then west to the Exhibition Grounds. The walking distance from the Bathurst Street/Queens Quay stop to the airport pedestrian tunnel entrance is approximately 275 metres. Table 3.2 describes the modal split with respect to passengers accessing the airport.

Table 3.2 Access Mode

MODE	TO AIRPORT	FROM AIRPORT
Taxi/Uber/Lyft	35%	39%
Private Auto (drop off and pick up)	31%	18%
Self-Drive/Park	2%	2%
Shuttle Bus	21%	29%
TTC/Other	11%	12%
Total	100%	100%





[2] Billy Bishop Toronto City Airport Spring 2018 Traffic and Passenger Surveys, Dillion Consulting, 2018

3.5.2
Ferry Terminus

The mainland ferry terminus was constructed in 2006 to support the ferry operations, with an upper level area designed to accommodate passengers queuing for the ferry. Vehicles queuing for the ferry are accommodated on Eireann Quay with a dedicated drive lane.

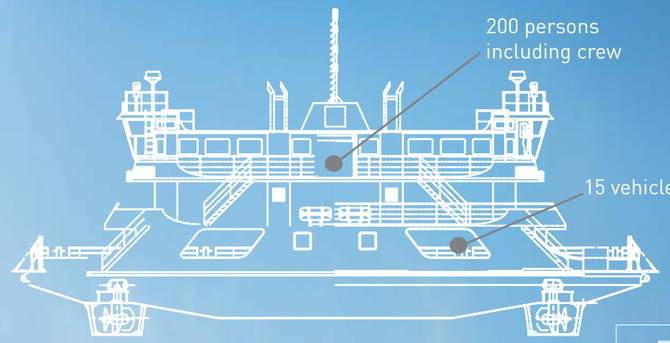
PortsToronto operates two ferries that provide service between the mainland and the airport. The principal ferry is the *Marilyn Bell I*, which can accommodate a total of 200 persons including crew on the upper deck and 15 vehicles on the main deck.

The second ferry is the *David Hornell VC*, which is used as backup. This ferry accommodates a total of 150 persons including crew on the upper deck and 15 vehicles on the lower deck. Only one ferry is in use at any one time.

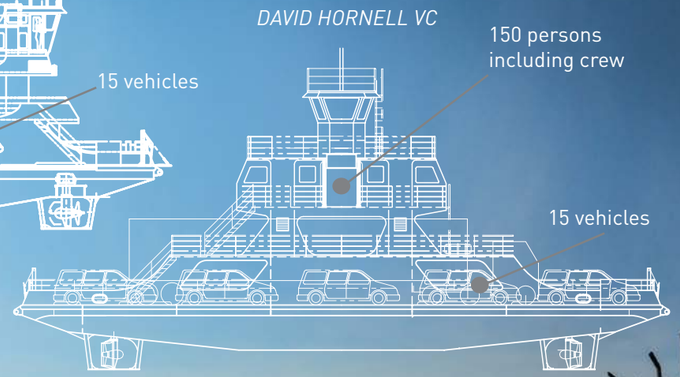
In addition to transporting vehicles destined for the airport, the ferry is also utilized by large commercial and public utility vehicles destined for the Toronto Islands that cannot be accommodated on the vehicle ferry owned by the City of Toronto. Approximately 7,000 such vehicles (17 per cent of which are for the City of Toronto) are transported on the airport ferry every year.

The ferry operates every 15 minutes from approximately 5:15 a.m. to 12:07 a.m. With the introduction of the pedestrian tunnel, which connects the mainland to the island, the number of passengers utilizing the ferry has decreased by approximately 90 per cent, such that its primary function now is the transport of vehicles.

MV MARILYN BELL I



DAVID HORNELL VC



3.5.3
Pedestrian Tunnel

The 185-metre-long pedestrian tunnel linking the mainland to the island was completed in 2015. Located approximately 35 metres below the surface, the tunnel is accessed by six elevators on the mainland and by a combination of escalators, elevators and stairs on the island. The capacity of the tunnel is approximately 1,100 people per hour in each direction.

In addition to expediting the movement of people to and from the airport, a major benefit of the tunnel is that it eliminates the peaks of passengers arriving and departing as a result of the "every 15-minute" ferry operation. This in turn has resulted in a smoother, more efficient operation at both check-in, and at the landside curb.

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Billy Bishop Airport operations are powered by 100% Bullfrog Power®.

3.5.4 Arrival Departure Curbs

PortsToronto recently initiated a trial whereby the passenger pick-up curb has been relocated to the west side of Eireann Quay. Twelve positions are available along the curb, three of which are reserved for ride share companies. Passenger drop-off for all modes of transport still occurs along the curb directly in front of the tunnel pavilion.

The shuttle bus drop-off and pick-up also remains at this curb. By providing this free, conveniently located pick up location, it reduces the frequency of vehicles parking illegally or driving/parking in the adjacent neighbourhood. The trial results will be assessed in 2019 and permanently implemented if positive impacts to the flow of traffic are achieved.

3.5.5 Taxi Corral

A taxi drop-off is provided directly in front of the tunnel pavilion, whereas those taxis waiting to pickup passengers are accommodated in a taxi corral located immediately east of Eireann Quay. The taxi corral will be reconstructed with a reduced footprint and an improved edge treatment to help facilitate open space improvements. The taxi corral is a loop comprised of four lanes that can accommodate approximately 56 vehicles. A sheltered passenger pick-up area is located at the end of the loop where the four lanes narrow down to two. Plans call for the enhancement and optimization of this facility, including improved weather protection.

3.5.6 Parking

Parking, both on the mainland and on the island, is very limited due to a lack of available land. This shared parking lot will be redesigned through the coordinated efforts of the City of Toronto, the Toronto District School Board and PortsToronto, with the goal of consolidating the Waterfront School needs and much needed improvements to the open space.

A new gated parking lot will be developed on the Canada Malting site to replace an existing lot of equal size. This new parking lot will accommodate approximately 44 spaces, of which, 15 would be available to the Toronto District School Board, with the remainder controlled by PortsToronto. A small number of these spaces will be used by car rental companies for the pick-up of rental vehicles. It is also proposed that the parking lot be used by the Waterfront School for the drop-off and pick-up of students. On the island, approximately 320 parking spaces are provided in various locations.

Community residents have expressed concern regarding the limited number of residential parking permits issued by the City of Toronto for residents and the lack of adequate affordable parking in the neighbourhood. In addition, community residents are frustrated by Airport employees parking in the neighbourhood, taking valuable parking spaces from community members and especially those that have accessibility challenges. The airport has issued many notices and briefed airport stakeholders about this issue and advised airport employees to be mindful of not parking in the neighbourhood.

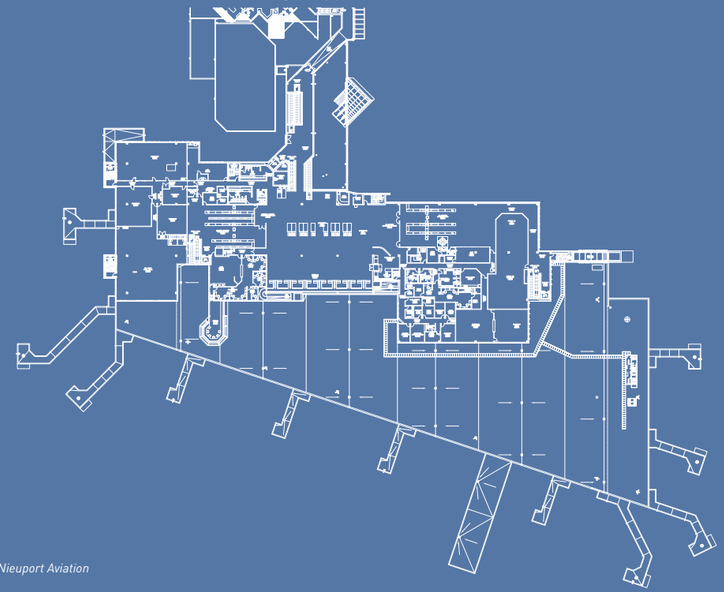
3.6 Air Terminal Building

The air terminal building at Billy Bishop Airport is owned and operated by Nieuport Aviation Infrastructure Partners. Originally constructed in 2010, the 18,500 square metre, two-level facility recently completed an upgrade that included a 1,115 square metre extension of the lounges and one additional gate, bringing the total number of gates to 11. With the recent upgrade, the terminal building can accommodate existing peak-hour passenger demands at an optimal level of service, with capacity to accommodate additional growth.

The upper level of the terminal, illustrated in Figure 3-5 is comprised of the following functional elements:

CHECK-IN HALL	PRE-BOARD PASSENGER SCREENING	ADMINISTRATIVE AREA
Provision for 14 check-in positions plus self-serve kiosks	Two pre-board passenger screening positions, one serving domestic flights, the other serving transborder flights. The domestic screening area has three lanes, with provisions for a fourth lane, while the transborder screening area has three screening lanes.	Administrative areas are provided for Nieuport Aviation, PortsToronto, and Porter Airlines. As part of the recent terminal upgrade, the administrative areas were expanded to accommodate the potential for United States Customs and Border Protection implementation.

Figure 3-5 Air Terminal Building—Upper Level

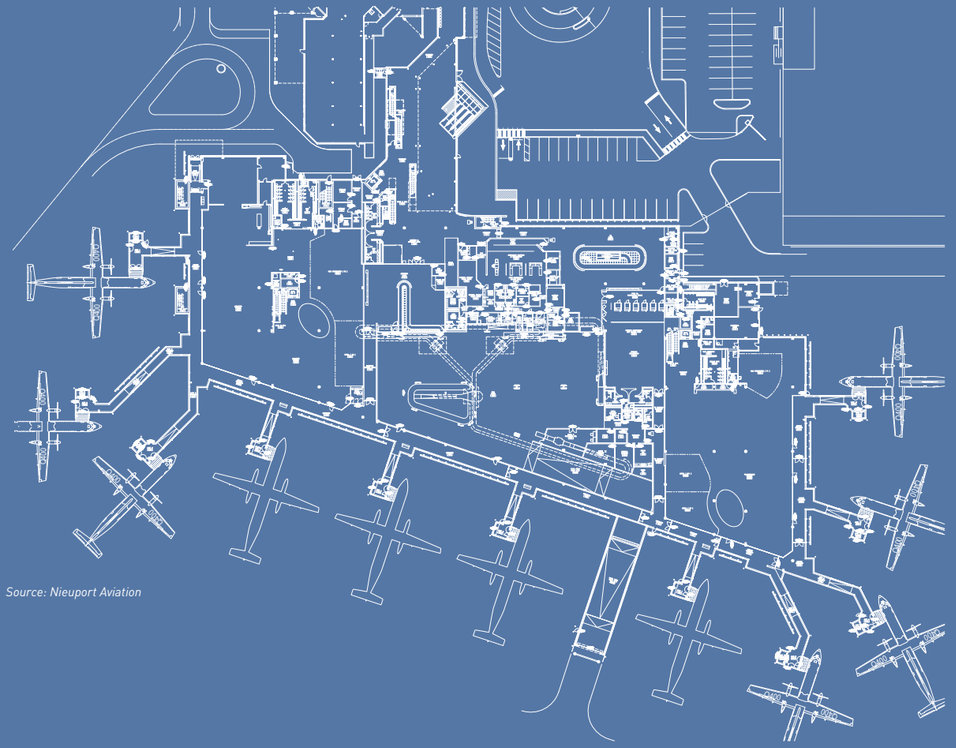


Source: Nieuport Aviation

The ground level of the terminal building, illustrated in Figure 3-6, is comprised of the following elements:

LOUNGES	CANADA BORDER SERVICES AGENCY
Two separate lounges are provided on the ground level. Both lounges were expanded as part of the recent terminal expansion and provided with improved retail and food & beverage concessions.	CBSA facilities provide both primary and secondary immigration and customs inspection. The facility was recently upgraded with thirteen new Primary Inspection Kiosks (PIKs) that reduce passenger processing times and increase the capacity of the facility.
BAGGAGE CLAIM AREAS	BAGGAGE MAKE-UP AREA
The terminal is provided with two baggage claim areas, one for domestic arrivals and the other for transborder (international) arrivals.	A common outbound baggage make-up area is centrally located adjacent to the airside. The hold bag screening (HBS) associated with the outbound baggage system will be upgraded to current national security screening standards.

Figure 3-6 Air Terminal Building – Ground Level



Source: Nieuport Aviation

3.7
General Aviation Activity

At present, all general aviation activity is located on the north side of the airport along the Western Gap dock wall. To the east of the terminal building is an area leased to Trans Capital Air and Stolport, a sister company. The area is used by Stolport as an FBO and Trans Capital Air operates from Hangar 1 primarily for the repair and overhaul of their aircraft. Stolport is currently in the process of developing a second hangar and an enhancement of their FBO operation on their leased property. Tenants operating within the FBO include FlyGTA Airlines, and Heli Tours.

West of the terminal is a continuous line of hangars. Subsidiaries of Porter Aviation Holdings Inc. own and operate the majority of the structures on land leased from PortsToronto. These facilities are used to support Porter's commercial airlines and FBO operations, as well as accommodate a number of sub-tenants. The exception is Hangar 4a, which is owned by the Ontario Ministry of Health and Long-Term Care and used by Ornge to support its air ambulance operations.

Existing tenants and commercial operators located in the Porter leased hangars include Cameron Air and Island Air.

3.8
Airport Support

3.8.1
Fire Station

The airport's fire station is accommodated in the Combined Services Building (CSB) that also includes the airport maintenance function. The fire station is comprised of two apparatus bays plus storage and support facilities. Under the Canadian Aviation Regulations, the airport is required to meet a Category 6 level of service. This requirement calls for two on-site aircraft rescue and fire fighting (ARFF) vehicles. In addition to the frontline ARFF vehicles, the airport has a spare ARFF vehicle as well as a fire pumper truck that can respond to structural fires and medical emergencies. The airport's fire service works closely with the City of Toronto Fire, EMS and Police to ensure an enhanced level of response if required.

3.8.2
Airport Maintenance Garage

The area of the Combined Services Building allocated for airport maintenance is comprised of four equipment bays plus support and administrative areas. An additional unheated tensile structure, located on the south side of the airport is used for the storage of equipment. PortsToronto contracts Safety-Kleen to collect, recycle, reuse and/or properly dispose of the antifreeze, oil, oil filters and other equipment used to service the airport.

3.8.3
Materials Storage

A materials storage shed is provided on the east side of the airport, south of Runway 06-24. This "Quonset hut" is used for the storage of sand and other airside de-icing chemicals. The location of this building is not ideal, as access is only possible by crossing an active runway.

3.8.4
Field Electrical Centre

The Field Electrical Centre (FEC) is located immediately east of the Combined Services Building, in an area used for outdoor equipment storage.

3.8.5
NAV CANADA Control Tower

The air traffic control tower is located immediately south of the Combined Services Building. The facility is owned and operated by NAV CANADA. The control cab has an unobstructed view of the runways, taxiways and approaches. It is not anticipated a new facility will be required within the timeframe of the master plan.

3.8.6
Fuel Farm

The airport's aviation fuel farm is located on the south side of the airport at the end of Taxiway Echo. Fuel is dispensed at this location into bowsers and delivered to aircraft on the north side of the airport. The fuel installation is owned and operated by City Centre Fuel Corp., a subsidiary of Porter Aviation Holdings Inc. and includes storage for 200,000 litres of Jet A1 and 50,000 litres of LL100 avgas. The delivery of fuel to the fuel farm occurs almost on a daily basis. The site has ample opportunity for expansion if required in the future.

The fuel farm is designed to accommodate eight 50,000 litre above ground tanks. Currently the fuel farm has five tanks in operation and has ample space for expansion within the approved footprint for three more tanks.

3.8.7
Non-Passenger Screening Facility For Vehicles

In 2014 Transport Canada introduced Non-Passenger Screening Facility for Vehicles (NPSV) protocols for vehicles that are operating airside. This was mandated for all airports with significant scheduled passenger activity and called for the construction of NPSV facilities where both personnel and vehicles are screened separately. A temporary NPSV facility was located immediately east of the terminal building. This was replaced in 2018 with a permanent structure located in proximity to the intersection of Taxiways Alpha, Bravo and the Apron.

3.8.8
Aircraft De-Icing

The airport manages aircraft de-icing and anti-icing fluids with a dedicated glycol management system that traps surface runoff and thoroughly contains glycol from de-icing and anti-icing operations. The de-icing of air carrier aircraft takes place on the terminal apron.

As part of the de-icing procedure, aircraft are pushed back from their gate position and are de-iced using mobile equipment. The runoff of effluent from the de-icing operation is captured at catch basins located strategically on the apron and directed to a below-grade storage facility. From there, the runoff is released to the municipal sanitary system. During periods of non-de-icing, runoff is directed to storm water drainage.

General aviation aircraft typically do not operate during de-icing conditions, but when they do, they are brought over to the terminal apron for de-icing. Given the tight physical constraints of the airport, particularly in the vicinity of the terminal building, there is no opportunity to provide a centralized de-icing facility. The current Storm Water Management and Glycol Containment Plan developed in 2003, is reviewed annually to ensure operational practices are well managed.

3.9
Services And Utilities

Prior to the opening of the airport, there was a utility tunnel under the Western gap which provided a corridor for services and utilities which was built in 1932. As part of PortsToronto's investment in city building, a new pedestrian tunnel was opened in 2015, which was designed and engineered to accommodate much needed utility conduits for current and future city infrastructure services.

PortsToronto hired a consulting team to build a first-in-Canadian innovation with seven interlocking "tunnel drifts" which formed the unique arched crown design of the main tunnel. Three of the tunnel drifts were dedicated to City water mains, providing $10-million-dollars in savings for Torontonians. The pedestrian tunnel plays a key role as a conduit for connecting services and utilities both from the mainland to the Toronto Island and vice versa.

The Island Water Treatment Plant sits on the site of the City's first water treatment plant built in the 1900's, which is no longer in service. The current plant, built in 1977, is located on Centre Island and provides 20 per cent of Toronto's drinking water. The airport and Island are served by a new 16-inch water main that extends through the pedestrian tunnel from the mainland to the Island Water Treatment Plant and Pumping Station. The City of Toronto provides sanitary services for the airport and Toronto Islands through a 12-inch and 8-inch forcemain from their sanitary pumping station located just south of the airport. The two force mains were re-routed in 2015 from the 1932 utility tunnel and now run through the pedestrian tunnel from the City's Island pumping station to the mainland. The airport is serviced internally by a smaller forcemain system that connects to the Island pumping station south of the airport.

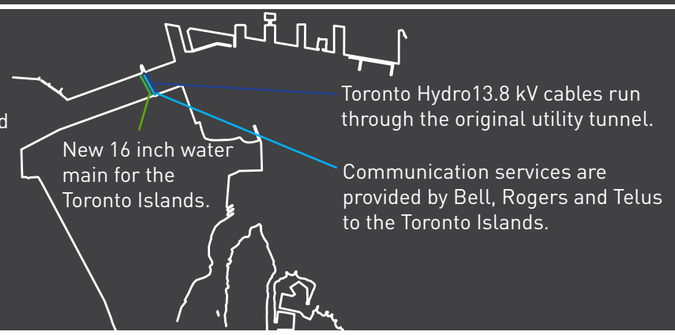
The airport has a mix of both gravity and forcemain storm systems. During the winter months when glycol is used for aircraft de-icing, aircraft are sprayed in an area where the surface water is contained and discharged to the City's sanitary system. The outfalls along the dock wall of the Western Gap discharge storm water, which does not contain glycol.

Communication services are provided by Bell, Rogers and Telus through new fiber services that were installed through the pedestrian tunnel. Bell and Rogers also have existing services that extend through the original utility tunnel.

Toronto Hydro serves the airport and Toronto Islands through three 13.8 kV feeders from the Strachan Transformer Station on the mainland. These 13.8 kV cables run through the original utility tunnel. Step down transformers located on both the mainland and the Island, distribute the power to airport facilities. Natural gas lines were installed through the original utility tunnel with supply by Enbridge Gas.

UTILITIES AND SERVICES TO THE TORONTO ISLANDS

Three of the Billy Bishop Airport pedestrian tunnel drifts were dedicated to City water mains, providing $10-million-dollars in savings for Torontonians.



4
Socio-Economic Profile

4.1
Socio-Economic Overview

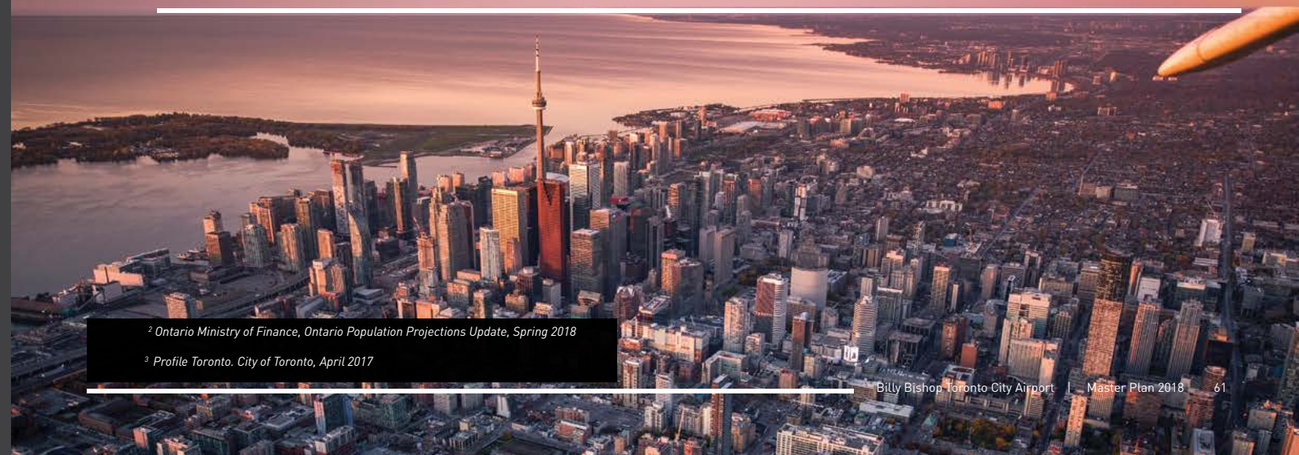
The Greater Toronto Area (GTA) is the economic centre of Ontario. With a population of approximately 6.8 million (2017) the GTA accounts for approximately 50 per cent of Ontario's Gross Domestic Product (GDP), and 20 per cent of Canada's GDP. The GTA is one of the fastest growing metropolitan areas in North America, with international migration being a main driver of this growth. With its population increasing by 2.8 million, or 40.8 per cent, it is projected to reach almost 9.7 million by 2041.[2]

At the center of this growth is the city of Toronto. With a population of approximately 2.9 million people, the city generates a GDP of $168 billion. In 2014, Forbes ranked Toronto in the top ten most influential cities in the world. Jones Lang LaSalle (JLL), a commercial real estate firm has identified Toronto in the top ten of "Future Proof Cities in the World" because of its ability to succeed in the long term.

Within the city of Toronto, the downtown has emerged as a significant growth centre, as a place to live and work. With the transition of Toronto from a centre of manufacturing to a centre of finance and commerce the focus for growth has been in the downtown. In the past 40 years the downtown population has doubled, and today one third of all jobs in the city are located in the downtown.

Substantial commercial and residential development is occurring in the downtown, and additional growth is projected for the future. Approximately 38 per cent of current and projected residential development and 40 per cent of non-residential development in the City of Toronto is in the downtown and central waterfront area.[3]

Given the proximity to this centre of growth, Billy Bishop Airport is well positioned to provide both downtown residents and businesses with convenient access to air transportation. At the same time, there is an understanding that providing additional air travellers easy access in the downtown core can create traffic challenges in the community surrounding the airport. As the city faces increased transportation gridlock and extended commute times, it is likely that Billy Bishop Airport will increase its importance as a gateway into the city.

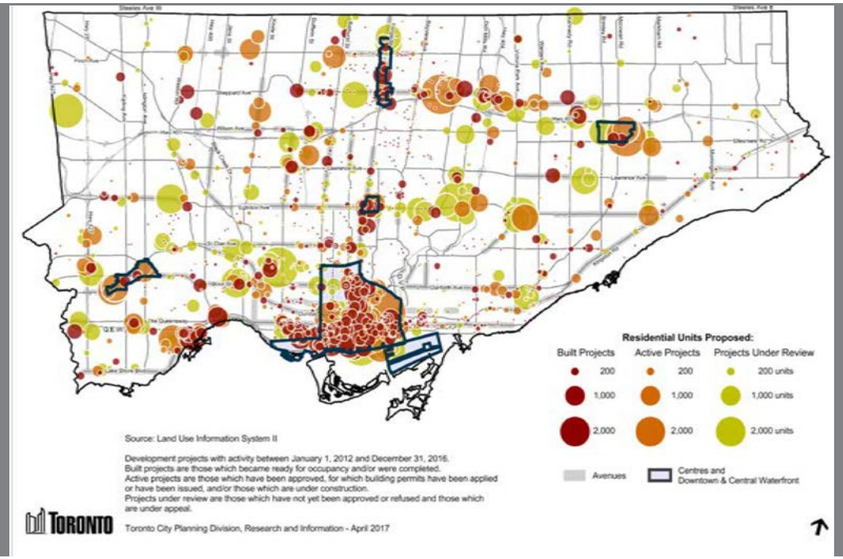


[2] Ontario Ministry of Finance, Ontario Population Projections Update, Spring 2018

[3] Profile Toronto. City of Toronto, April 2017

Figures 4-1 and 4-2 illustrate the current and projected development within the downtown as a place to both live and work.

Figure 4-1
Proposed Residential Development



Source: City of Toronto

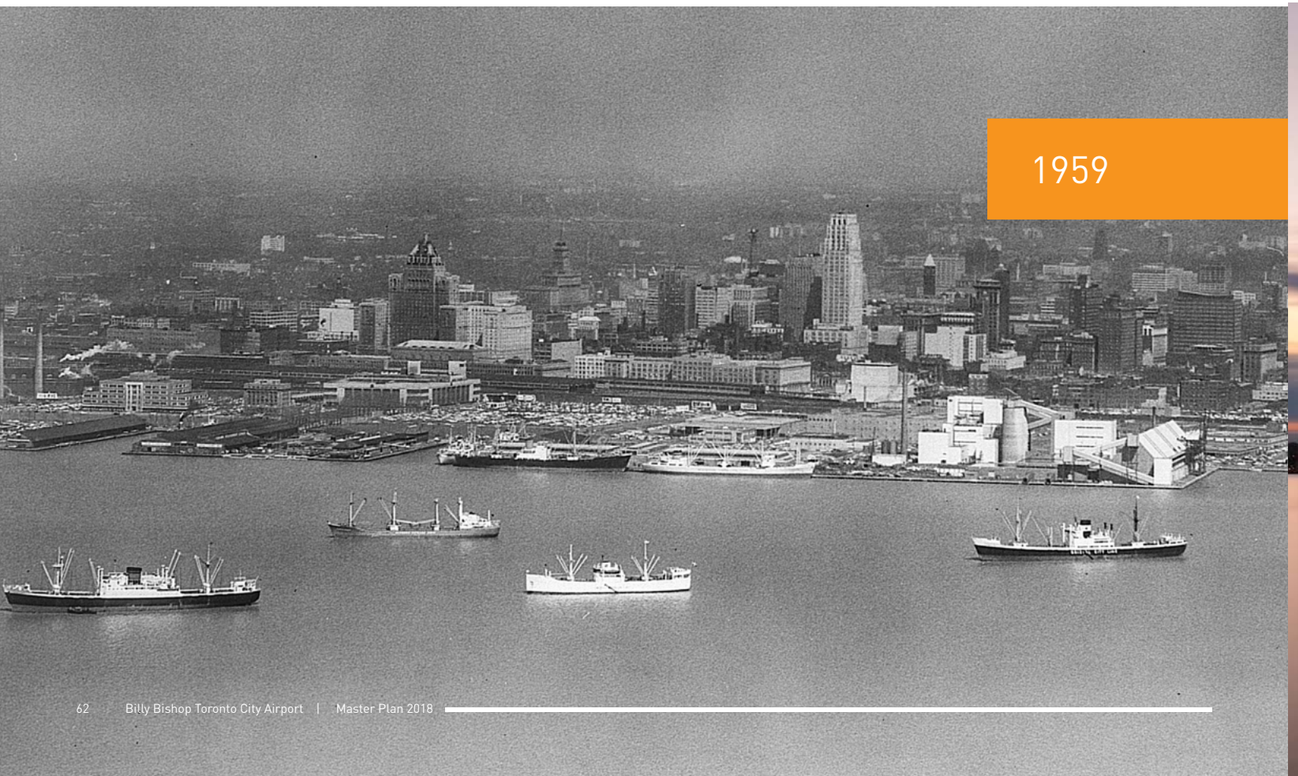
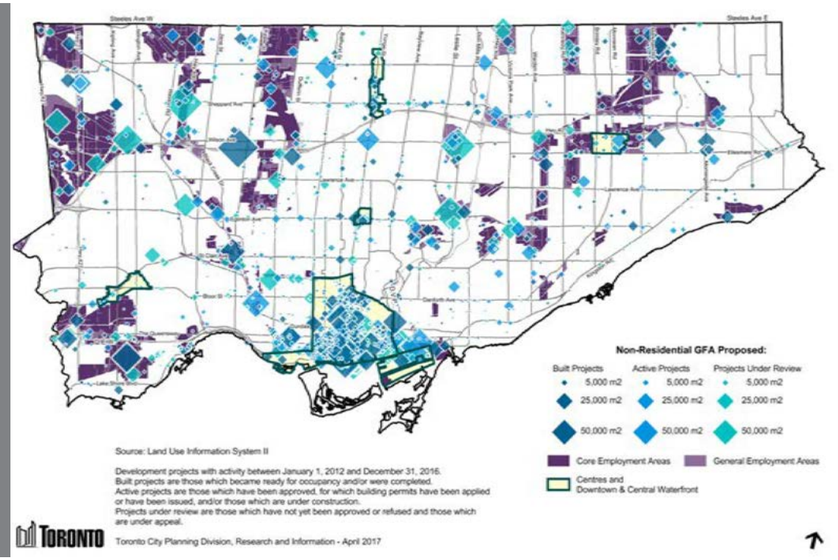


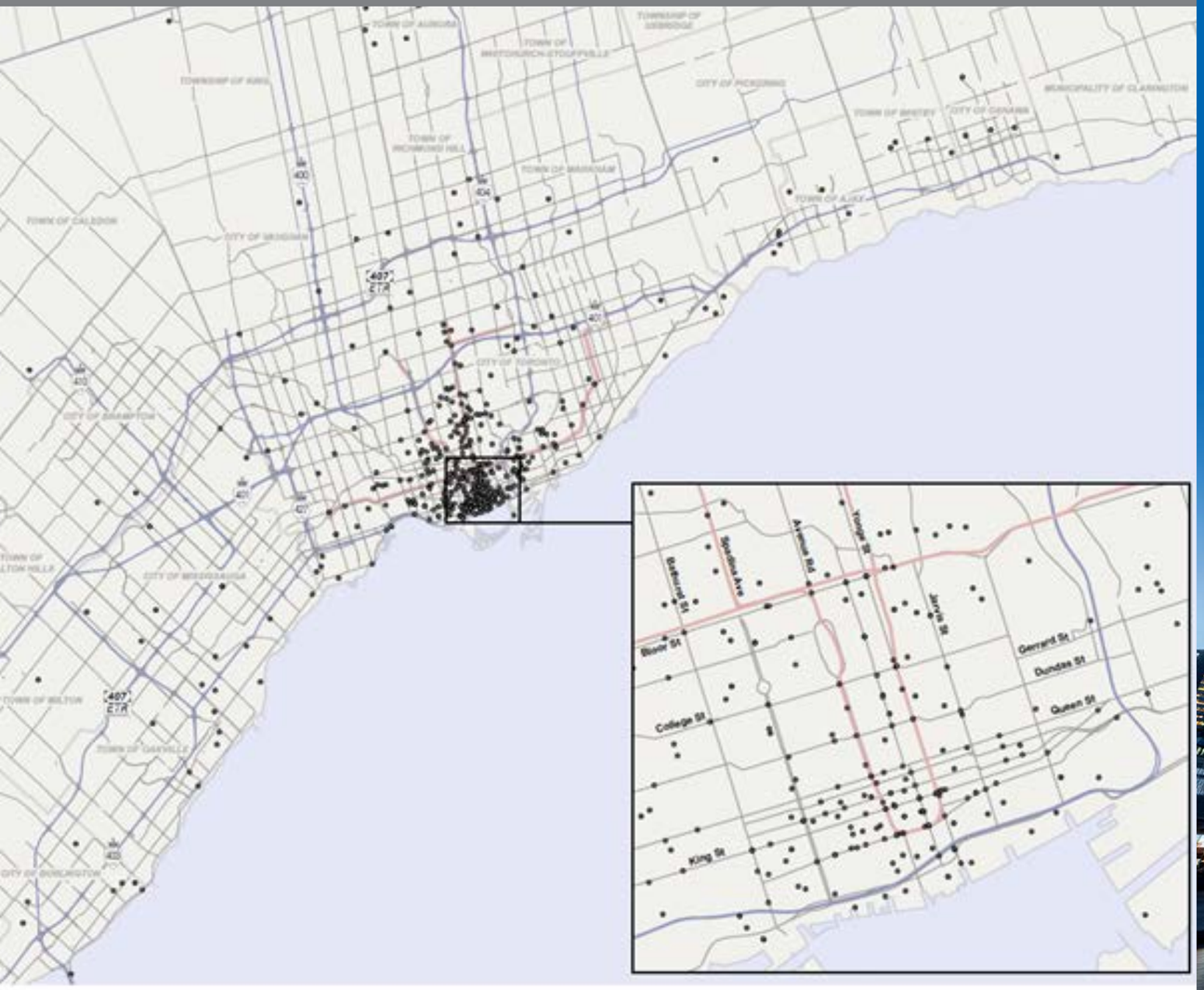
Figure 4-2
Proposed Non-Residential Development



Source: City of Toronto

The significant use of the airport by those living or working in the downtown has been corroborated through recent passenger surveys. Figure 4-3 illustrates the origin of passengers using the airport. As depicted, a substantial percentage of passengers originate from the downtown core and mid-town Toronto.

Figure 4-3 Points of Passenger Origin



Source: Billy Bishop Toronto City Airport 2016 Passenger Survey, Dillon Consulting, 2016

Given the proximity to this centre of growth, Billy Bishop Airport is well positioned to provide both downtown residents and businesses with convenient access to air transportation. At the same time, understanding that providing additional air travellers easy access in the downtown core can create traffic challenges in the community surrounding the airport. As the city faces increased transportation gridlock and extended commute times, it is likely that Billy Bishop Airport will increase its importance as a gateway into the city.

4.2
Economic Impact

Billy Bishop Airport makes a significant economic contribution to the city of Toronto and the province of Ontario. The annual direct economic impacts of the airport's operations include:

- 2,080 jobs equal to 1,950 full-time equivalents (FTEs). The majority of these jobs are high paying, highly skilled positions related to the airline industry;
- $130 million in wages;
- $190 million in gross domestic product (GDP); and,
- $670 million in economic output.

With respect to taxes, the airport's operation generated over $90 million in taxes, of which, $49 million went to the Federal Government, $34 million to the Provincial Government, and $7 million to the City of Toronto.

In addition to the direct economic contribution, the airport facilitates economic opportunity through the movement of people directly into the heart of the city, thus promoting tourism and business development.

$670 million
In economic output.

$130 million
In wages.

$190 million
In Gross Domestic Product (GDP).

4.3
Regional Air System Capacity And The Southern Ontario Airport Network

In September 2015, the Greater Toronto Airports Authority (GTAA) partnered with Urban Strategies Inc. and released a white paper on the future of Toronto Pearson International Airport. The report concluded that by the mid-2030's air travel demand in the Greater Toronto Area would begin to approach capacity, even after contemplated expansion of Toronto Pearson International Airport. The GTAA has projected that by 2043, air travel demand will exceed 110 million annual passengers, yet airports in Southern Ontario have the capacity to only support approximately 89 million annual passengers.

Southern Ontario is home to approximately 13 million people and accounts for approximately 37 per cent of the Canadian Gross Domestic Product (GDP) It is anticipated that by 2043 the population will increase to approximately 15.5 million with the region's GDP reaching $1.1 trillion. Without significant infrastructure enhancements to the region's airport system, it is likely that by the late 2030's passenger demand will outpace capacity. The result will be delays, congestion and loss of economic opportunity. It has been estimated that the annual impact of constrained air service could be as much as a $15 billion loss in GDP. [4]

[4] "Flying Together: The Southern Ontario Airport Network, Greater Toronto Airports Authority, May 2017

4.3
Regional Air System Capacity And The Southern Ontario Airport Network *(continued)*

In response to these concerns, the GTAA's white paper recommended the development of an airport system for Southern Ontario, where forecasted travel demand could be accommodated collectively through the participation of a number of key airports in Southern Ontario. With leadership from the GTAA, the Southern Ontario Airport Network (SOAN) was formalized in 2017 with 11-member airports. These airports included: Toronto Pearson International Airport; Windsor Airport; Sarnia Airport; London International Airport; Region of Waterloo International Airport; Lake Simcoe Regional Airport; Oshawa Executive Airport; Peterborough Airport; and Billy Bishop Airport. Figure 4-4 depicts the location of the SOAN airports.

The goal of SOAN is for the GTAA and member airports to identify potential opportunities, both collectively and as individual airports, to accommodate forecasted air travel demand through the growth of scheduled air service and improved infrastructure, and to promote community engagement and support. While member airports would continue to develop their own strategic decisions based on local drivers and community needs, they would support the overall goal of accommodating long-term air travel demand in a responsible and sustainable manner.

Another key goal of SOAN is advocating for investment in improved ground transportation networks that will reduce congestion and greenhouse gas emissions. To date, SOAN members have identified potential roles for their respective airports and are currently completing an economic impact analysis of the Southern Ontario Airport Network.

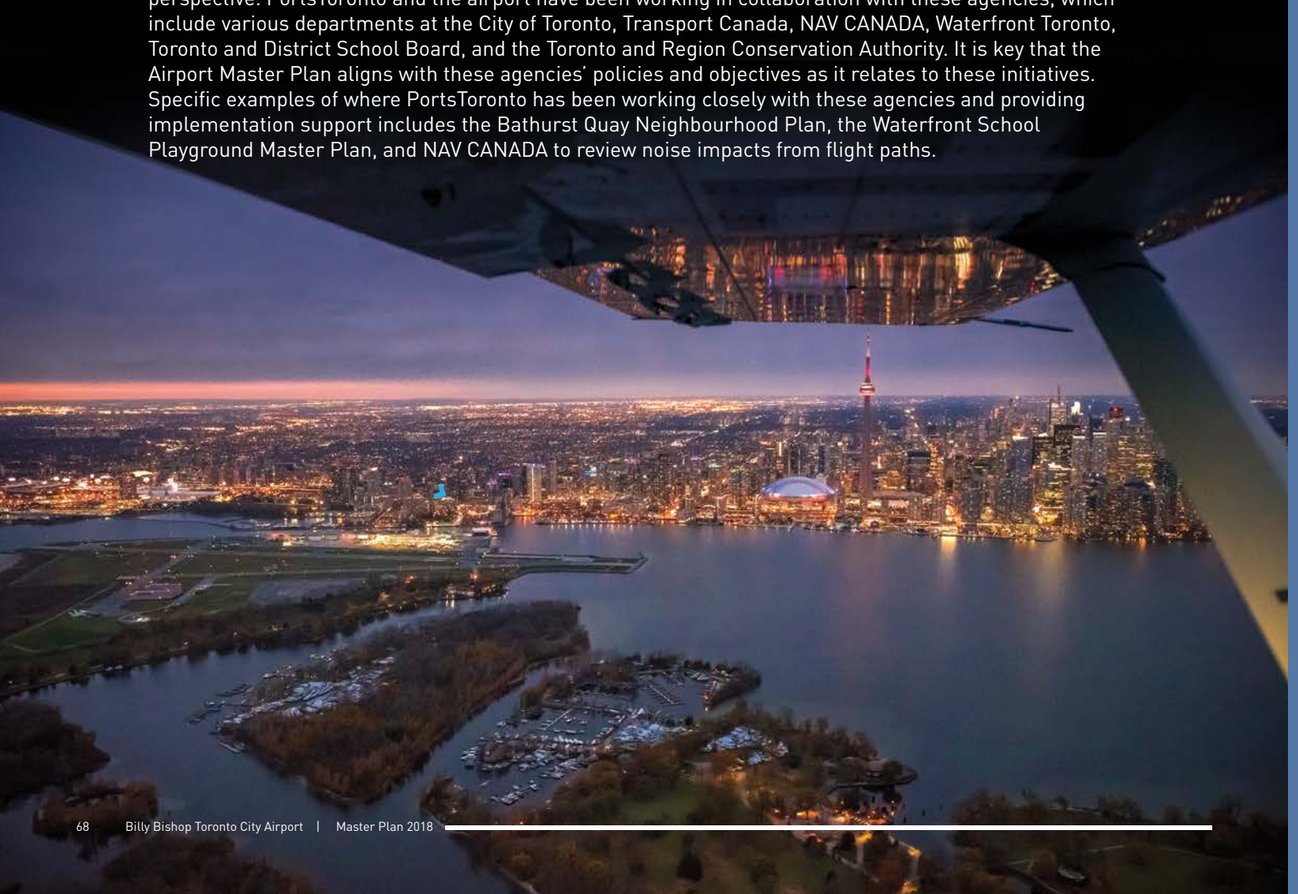
Figure 4-4 Southern Ontario Airport Network

Source: Southern Ontario Airport Network

5
Planning Initiatives in the Community

5.1
Overview

Several key initiatives are being led by other agencies that affect the airport and community from a planning perspective. PortsToronto and the airport have been working in collaboration with these agencies, which include various departments at the City of Toronto, Transport Canada, NAV CANADA, Waterfront Toronto, Toronto and District School Board, and the Toronto and Region Conservation Authority. It is key that the Airport Master Plan aligns with these agencies' policies and objectives as it relates to these initiatives. Specific examples of where PortsToronto has been working closely with these agencies and providing implementation support includes the Bathurst Quay Neighbourhood Plan, the Waterfront School Playground Master Plan, and NAV CANADA to review noise impacts from flight paths.



5.2
TOcore

The City of Toronto, through their TOcore study, is planning for the growth of the downtown core. The recommended Downtown Plan is a 25-year vision that sets the direction for the city centre as the cultural, civic, retail and economic heart of Toronto and as a great place to live. A series of goals—grouped around the themes of complete communities, connectivity, prosperity, resiliency and responsibility—establish outcomes the Downtown Plan intends to achieve as growth continues. The recommended Downtown Plan represents the first comprehensive update since the 1976 Central Area Plan introduced mixed-use policies that encouraged residential growth downtown and helped Toronto avoid the inner city deterioration experienced in many other urban centres across the continent.

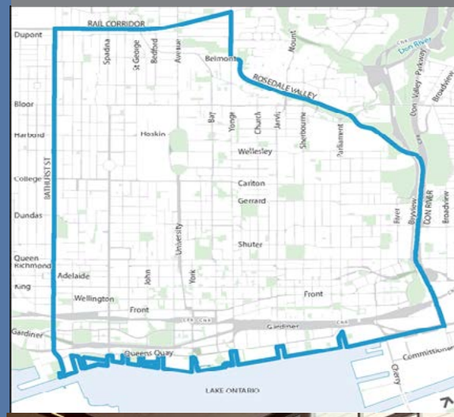
Toronto's quality of life and economic opportunities have made it one of the fastest growing cities in North America, which is evident in the rising downtown skyline and on busy sidewalks. Downtown accounts for only 3 per cent of Toronto's land area, however makes up 40 per cent of the non-residential gross floor area and 38 per cent of the residential units proposed in the entire city. It is Canada's largest employment cluster with over 500,000 jobs, almost 240,000 residents calling downtown their home and another 7,500 residents or more added annually over the past five years. By 2041, the population is projected to nearly double to a potential population of 475,000. The downtown core added together with the development of Liberty Village Neighbourhood and South of Eastern (including the Port Lands) Neighbourhood, has the potential to generate between 850,000 and 915,000 jobs.

The TOcore study and Downtown Secondary Plan, promote the importance of walking connections between transit and destinations along Toronto's waterfront. In particular, connections to and from the airport and the Jack Layton Ferry Terminal are noted. The Secondary Plan further directs that these destinations should be improved by implementing attractive and comfortable pedestrian realms, and enhancing signage to the transit stops to encourage more transit use. The Plan's mobility policies also state that improving linkages to Billy Bishop Toronto City Airport and Toronto Pearson International Airport will contribute to national and international connectivity.

The airport's landside operations are within the TOcore study area. Landside operations include: The Passenger Transfer Facility where the airport ferry docks; ferry queuing which includes passenger vehicles, airport service vehicles and City of Toronto service vehicles; airport terminal entrance to the pedestrian tunnel; passenger pick up/drop off; shuttle bus parking, taxi drop-off and corral spots for passenger pick up; airport parking; and bike share stations and racks.

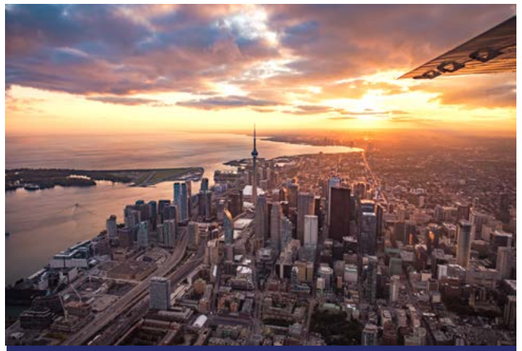
The TOcore study area is bounded by Lake Ontario to the south, Bathurst Street to the west, the mid-town rail corridor and Rosedale Valley Road to the north and the Don River to the east, illustrated in Figure 5-1.

Figure 5-1 TOcore Study Area —Downtown Plan



Source: City of Toronto, City Planning

The Airport Master Plan identifies direction on the appropriate scale and location of future growth that support the policy directions of the recommended downtown Plan by:



Providing a downtown regional air service that supports expansion of the Financial District and establishment of a Health Sciences District where non-residential uses will be prioritized.

Collaborating with the City of Toronto on landside airport operations through the Bathurst Quay Neighbourhood Plan which supports the direction to use a new framework to improve the quality, quantity and connectivity of parks and the public realm in downtown.

Promoting the urban airport connections through prioritized walking, cycling, transit use and complimentary shuttle bus service to Union Station to reduce taxi and vehicle use in downtown streets.

Implementing upgrades to low-carbon and resilient infrastructure for airport operations which aligns with PortsToronto's Sustainable Procurement Policy.

These activities connect with the goals of the Downtown Plan, the recommended Official Plan Amendment (OPA 406) for the Downtown Plan and the Growth Plan for the Greater Golden Horseshoe 2017.

5.3
Bathurst Quay Neighbourhood Plan

The Bathurst Quay Neighbourhood is located at the foot of Bathurst Street, south of Lake Shore Boulevard. A neighbourhood of primarily low to medium-rise residential buildings and supporting schools and community facilities, the area also includes the landside access to Billy Bishop Airport and therefore it is the neighbourhood most impacted by operations at the airport. In January 2015, the City of Toronto initiated the Bathurst Quay Neighbourhood Plan. The physical extent of the planning area is illustrated in Figure 5-2.

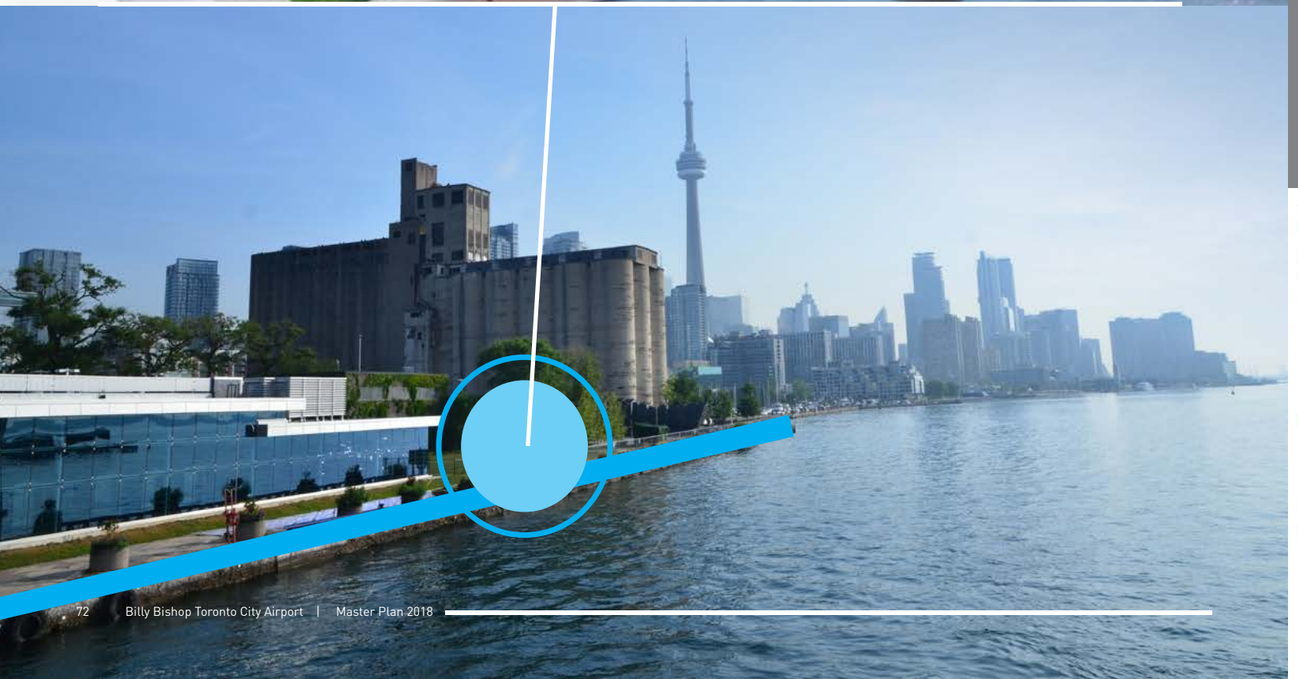
Figure 5-2
Bathurst Quay
Neighbourhood Plan

Source: City of Toronto, City Planning

5.3
Bathurst Quay Neighbourhood Plan

(continued)

The objective of the plan is to develop a long-term vision for the community that addresses a number of issues, including transportation improvements, pedestrian connections, open space, opportunities for the Canada Malting site, and access to Billy Bishop Airport. With respect to the airport, the City of Toronto staff and PortsToronto have worked closely to understand the issues and develop a plan that minimizes the impact of the airport on the community.



5.4
Waterfront Transit Reset Study

The City of Toronto, in partnership with the Toronto Transit Commission and Waterfront Toronto, is undertaking the Waterfront Transit "Reset" study, including a comprehensive assessment of needs and options for transit improvements for the waterfront area. A Phase 1 study was completed in 2016, and the Phase 2 study was completed in January 2018 when City Council endorsed the overall Waterfront Transit Network Plan, including directing City staff to complete the evaluation of a preferred transit solution for the Bay Street section of the network from Union Station to Queens Quay.

Waterfront Transit is not a single continuous line but an integrated network of connections that can be implemented in separate phases. Portions of the transit network have been completed, but major improvements and the completion of missing sections are required to support waterfront revitalization and continued economic success of the city as a whole. Phase 1 provided the preliminary network plan, and City Council approved the direction to advance the design of the existing Harbourfront transit line from Exhibition Loop to Dufferin Street to a 30 per cent level. Phase 2 completed the plan and cost estimate for the entire Waterfront Transit Network, and prioritized projects into the 10 year and greater than 10 year time periods.

PortsToronto is a stakeholder on the advisory committee of this project. A key PortsToronto objective is to increase the percentage of passengers who utilize public transit. Therefore, the findings and recommendations of the study are of importance. Improved transit service could ultimately reduce the use of taxis and private vehicles accessing the airport. A new LRT service to the west, would provide improved access to the airport from areas such as Humber Bay, which have experienced a significant increase in residential density. Figure 5-3 illustrates a proposed waterfront transit network.

Figure 5-3 Recommended Waterfront Transit Network

Source: City of Toronto

5.5
Waterfront Toronto Revitalization

Waterfront Toronto is the public advocate and steward of waterfront revitalization. Created by the Governments of Canada and Ontario and the City of Toronto, Waterfront Toronto is mandated to deliver a revitalized waterfront. Following the release of the Toronto Waterfront Revitalization Task Force's report in March 2000, the three orders of government jointly announced their support for the creation of Waterfront Toronto (formerly Toronto Waterfront Revitalization Corporation) to oversee, lead and implement the waterfront's renewal.

Formally created in 2001, Waterfront Toronto has a 25-year mandate to transform 800 hectares (2,000 acres) of brownfield lands on the waterfront into beautiful, sustainable mixed-use communities and dynamic public spaces. The project is one of the largest infrastructure projects in North America and one of the largest waterfront redevelopment initiatives ever undertaken in the world. However, it is not just the sheer scale of the project that makes it unique. Waterfront Toronto is delivering a leading edge city-building model that seeks to place Toronto at the forefront of global cities in the 21st century.

A primary objective of waterfront revitalization is to leverage the infrastructure project to deliver key economic and social benefits that enable Toronto to compete aggressively with other top tier global cities for investment, jobs and people. To do this, Waterfront Toronto brings together the most innovative approaches to sustainable development, excellence in urban design, real estate development, and advanced technology infrastructure.

The mandate of Waterfront Toronto is to foster the revitalization of the waterfront that takes into consideration reconnecting people with the waterfront, design excellence, sustainable development, economic development and fiscal sustainability. Included in Waterfront Toronto's mandate are a number of precincts, some of which have been developed and others where planning is in the preliminary stage. These precincts are illustrated in Figure 5-4.

With the development pressures in the City of Toronto, vacant properties along the waterfront are highly sought after to intensify and build taller buildings. In recent years, the Airport management team has developed a protocol with the City of Toronto Planning Department and through consultations with Waterfront Toronto on the Ports Lands Redevelopment about development height restrictions along the waterfront. City Planning engages the airport management team to review development proposals to ensure there is no conflict with airport operations, as well as with NAV CANADA, who regulates air traffic in Canada's airspace.

Figure 5-4
Waterfront Toronto
Planning Precincts

Source: City of Toronto – Overview of Waterfront Revitalization

5.6
Coordination with NAV CANADA

Airspace Modernization

NAV CANADA, the country's air navigation services provider and the organization responsible for operating the air traffic control tower at the airport, works closely with PortsToronto to consider how effective airspace design can reduce the environmental impacts associated with aircraft operation, taking into account both greenhouse gas emissions and community noise impacts.

Recent efforts have focussed on increasing operational predictability through the use of satellite-based navigation technologies that are more precise when compared to conventional, ground-based navigational aids. In 2019, NAV CANADA and PortsToronto are working together to implement a modern procedure type known as Required Navigation Performance, or RNP.

RNP leverages modern aircraft flight management systems and satellite positioning to provide new opportunities to design routes that support quieter continuous descent operations—which allow aircraft to descend on a lower thrust setting and in a "cleaner" configuration. RNP also allows for the design of routes that are shorter, which in the case of aircraft arriving to Billy Bishop Toronto City Airport means keeping more aircraft over the water. The result is reduced fuel burn for airlines, reduced noise for communities and reduced greenhouse gas emissions for everyone.

For example, starting December 5, 2019, NAV CANADA, in collaboration with PortsToronto, will implement enhanced arrival procedures for aircraft operators at Billy Bishop Toronto City Airport. These new arrival procedures will improve air traffic operations while reducing flying time, fuel burn, Greenhouse Gas Emissions (GHG) and community noise exposure.

By leveraging satellite-based navigation capabilities, these new arrival procedures will keep more aircraft over the water on approach to Billy Bishop Airport, reducing noise exposure to residentially populated areas. Further, aircraft operators will save as much as five minutes of flying time, which is estimated to add up to an annual reduction of 970 metric tonnes of GHG emissions. Enhanced arrivals procedures will also serve to improve ground positioning for departures at Billy Bishop Airport, reducing ground idling and associated fuel burn, GHG emissions, and noise from aircraft waiting to depart.

973 metric tonnes

Reduction in GHGs associated with RNP in 2020.

RNP will reduce the number of track miles flown by arriving aircraft by an estimated

82,000 Nautical miles

in 2020.

5.7
Other Planning Initiatives

Other planning initiatives in which PortsToronto is participating or providing input include:

MASTER PLAN FOR THE WATERFRONT SCHOOL AT QUEENS QUAY AND EIREANN QUAY	• The Toronto District School Board Play Ground Master Plan for the Waterfront School at Queens Quay and Eireann Quay. This includes a redevelopment of the outdoor spaces on the school property.
MASTER PLAN FOR TORONTO ISLANDS PARK	• The City of Toronto Parks, Forestry and Recreation have initiated the preparation of a Master Plan for Toronto Islands Park.
ONTARIO PLACE	• The Province of Ontario is looking at the potential redevelopment of Ontario Place and has called for public input. Concerning potential redevelopment, airport zoning regulations protect the airspace for Billy Bishop Airport and place height restrictions for future redevelopment at the Ontario Place property.
PORT LANDS AND THE DON MOUTH NATURALIZATION PROJECT	• Waterfront Toronto, the City of Toronto and the Toronto Region Conservation Authority are leading the planning and future development of the Port Lands and the Don Mouth Naturalization project. For the past several years, PortsToronto has been involved as a land and water lot owner and a key agency providing technical support to the lead agencies by sitting on various agency committees. • Concerning planned redevelopments in this area over the next 50-year horizon, airport zoning regulations protect the airspace for Billy Bishop Airport and place height restrictions for future redevelopment in the Port Lands. As a key agency supporting these city building initiatives, PortsToronto has identified that current and future planning considerations must ensure noise modelling and mitigation be front and centre considering the close proximity of the airport's flight paths to the changing landscape of the Port Lands.

5.8
Opportunities and Challenges

With the airport's close proximity to residential neighbourhoods, community spaces, waterfront users, including park and recreational amenities, it is expected that the airport faces a number of challenges with respect to minimizing the impacts on its surroundings and being a good neighbour. The challenges and opportunities include:

I. Noise

Although PortsToronto has dedicated efforts to reduce noise impacts associated with the airport's operation. Noise continues to be a major irritant to the community. The challenge is to mitigate noise impacts through either physical means, such as the introduction of infrastructure or quieter equipment, or through changes in operations, such as reductions in operating hours and restricting certain activities. Last year, the airport implemented an operational procedure whereby commercial aircraft use a single engine when taxiing to the terminal building thereby reducing noise emissions. The challenge will be to further reduce the impacts of noise through physical means and/or adjustments in operations. The introduction of new technologies such as electric-powered aircraft could substantially reduce noise levels in the future. In the short-term the construction of new facilities, such as a new Combined Services Building or new hangar by Stolport, or the proposed dock wall promenade improvements including trees, vegetation, and infrastructure could act as additional noise barriers, reducing the impact of ground noise. The airport will be undertaking a noise study in 2019 that will look at other possible means for reduction of ground noise.

II. Vehicle Traffic and Safety

PortsToronto has been promoting urban modes of travel such as walking, biking, and using the complimentary shuttle bus and TTC, which has significantly increased the percentage of passengers who use non-automobile modes of travel to get to and from the airport. Since 2013, the modal split has increased from 27 per cent to 41 per cent in terms of the number of passengers who use the shuttle, TTC, walk or bike from the airport. The challenge will be to increase this percentage even further through the use of airport shuttles and public transit.

Airport safety is regulated at high standards and ensuring the safety of passengers, airport staff and residents living near the airport is a key priority in Billy Bishop Airport operations. With regard to the safe transport of fuel to the airport, Transport Canada regulates and strictly enforces what embarks and debarks on and off the ferry. PortsToronto abides by these regulations and takes great precaution in the loading and unloading of fuel. Operations related to fuel handling are all in accordance with the Canadian Standards Association document entitled Storage, Handling, and Dispensing of Aviation Fuels at Aerodromes.

5.8
Opportunities and Challenges

III. Air Quality

Air quality is a concern for residents living in close proximity to airport operations. Toronto Public Health (TPH) has been tracking and monitoring any air quality related issues related to airport operations. Over the past several years, TPH has conducted some studies to understand the impact of the airport on the local air shed.

Toronto Public Health has indicated that Billy Bishop Airport contributes 10-15% of pollution in the area. The majority of the pollution comes from vehicle traffic on the Gardiner/Lakeshore.

Toronto Public Health provided an overview to the Community Liaison Committee members at the May 2017 meeting regarding the existing conditions of the airport based on a study of six wards that surround the airport. Based on the 2013 Golder Report, which was based on well documented information and data from Ontario and transboundary air modelling work, the air quality assessment identified that, utilizing a 202 slot/aircraft movements and 3.8 million passengers, the airport contributes around 10-15 per cent of the pollution to the local air shed. With regard to the contaminants the airport contributes to the local air shed, TPH advised that the diesel ferry and aircraft operations are contributors. The largest contributor to pollution in the local community however is from vehicle traffic on the Gardiner Expressway/Lakeshore Boulevard and surrounding highway network. In December 2017, the Toronto Board of Health received approval from Toronto City Council to commission additional air quality assessments in the City of Toronto, to look at reducing health risks from Traffic-Related Air Pollution (TRAP) in Toronto.

Toronto Public Health identified that the data and modelling results suggest that the greatest influences to air quality in the area of the airport are a result of vehicles/trucks on roads and ferry use. As such, there is an opportunity to reduce air quality impacts, specifically for respirable particulate matter should the ferry engine be replaced with a newer engine that meets more stringent emission limits for particulate matter. The largest contributor of pollutants are resulting from vehicle use on the Gardiner, 401, 427 and DVP, which is the focus of work that Environment and Climate Change Canada and the provincial Ministry of the Environment, Conservation and Parks are working on.

In 2015, Toronto Public Health and the provincial Ministry of the Environment, Conservation and Parks took samples from residential balconies in the neighbourhood based on complaints received. The samples were analyzed at the Ministry of the Environment, Conservation and Parks laboratory, and the results determined that the "black soot" reported by community members was comprised of construction dust and debris, and was not airport related.

Based on research from Health Canada, the use of biodiesel can reduce most of the air pollutants emitted from diesel exhaust. As part of PortsToronto's sustainability initiatives, the airport ferry fuel was upgraded from diesel to biodiesel in May 2018, which has reduced the emissions from airport operations. Another opportunity to reduce emissions from the ferry operation would be to look at other fuel sources that provide higher emission reductions. As such, PortsToronto is in the process of retrofitting the main airport ferry, the *Marilyn Bell 1*, to an electric ferry with the goal of zero emissions regarding air and noise.

In the past, the challenge has been identification of emission sources and work on mitigation measures in a practical approach. Opportunities to transition from fuel to electric vehicles and equipment where possible, and reducing emissions from aircraft by enhancing the efficiency of the taxiway system and implementing operational procedures will continue be considered.

Operational Impact Mitigation

TAXIING
Porter Airlines and Air Canada Jazz have implemented a procedure that requires planes taxiing to the gates to operate on one engine to reduce both carbon impacts and noise.

FERRY
New equipment was installed on the ferry to dampen engine noise in 2015. In addition, an early-morning start-up procedure for the ferry to redirect noise away from the mainland was implemented.

FERRY
The airport ferry is powered by biodiesel fuel and work has begun on identifying an approach to converting the ferry by 2020.

BARGING
In order to reduce construction-related traffic noise through the Bathurst Quay Neighbourhood, the majority of equipment and material for the airfield project was transported to the site by barge from wharves located at our Marine Terminal in the port lands to a temporary dock on the east side of the airport. This accounted for 4,125 fewer truck movements via the airport neighbourhood's roadways during phase II of the airfield rehabilitation project

GRE
Ground Run-up Enclosure (GRE), which went into operation in April 2017, has decreased complaints related to scheduled engine-run ups by 97 per cent since opening.

NMT
Noise Monitoring Terminal

NMT
Two Noise Monitoring Terminals

CURFEW
All aircraft at Billy Bishop must operate within a curfew that prohibits any aircraft, other than emergency flights or Medevac aircraft, from taking off or landing between the hours of 11:00 p.m. and 6:45 a.m.

HYBRID VEHICLES
Operational vehicles will be replaced with hybrid models by 2020, where commercially feasible.

NOISE BARRIER
Built in 2012, the noise barrier is constructed to mitigate noise from aircraft operations. The 93-metre-long and 6-metre-high barrier is located at the airport's northwest side at the Western Gap. The barrier aids in mitigating aircraft noise experienced by Stadium Road residents.

Billy Bishop Airport won the ACI-NA Environmental Achievement Award for Best Innovative Project for the airport's successful implementation of the Airfield Rehabilitation Program.

Billy Bishop Airport won the Airports Council International (ACI-NA) Environmental Achievement Award for its Noise Mitigation Program.

5.8
Opportunities and Challenges

IV. Water Quality: Chemical Containment

As a port authority, the quality of water in the Inner Harbour and Lake Ontario is important to PortsToronto. PortsToronto has in place protocols and procedures to ensure that the airport and its tenants do not inadvertently release contaminates into the storm water system. This includes spent glycol from aircraft de-icing operations.

Billy Bishop Airport maintains a complex runoff management system that collects and contains the chemicals used in daily operations to ensure the protection of the environment. The airport manages the use, collection and disposal of de-icing chemicals in accordance with an agreement (RG 12/3/8728 Sanitary Discharge Agreement) with the City of Toronto. PortsToronto manages aircraft de-icing and anti-icing fluids with a dedicated glycol containment system that traps surface runoff and contains glycol from de-icing and anti-icing operations. Under this agreement, runoff is pumped to the City's sanitary sewer system for treatment. The airport has protocols and designated areas for aircraft to receive applications of de-icing fluid. These areas are designed such that overland drainage flows into designated catch basins and underground containment sewers. Snow clearing from the designated aircraft de-icing area, which may contain de-icing fluid, is directed to an adjacent airfield location that is drained and directed to the sanitary sewer utilizing metered pumps per agreement with the City of Toronto. In addition, City of Toronto and PortsToronto conduct co-located sampling of the system, as needed each year.

At times anti-icing fluid is applied to a surface in order to protect the surface from the accumulation of frozen contaminants. De/anti-icing fluids are only required until the aircraft becomes airborne, after which the on-board de/anti-icing systems take over. A trace amount of these fluids will fall from the aircraft during taxiing and take-off and runoff onto the airfield where it dissipates and breaks down. Importantly, the liquid runs-off at the point of aircraft acceleration during take-off and lands on the airfield where it is collected and contained.

Airplane engine maintenance areas utilize oil separators to collect and manage hydro-carbons. In other operations, such as aircraft fueling, strict protocols are in place to reduce the risk of spills. In the event of a spill, the airport's maintenance and fire departments are trained in mitigation and clean-up methods to avoid spills entering the natural environment. In addition, aircraft that operate at Billy Bishop Airport do not have the ability to dump or discharge fuel while in the air, so there is no risk of spills into Lake Ontario.

As in many businesses, various products are used to maintain equipment and facilities to ensure safe operation. These products are managed and contained in a rigorous manner to ensure safety and the protection of the environment.

DE-ICING AT BILLY BISHOP AIRPORT

Billy Bishop Airport manages aircraft de-icing and anti-icing fluids with a dedicated glycol containment system that traps surface runoff and thoroughly contains glycol from de-icing and anti-icing operations.

6
Activity Forecast

6.1
Historical Activity

6.1.1
Aircraft Movements

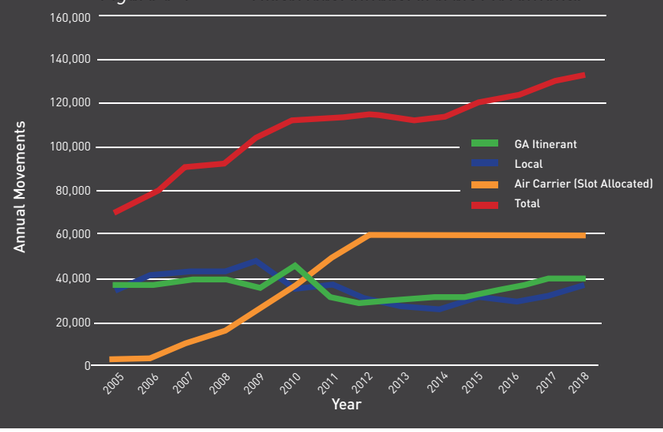
An aircraft movement is defined as a take-off, a landing, or a simulated approach by an aircraft. Aircraft movements are then described as being "itinerant" or "local." An itinerant movement is when the aircraft departs or arrives from another airport or when it exits the airport's control zone. A local movement is when the aircraft remains within the airport's control zone. Local movements are generally attributed to flight training.

Throughout its history, Billy Bishop Airport has experienced significant swings in the number of aircraft movements. Upon its return to civilian use after the Second World War, the airport was used extensively by flying clubs and flight schools that propelled a significant increase in aircraft movements, peaking in 1961 when the airport was the busiest airport in Canada with 212,735 annual movements. Aircraft movements peaked again in 1981 with 213,795 movements, again a result of significant flight training at the airport.

By 2005, the number of annual movements had declined to approximately 68,000, largely due to declines in flight training and recreational flying. With the introduction of Porter Airlines in 2006, Billy Bishop Airport experienced unprecedented growth. Similarly, there was an increase in general aviation activity. More recently, the level of growth is more modest and predictable. Since then, there has been a gradual increase in the number of movements. This can be attributed to the introduction of Porter Airlines in 2006 and an increase in general aviation activity.

Figure 6-1 illustrates the trend in aircraft movements since 2005. While itinerant movements have increased since 2006, with the introduction of Porter Airlines and Air Canada Express, there was a general decline in both general aviation itinerant movements and local movements from 2010 to 2013 when these segments began to increase again. Since 2012, air carrier movements, represented by Porter and Air Canada Express, have remained relatively flat, with overall increases in aircraft movements coming from itinerant and local general aviation activity.

Figure 6-1 Historical Annual Aircraft Movements



Under the terms of the Tripartite Agreement, PortsToronto is required to manage aircraft movements such that 28 Noise Exposure Forecast (NEF) Contour generated by such activity is contained within the 1990 25 NEF contour provided in Annex A of the Agreement.

In 2010, PortsToronto commissioned a study to review aviation activity at Billy Bishop Airport and the associated noise impacts. As part of the study, new NEF contours were generated based on the 2008 actual movements obtained from NCAMS (NAV CANADA Aircraft Movement Statistics) database. These contours, as compared against the 1990 official NEF contours, are illustrated in Figure 6-2.

Figure 6-2 2010 NEF Contours versus 1990 Official Contour

Source: Billy Bishop Toronto City Airport Noise Management Study, Jacobs Consultancy, 2010

The NEF analysis determined the theoretical capacity of the airport does not breach the official 1990 25 NEF contour. The updated NEF analysis undertaken as part of this master plan has been identified to be approximately 175,000 movements. The reasons for the increase in the theoretical capacity from the 2010 study are:

- The mix of aircraft are different in the two studies, and general aviation aircraft are generally becoming quieter;
- The 2010 analysis used generic noise data from an older Transport Canada NEF model (1.8), whereas the current NEF model used for this Airport Master Plan provides noise data for specific aircraft models, resulting in noise profiles for several aircraft types which have been reduced in the current model;
- Runway usage has changed since 2010 with Runway 15-33 no longer in use; and,
- The number of nighttime movements, planes taking off and landing between 11:00 p.m. and 6:45 a.m., have decreased since 2010, whereas in the NEF model 1 nighttime movement equates to 17 daytime movements.

Figure 6-3 NEF Contours Associated with Base Case

Source: Billy Bishop Toronto City Airport Noise Management Study, Jacobs Consultancy, 2010

Figure 6-4 illustrates the NEF contours associated with the theoretical capacity of 175,000 annual movements that does not breach the official 1990 25 NEF contour.

It should be noted that Transport Canada regularly commissions a validation of the current NEF contours against those found in the Tripartite Agreement using the same model and methodology as used in the NEF analysis for this Airport Master Plan. In all of the validation studies undertaken by Transport Canada, Billy Bishop Airport's NEF contours have been in full conformance with the Tripartite Agreement.

In addition to our Managed Growth Strategy, we have a self-imposed daily restriction of 202 slots, of which only seven are allocated to "night-time movements." There is also a self-imposed daily restriction of 16 slots within a 60-minute period.

As a means of controlling aviation activity without breaching the official 1990 25 NEF contour, PortsToronto has implemented a slot allocation protocol for air carrier movements, as a best practice. This means that all scheduled air carrier movements are regulated by specific slots, which is described as a landing or a take off.

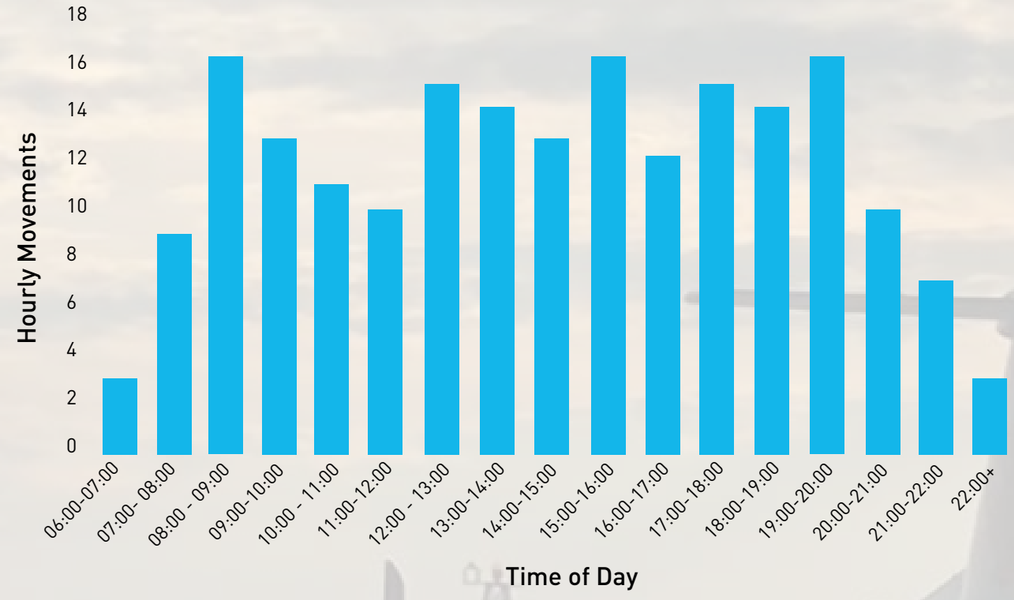
This protocol dictates the total number of daily air carrier movements operating from the Main Terminal, as well as the number of movements over a given hour and the number of night movements.

The 202 daily slot allocations are assigned as follows: Porter Airlines has 172 slots and Air Canada has 30 slots. Figure 6-5 illustrates the distribution of scheduled air carrier movements for a typical weekday.

Figure 6-4 NEF Contours Associated with Theoretical Capacity

Source: Billy Bishop Toronto City Airport Noise Management Study, Jacobs Consultancy, 2010

Figure 6-5 Scheduled Air Carrier Movements by Time of Day



6.1.2 Passenger Activity

Prior to the mid-80's, scheduled passenger activity at Billy Bishop Airport was sporadic, with generally fewer than 15,000 passengers per year.

In the mid 1980's City Express initiated service to Ottawa and Montreal utilizing 50-seat Dash-7 and 37-seat Dash-8-100 aircraft. However, passengers continued to be processed through the original terminal facility that was not designed to support modern-day travel requirements. During its peak in 1987, the airline handled approximately 331,000 passengers.

City Express ceased operations in 1991. In 1990, Air Canada Jazz initiated operations at Billy Bishop Airport which continued until 2006. However, passenger activity never reached the previous peak and continued to decline over the years.

Figure 6-6 illustrates annual passenger activity prior to the introduction of Porter Airlines.

With the introduction of Porter Airlines in 2006, and subsequently Air Canada Express, and with the introduction of modern terminal facilities, passenger activity increased substantially, to the point where the airport in 2018 welcomed over 2.8 million passengers.

Figure 6-7 illustrates the rise in passenger activity since 2005 and the implementation of PortsToronto Managed Growth Strategy

Figure 6-6
Historical Annual Passenger Activity Prior to 2006

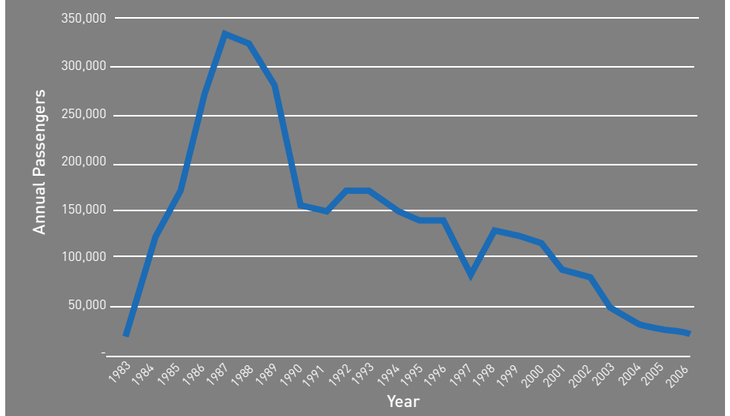


Figure 6-7
Historical Annual Passenger Activity

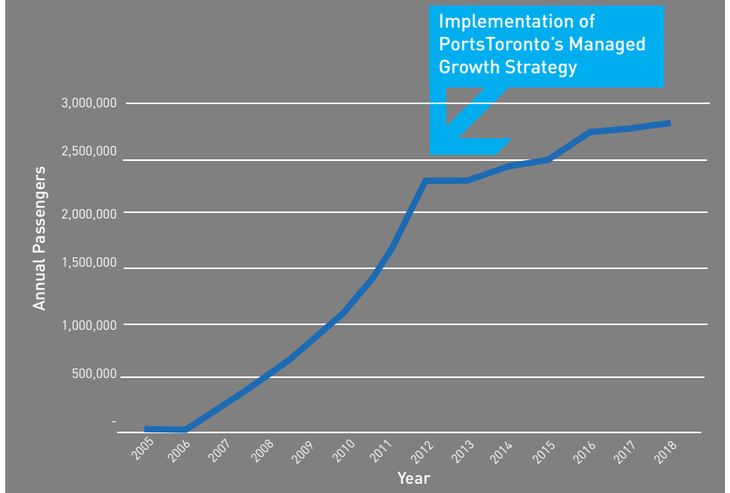


Figure 6-8 illustrates the rise in total passenger activity broken down by domestic and transborder from 2012 to 2018.

Figure 6-9 describes the scheduled departure seats based on time of day for a typical busy day (Friday). As illustrated, there are a number of peaks throughout the day, the most significant occurring at 16:00. During peak periods, aircraft load factors can reach 85 per cent. Therefore, the peak -hour passenger demand with respect to departing passengers is approxi-mately 630 passengers.

Figure 6-10 describes the arrival seats based on time of day for a typical busy day (Friday). Again, there are a number of peaks throughout the day, the most significant occurring at 14:45 and again at 19:00. During peak periods, aircraft load factors can reach 85 per cent. Therefore, the peak hour passenger demand with respect to arriving passengers (domestic and transborder) is approximately 630 passengers.

Figure 6-8 Passenger Activity by Sector

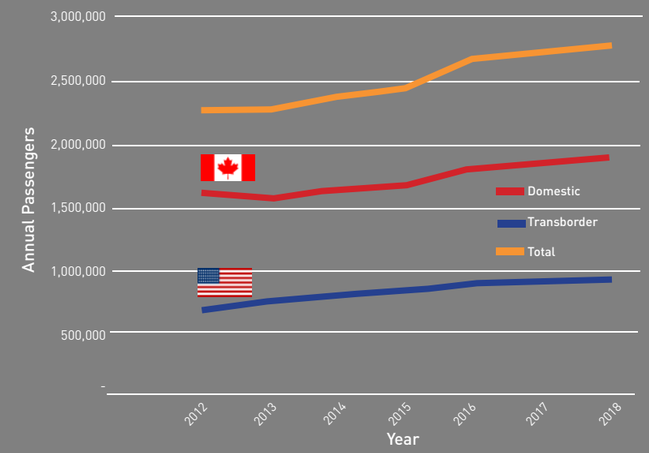


Figure 6-9 Departure Seats by Time of Day

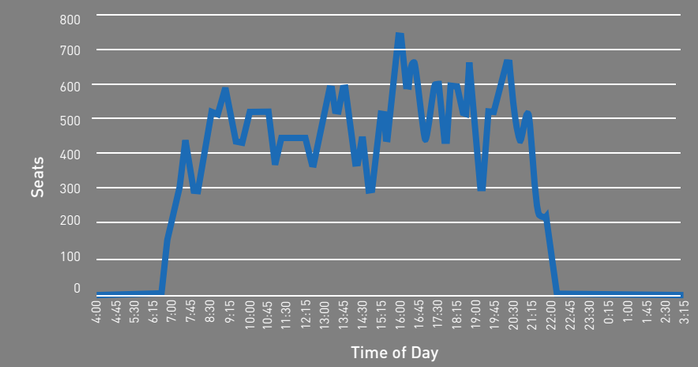
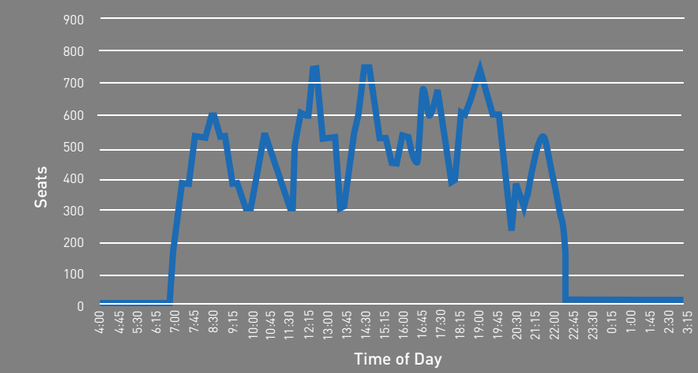


Figure 6-10 Arrivals Seats by Time of Day



6.2
Managed Growth Strategy

Unlike other Canadian airports where activity forecasts are unconstrained, based on a number of socio-economic and air service considerations that drive passenger activity, growth at Billy Bishop Airport is constrained by a number of factors. These include: 1) the NEF limits imposed by the Tripartite Agreement; 2) the allocation of airline slots; 3) the current preference of a single passenger aircraft—the Bombardier Q-400; and 4) airline route restrictions imposed because of runway length limitations.

Rather than providing a traditional activity forecast, this Airport Master Plan supports the concept of a Managed Growth Strategy, whereby future increases in aircraft movements and/or passenger activity would be based on a balanced approach that takes into consideration community interests, environmental concerns, travel demands and the commercial interests of airlines and general aviation operators, and the mandate under the Tripartite Agreement for PortsToronto.

Although the airport has the ability to accommodate approximately 175,000 annual movements and still conform to the Tripartite Agreement, PortsToronto recognizes that this level of activity is not currently aligned with our vision for a balanced waterfront. Instead, the Managed Growth Strategy supports a modest increase in aircraft movements and passenger activity that will be monitored on an ongoing basis, to ensure that such operations are conducted in a manner that mitigates noise, limits air quality impacts, avoids congestion, and remains mindful of the surrounding community. This approach towards balanced growth has been measured based on performance tracking through: Biennial traffic surveys which occur every two years; continual operational analysis to manage traffic and promote modal split to reduce non-vehicle trips to/from the airport; NEF compliance which is conducted annually by Transport Canada and continued involvement with community initiatives and holding quarterly Airport Community Liaison Committee meetings, as well as Noise Management Sub-Committee meetings to work towards mitigation of airport operations.

6.2.1
Aircraft Movements

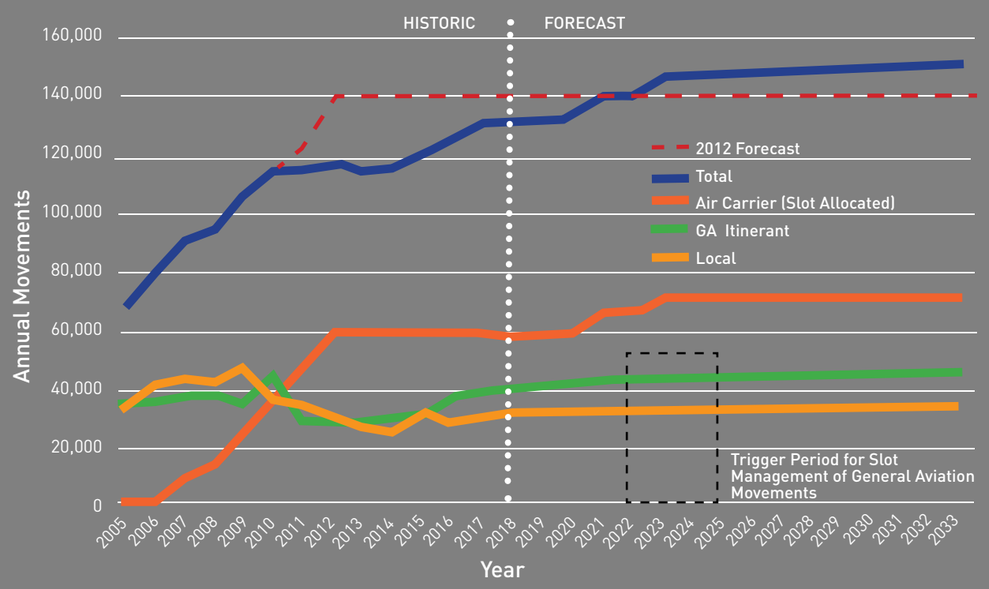
The proposed Managed Growth Strategy for aircraft movements would permit a gradual increase in both airline and general aviation movements.

It is proposed that up to an additional 24 daily airline slots be provided in 2021, with a further increase of up to 20 daily slots in 2023. The allocation of these slots would be given as a priority on weekdays only, and only if there is sufficient market demand to warrant their addition. PortsToronto will give strong consideration to avoid additional slots on Saturday, Sunday or during nighttime hours. Efforts would also be made to minimize additional demands during peak periods that might result in further traffic activity on Eireann Quay.

This approach would see a levelling of growth on weekends and maintains a balanced forecast for movements past 2023. As we continue to see growth in itinerant general aviation, there will be a point where a slot management program for this activity will be needed to ensure compliance with 1990 NEF contours under the Tripartite Agreement. An annual threshold of 44,000 movements for itinerant general aviation could be considered a reasonable threshold for implementation of a slot management program, with the General Aviation community being notified in advance, at 43,000 movements.

Figure 6-11 describes the proposed growth strategy for aircraft movements. It is anticipated that once general aviation itinerant movements (including helicopter movements) approach 43,000, a slot allocation process would be introduced for general aviation activity. The growth strategy assumes that annual aircraft movements would increase to 149,510 by 2033. Of this, 70,690 (48 per cent) would be scheduled air carrier movements, 45,500 (30 per cent) general aviation itinerant movements, and 33,320 (22 per cent) general aviation local movements.

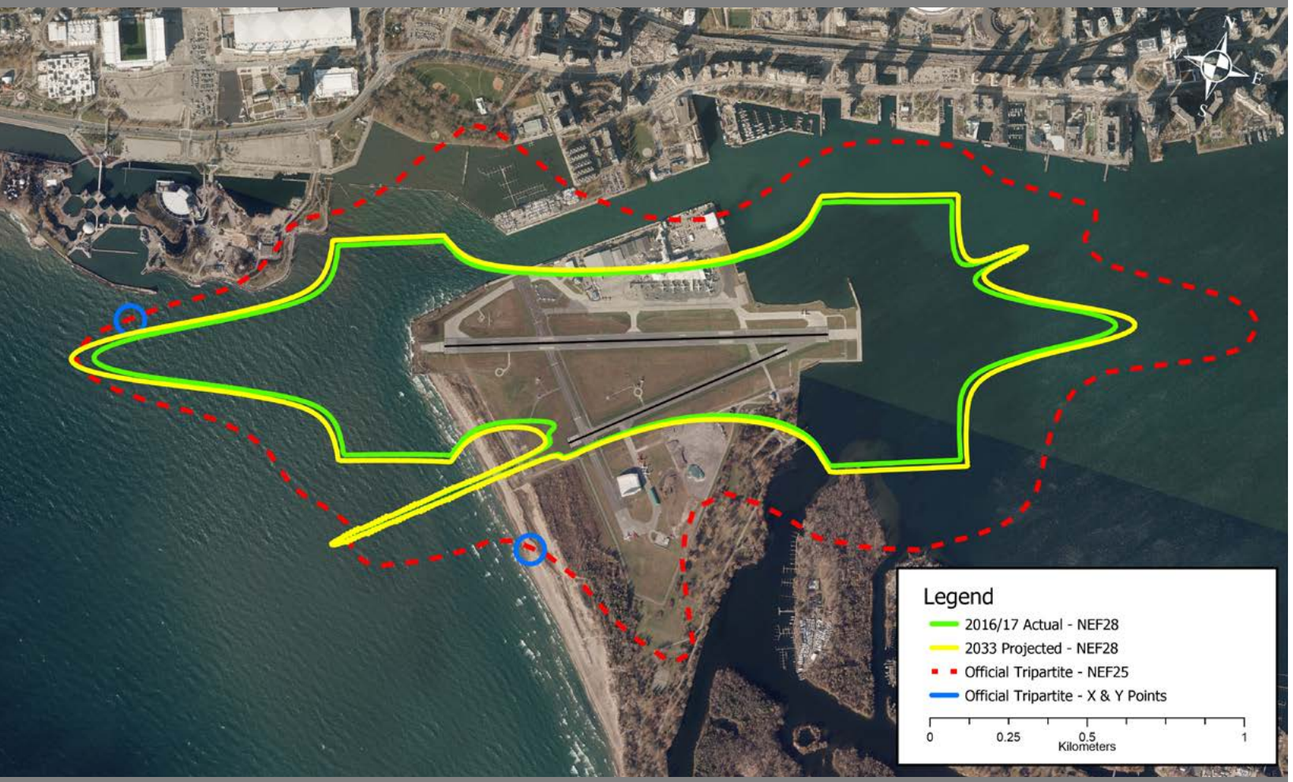
Figure 6-11 Aircraft Movement Growth



6.2.1
Aircraft Movements
(continued)

Figure 6-12 illustrates the NEF contours associated with the Managed Growth Strategy and annual aircraft movements of 149,510 which are well within the prescribed NEF Contour provided in the Tripartite Agreement.

Figure 6-12 NEF Contours Associated with Managed Growth Strategy



6.2.2
Passenger Activity

It is assumed that increases in passenger activity will be primarily the result of increased passenger load factors on current scheduled flights, as well as a modest increase in airline movements. The Managed Growth Strategy forecasts approximately 3.85 million total passengers by 2033. Connecting passengers will likely continue to represent approximately 900,000 (25%) of the total passengers who are not leaving the airport and not entering the neighbourhood. Airline movement increases will be focussed away from weekends and nighttime periods.

Figure 6-13 illustrates forecasted increases in passenger activity. It is assumed that increases in passenger activity will be primarily the result of increased passenger load factors on current scheduled flights, as well as a modest increase in airline movements. The Managed Growth Strategy forecasts approximately 3.85 million total passengers by 2033. Connecting passengers will likely continue to represent approximately 25 per cent of total passengers.

Figure 6-13 Passenger Activity Growth

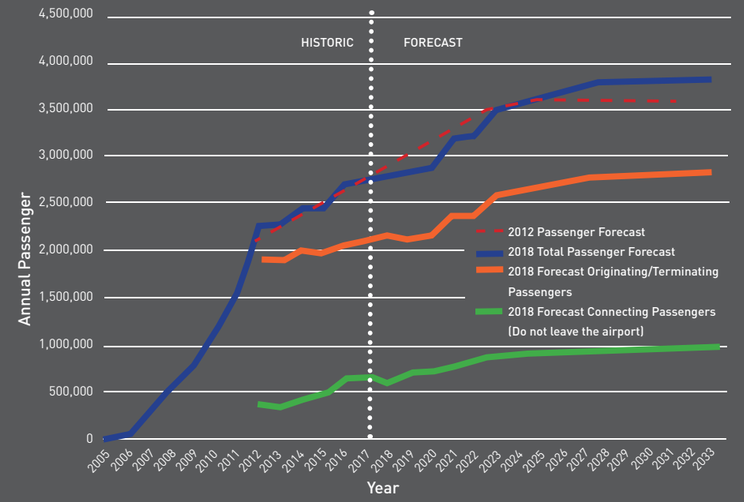
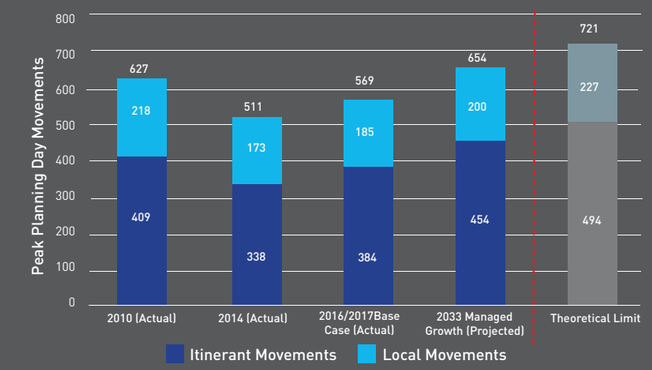


Figure 6-14 Peak Planning Day Movements



A movement is defined as a take off or a landing.

7
Infrastructure Requirements

7.1
Airside

7.1.1
Runways

Runways 08-26 and 06-24 underwent major rehabilitation and reconstruction in 2016-2017 and satisfy the ongoing needs of the airport. With the exception of the potential implementation of Runway End Safety Areas (RESA) on Runway 08-26, no further improvements are contemplated as part of this Airport Master Plan.

7.1.2
Taxiways

Together with the runways, the taxiway system underwent a reconstruction program from 2016-2018, where most of the pavements were reconstructed or resurfaced. To improve the efficiency of the taxiway system, it is recommended that Taxiway Bravo be extended to the threshold of Runway 08. This improvement would reduce taxi durations, which in turn would reduce noise and aircraft emissions. In order to provide a full parallel taxiway, the existing localizer would be removed.

Further discussion with NAV CANADA is required to determine options with respect to the removal and/or relocation of the ILS localizer. If and when a RESA is to be provided at the end of Runway 08, one opportunity would be to relocate the localizer at the end of the RESA.

In addition to extending Taxiway Bravo to the threshold of Runway 08, a further consideration would be to provide an aircraft bypass area at the western end of Taxiway Bravo. The bypass would allow for an aircraft to remove itself from the circulation system. This would expedite the movement of both arriving and departing aircraft when the terminal gate is occupied or when there is a ground hold at the destination airport.

Should general aviation develop on the south side of the airport, as described later in this Airport Master Plan, a phased expansion of a taxiway system on the south side of Runway 06-24 should be considered to support this activity.

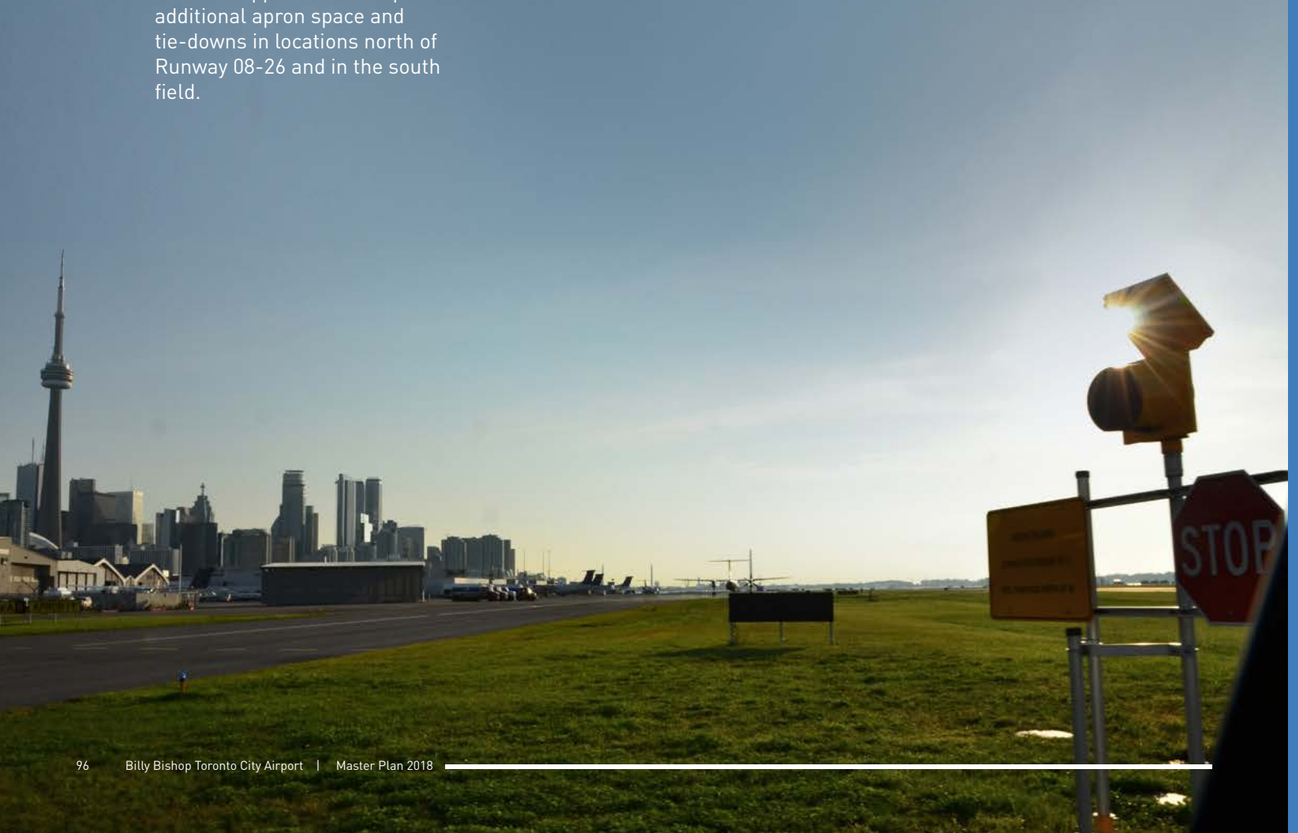
7.1.3
Aprons

Together with the runways and taxiway system, the main apron underwent a reconstruction program in 2018. The apron area south of the terminal building was expanded as well to allow for additional maneuvering area behind the gates.

Billy Bishop Airport is severely constrained by the lack of apron and tie-down areas. This was identified as the main concern among general aviation stakeholders. The provision of additional apron space is important to both commercial operators and private pilots. The Airport Master Plan will consider opportunities to provide additional apron space and tie-downs in locations north of Runway 08-26 and in the south field.

7.1.4
Navigational Aids

As identified in Section 7.1.2 there is an operational benefit of relocating the ILS localizer to accommodate the extension of Taxiway Bravo. At present, the localizers for both ends of Runway 08-26 are offset, whereas they are ideally located directly at the extended centreline at the ends of the runway. With the potential introduction of Runway End Safety Areas there may be an opportunity to relocate the localizers to the ends of the runway. This would provide aircraft on approach with a proper alignment to the runway centreline.



7.2
Air Terminal Building

Given the Air Terminal Building's recent upgrades, further development of the facility is not contemplated as part of this Airport Master Plan. The upgraded facility already has the built in capacity to accommodate additional passenger activity associated with the Managed Growth Strategy and to support the introduction of U.S. Preclearance facilities, should that occur in the future.

U.S. CBP (preclearance) facilities would allow U.S. destined passengers to clear U.S. immigration and Customs at Billy Bishop Airport, which in turn would allow airlines to operate into the U.S. as a domestic flight. This would enhance connection opportunities in the U.S. and allow airlines to potentially operate into domestic-only airports such as New York LaGuardia, Washington National, and additional markets.

7.3
Landside

PortsToronto has been working with City Departments who are leading improvements under the Bathurst Quay Neighbourhood Plan. Through the City's community planning process, PortsToronto has identified needs with respect to landside infrastructure for airport operations. PortsToronto is committed to continued efforts to increase passenger ridership on non-auto modes of transport including the shuttle bus and public transit. In the long-term, as plans are drawn up for the redevelopment of the Canada Malting site, the landside requirements on Eireann Quay may be re-evaluated, and the airport will identify any needs to the City.

Another mode of transport that should be explored is the use of water taxis. A water taxi service could transport passengers to/from the central waterfront, the Port Lands to the east, as well as areas to the west of the downtown core, including Humber Bay. To support the potential for such service, the provision of water taxi stations should be considered at the bottom of Eireann Quay and/or on the south side of the Western Gap channel, adjacent to the air terminal ferry Passenger Transfer Facility (PTF).

To reduce the number of commercial vehicles accessing the airport and Toronto Islands on behalf of the City of Toronto via Eireann Quay an alternative ferry service should be considered. Such a service could potentially operate between the Port Lands and the south side of the airfield which would consolidate City of Toronto and Airport Commercial traffic. To accommodate a larger ferry capable of holding large commercial vehicles, the existing dock at the Port of Toronto located at 8 Unwin Ave would have to be modified. Such an undertaking would require analysis to see if there is a business case and would require support from the City of Toronto and approvals from Transport Canada and other agencies. Similarly, a permanent barging facility should be considered at the south-east corner of the airfield, where the temporary barging operations took place as part of the Airfield Rehabilitation Program. The barging facility would accommodate the delivery of construction materials and vehicles during future construction projects, thus minimizing the need for construction-related equipment and vehicles to access the airport via Eireann Quay.

7.4
Airport Support Facilities

7.4.1
Combined Services Building

The existing Combined Services Building, which includes the Aircraft Rescue and Fire Fighting (ARFF) facility and the airport maintenance garage, is at capacity and in need of replacement.

The existing building cannot fully accommodate all of the emergency response and maintenance vehicles located at the airport. This includes the two primary ARFF vehicles, the spare ARFF vehicle and the structural pumper fire truck. Similarly, the airport maintenance function needs to be expanded and the width of the service bays increased to accommodate the current snow plow/sweeper equipment. Storage bays should accommodate frontline seasonal equipment, which would include snow plows and sweepers in the winter and field maintenance and grass cutting equipment in the summer. As such, the existing Combined Services Building cannot accommodate the current needs, as it lacks the space, configuration and is coming to the end of its life.

The new facility should be located on the north side of Runway 08-26. This location provides the facility with groundside access and ensures that emergency response personnel have direct access to the terminal building and hangar flight line without having to cross active runways.

7.4.2
Equipment Storage

The existing equipment storage building located in the south field should be replaced with a larger permanent building that can be heated in the winter to prevent snow and slush from freezing on vehicles. The location of a replacement building can remain in the south field due to limited use.

7.4.3
Terminal A

The original wood-frame terminal building has remained on the south side of the airfield for a number of years and without rehabilitation, will fall into a greater state of disrepair. Consideration should be given to renovate and re-purpose the historic building as a multi-purpose facility that could house an airport-themed restaurant, aviation museum/gallery, and event space that could be used by the airport community and the public if the business case supports this use. Ideally the building should be relocated to a location where it has a vantage point of the airport and the city skyline and is easily accessible to the public. Locations on the south side of the airport and on the north side, near the ferry dock can be considered.

7.5
General Aviation Development

In discussions with airport stakeholders it was made very evident that general aviation is in need of additional apron tie-down areas and hangar facilities. Ideally, these facilities should be located away from air carrier operations associated with the terminal building for improved efficiency and safety. Given the limited availability of land on the north side of Runway 08-26, the south side of the airport was identified as an appropriate location for specific elements of general aviation, assuming appropriate means of access could be provided to the site.

It is believed that any additional lands available on the north side of the airport may be more appropriate for commercial general aviation and/or itinerant aircraft parking, whereas the south side of the airport may be more appropriate for private aircraft tie-downs and hangars. Access to the south field could be via an airside shuttle, or from Hanlan's Point by way of a security gate.

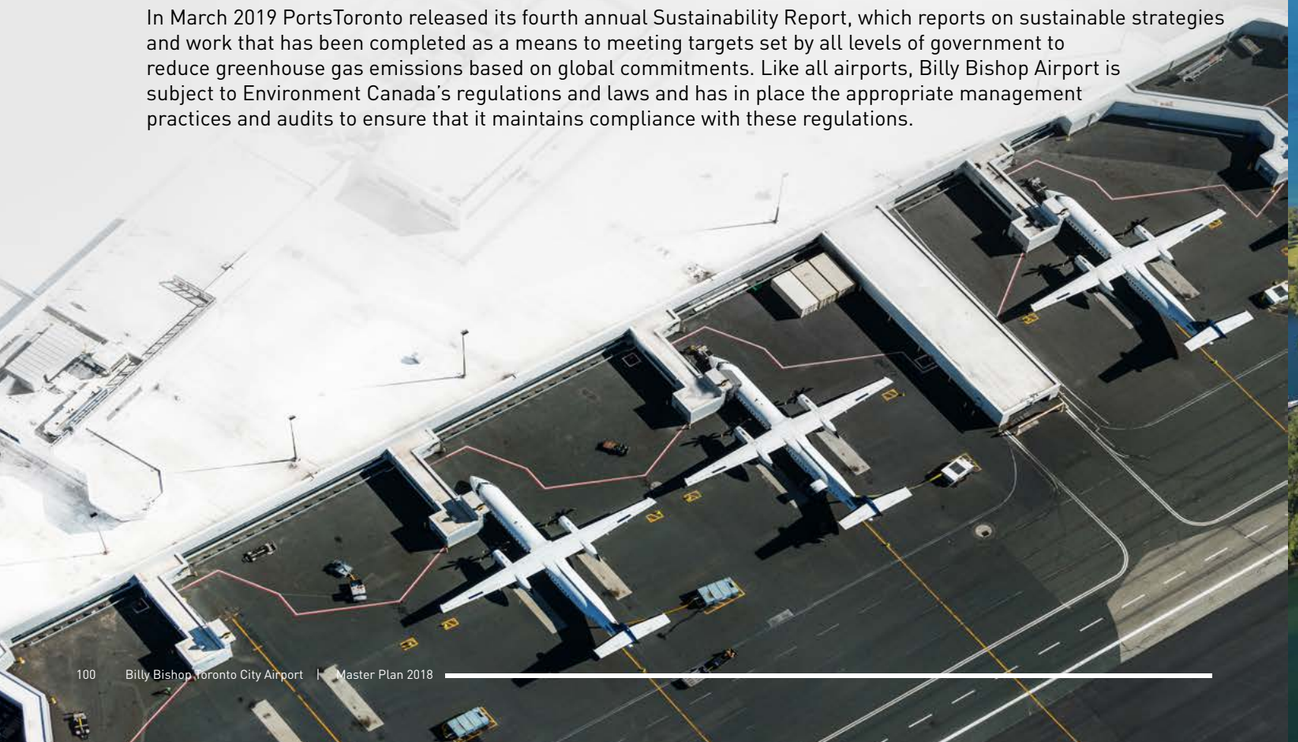
A survey undertaken recently by the Canadian Owners and Pilots Association (COPA) indicated there is some interest in owners relocating their aircraft to Billy Bishop Airport, and that there would be a demand for additional aircraft tie-downs and hangars. The current constraint at Billy Bishop Airport is the lack of such facilities. The airport would need to undertake a market analysis and business case prior to committing to funding such infrastructure works.

8
The Environment, Sustainable Development, and Corporate Social Responsibility

8.1
Introduction

The airport's location within a growing mixed-use urban waterfront in downtown Toronto creates the responsibility to invest in environmentally sustainable infrastructure that supports our corporate social responsibility goals. PortsToronto is committed to building sustainable infrastructure that is balanced with the waterfront and strives towards environmental leadership through the employment of best practices in all of its business operations.

In March 2019 PortsToronto released its fourth annual Sustainability Report, which reports on sustainable strategies and work that has been completed as a means to meeting targets set by all levels of government to reduce greenhouse gas emissions based on global commitments. Like all airports, Billy Bishop Airport is subject to Environment Canada's regulations and laws and has in place the appropriate management practices and audits to ensure that it maintains compliance with these regulations.



8.2
Noise Management Program

The airport's location within a thriving mixed-use urban waterfront in downtown Toronto means that connectivity is one of our key benefits. It is also behind what motivates us to innovate, improve and invest in order to mitigate the impacts associated with airport operations, such as noise, on the surrounding community.

As part of our commitment to the community, the airport adheres to a Managed Growth Strategy and runs a comprehensive, multi-faceted Noise Management Program. In the past, noise monitoring and noise studies have been conducted by subject matter experts which recommended mitigation measure to reduce noise impacts to the surrounding community. As a result of these studies, a Ground Run-up Enclosure was built and is housed in the south field away from residents. A noise barrier was also constructed on the north dock wall to minimize impacts for neighbours closest to the airport's ground side operations.

Although there was a decrease in noise complaints in 2018 from the surrounding airport neighbourhoods, there has been an increase in noise complaints in the Bathurst/Queens Quay and Spadina/Queens Quay neighbourhoods. The communities in closest proximity to the airport have cited ground noise disturbances generated by aircraft maneuvering on taxiways and apron areas. The majority of noise complaints (92 per cent) received by PortsToronto are with respect to aircraft. With this in mind, we have started work on a Noise Study, which will take place in 2019. As part of the study, we will work in collaboration with the newly formed Noise Sub-Committee of the Community Liaison Community (CLC) to identify solutions to further mitigate noise from airport operations.

8.2.1 Regulations and Policies

The airport's management and regulations are regulated by a Tripartite Agreement among the federal government, as represented by the Minister of Transport, the City of Toronto and PortsToronto. As part of the Tripartite Agreement, Billy Bishop Airport adheres to noise restrictions in the form of noise caps with individual aircraft and cumulative noise impacts in the form of the Noise Exposure Forecast. Due to the regulations in place as a result of the Tripartite Agreement, Billy Bishop Airport is one of the most noise restricted airports in North America, operating within a Noise Exposure Forecast (NEF) of 25. Specific noise-parameters are also placed on the type of aircraft that can fly to and from the airport.

Billy Bishop Airport also operates within a curfew that prohibits any aircraft, other than emergency flights or Medevac aircraft, from taking off or landing between the hours of 11:00 p.m. and 6:45 a.m. The airport also further restricts operations with management policies between 6:45 a.m. to 7:00 a.m. and 10:00 p.m. to 11:00 p.m. The curfew is strictly enforced, with significant penalties for any violations. This curfew creates a constraint for our air carriers during irregular operations (winter storms, weather events etc.) where by delayed flights that are to arrive during curfew hours must be diverted to alternate airports such as Toronto-Pearson or Hamilton, causing significant impacts to passengers on those flights impacted.

In 2018, there was one general aviation curfew violation at Billy Bishop Airport. In 2019, PortsToronto instituted an Airport Curfew Fine Policy that redirects funds from curfew violation fines toward community organizations.

The ongoing cooperation from our carriers helps us to implement effective noise mitigation policies and practices. For example, Porter Airlines has put into effect a procedure that requires planes taxiing to the gates to operate on one engine to reduce noise as well as carbon impacts whenever possible.

8.2.2 Construction Activity

In terms of construction related noise, there were no noise complaints related to the Billy Bishop Airport Airfield Rehabilitation Program in 2018. Further, noise complaints related to the terminal upgrade at Billy Bishop Airport undertaken by Nieuport Aviation were down. This decrease in construction -related noise can be attributed to measures that were implemented at the airport to minimize noise associated with idling aircraft, including modifying flight schedules and adding greater buffer times. With the airfield rehabilitation and terminal upgrade now complete, it is expected that there will be no further construction-related complaints.

Ground Run-up Enclosure

Engine run-ups are required and regulated by Transport Canada as part of standard aircraft maintenance. However, engine run-ups have been cited by the community as a primary source of noise given testing is often done at high power. In 2013, 161 noise complaints related to engine run-ups were received, which made up 32 per cent of all noise complaints for that year. In order to mitigate the noise associated with engine run-ups on the community, PortsToronto invested in the construction of a Ground Run-up Enclosure (GRE). Since the facility opened in April 2017, the airport has received one noise complaint related to engine run-ups. Interestingly, this complaint was for a run-up that was conducted outside the GRE due to wind conditions. Porter Airlines and Air Canada have worked together with PortsToronto to ensure the success of the GRE facility in terms of mitigating this noise impact on the community.

8.2.3

8.2.4 Airfield Rehabilitation Program

In September 2018, Billy Bishop Airport completed the Airfield Rehabilitation Program—a significant three-year construction project to replace the existing aging civil and electrical infrastructure (pavement and lighting) for the airport's runways, taxiways and apron.

With construction activities often occurring during nighttime hours when the airport is closed to air traffic, a number of measures were implemented to minimize the noise impact of construction activities on local residents including an innovative barging operation. This initiative not only eliminated noise and traffic in the surrounding airport community but removed the equivalent of approximately 6,000 trucks off the surrounding airport roads, reducing emissions and air pollution in the neighbourhood.

PortsToronto also required the contractor to implement operating procedures that reduced the need for reversing construction equipment to decrease the noise generated by vehicle back-up alarms and construction lighting was cast downward and away from the city to avoid disturbing those in residential buildings.

Additionally, the overall project plan incorporated multiple individual project elements into a single construction contract that would otherwise have been completed over a longer period and by multiple contractors, thus reducing the overall impacts of construction related disturbances on the local community.

8.2.5 Traffic Management

The pedestrian tunnel, which opened in 2015, continues to be a strong contributor to the airport's noise mitigation program. Prior to the tunnel's opening, passengers would arrive and depart in large groups according to the ferry's schedule which caused vehicle congestion and increased traffic noise at the mainland terminal and along Eireann Quay. Now with more than 90 per cent of travellers using the tunnel, passengers come and go on their own schedule which smooths out the flow of traffic and eliminates surges corresponding to the ferry arriving and departing to/from the mainland.

In order to encourage alternative means of access to further decrease traffic related noise, Billy Bishop Airport offers anyone wishing to access the airport a complimentary regular shuttle service between the airport and downtown Toronto. According to a 2018 Dillon Consulting study, nearly 30 per cent of passengers departing the airport take the shuttle to Union Station.

As part of continued efforts to reduce vehicle traffic associated with the airport, PortsToronto has incorporated bike racks that are conveniently located on both the island and mainland. The four covered racks on the island enable cyclists to leave their bikes for the duration of their trip, knowing they are secure and safe from the elements. PortsToronto also worked with the City of Toronto to install new bike racks near the mainland ferry terminal. Primarily used by employees at the airport, these bike racks encourage staff to choose more sustainable forms of transportation for their commute. In 2019, a Bicycle Maintenance Station for cyclist convenience was installed and includes tools for manual tire re-placement and an air pump for on-the-go maintenance.

The increasing popularity of biking to the airport has made the Bike Share station located at the Bathurst Street and Eireann Quay intersection one of the ten busiest in the city's network. During peak cycling season in 2018, approximately 182 rides per day were generated from this location with an even split between rides starting at the station and ending at the station. Ridership continued in the winter with 42 rides generated per day from this location. The station expanded in 2018 due to its popularity, and an additional station to accommodate the demand for increased bike sharing in this area is being considered.

The Environment, Sustainable Development, and Corporate Social Responsibility

8.2.6 Reconfigured Passenger and Vehicle Traffic Operations

As part of the City-led Bathurst Quay Neighbourhood Plan, PortsToronto implemented the first phase of work in December 2018 which was coordinated with City Departments. This project, called the Billy Bishop City Side Modernization Project, focussed on improved access to Eireann Quay by alleviating traffic and congestion in the neighbourhood related to air-port operations. The project will include the reconstruction of the taxi corral with a reduced footprint and an improved edge treatment to help facilitate open space improvements. Through this exercise, it was determined that optimizing the current footprint of the airport operations on the City's property did not require additional space for the taxi corral or parking.

As part of the first phase of this work in December, PortsToronto implemented the reconfigured approach to airport traffic operations to better streamline passenger flow and improve pick up and drop off at the airport. In line with the City of Toronto's anti-idling bylaw, this new design has the potential to decrease the amount of time each vehicle spends on site, reducing vehicle idling times and vehicle-related noise. This project includes a trial period to assess improvements to passenger and vehicle traffic flow in the vicinity of Eireann Quay. In 2019, the impact and efficacy of the reconfiguration will be evaluated to assess improvements to vehicle and passenger traffic and potential full-time adoption.

8.2.7 Noise Management Office

Part of our commitment to our noise management program includes dedicated staff in our Noise Management Office who collect, analyze and respond to noise complaints and monitor daily operations. To better understand the noise being generated from the airport and aid in its mitigation, PortsToronto operates three noise monitoring terminals (NMTs), two of which are located on the waterfront and one located on the Toronto Islands. This, combined with real-time aircraft tracking software, informs PortsToronto and the gen-eral public as to the level of noise being generated and the potential airborne sources. Staff at the office use Vortex, a customizable tracking and logging software platform, designed specifically for the needs of an airport environment, to track, document and respond to noise complaints. In 2018, all complaints received were handled within the five-day response window that the airport adheres to as part of our commitment to the community.

8.2.8 Noise Management Sub-Committee

In late 2017, a Noise Management Sub-Committee of the Community Liaison Committee (CLC) was formed to further research, understand and address noise impacts from airport operations. The Noise Management Sub-Committee has a terms of reference for committee members on their roles and the objectives of the committee, and has access to subject matter experts who provide technical expertise to the committee as needed. The Noise Management Sub-Committee consists of four community members, two staff members from PortsToronto, one staff member from the City of Toronto and a facilitator from LURA Consulting. The committee has two co-chairs, one from the community and one from PortsToronto. The committee had it's inaugural meeting in 2017, met twice in 2018 and has committed to meeting six times in 2019.

8.2.9 Converting the Airport Ferry to Electric-power

PortsToronto is working to convert the biodiesel fuel-powered airport ferry to electric power. This electric-power ferry will be the first of its kind in operation in Canada and will significantly reduce air and noise emissions in the local air shed.

The initiative will require the Marilyn Bell I to be retrofitted to enable it to be powered with electricity rather than fuel.

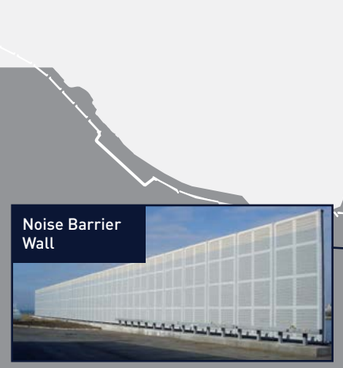
8.2.10 Noise Monitor Terminals

Noise Monitoring Terminals (NMTs) are the foundation of the airport's noise monitoring system and provide ongoing noise-level data to the airport's Noise Management Office. This data is then used in long-term noise mitigation planning and in responding to noise complaints from the surrounding community.

There are currently three NMTs in operation at the airport and PortsToronto is currently considering adding two additional NMTs to the airport's Noise Management Program. PortsToronto will be engaging the Noise Sub-Committee to determine potential locations.

8.2.11 Webtrak

PortsToronto continues to offer free access to Webtrak, which enables anyone with a computer, smartphone or tablet to gather information on any aircraft activity they may hear overhead. This service combined with our three Noise Monitoring Terminals (NMTs) provide ongoing noise-level data to the airport's Noise Management Office. This data is used in long-term noise mitigation planning and to aid in responding to noise complaints from the surrounding community. The noise data transmitted by the NMTs is also viewable through the WebTrak website.



8.2.12 Calm Wind Trial

In 2018, the airport requested that NAV CANADA undertake a Calm Wind Runway trial to determine if the procedure, that prescribes aircraft taking off and landing from west to east, should be implemented at the airport to further complement its Noise Management Program. The trial, which began in August 2018, occurs during the morning start-up routine and when traffic levels permit during periods of calm wind — wind speed of less than five knots. Over of the course of the trial which ran until June 2019, the public was encouraged to submit feedback to the Noise Management Office or through WebTrak, as it pertains to the efficacy of the procedure in mitigating aircraft noise. Once the feedback has been compiled and studied, the results of the trial will be shared with the community.

IN-FLIGHT

To reduce in-flight aircraft noise, the most effective response is to restrict those aircraft types that generate excessive noise and to restrict the hours of operation. PortsToronto does this through a number of means, which include:

- Through the Tripartite Agreement, jet aircraft (with the exception of Medevac flights) are prohibited from operating at the airport.
- The Tripartite Agreement restricts non-jet aircraft that generate excessive noise. Aircraft operating into and from Billy Bishop Airport must have noise certifications that do not exceed noise calculations for landing, takeoff, and overflight.
- The airport operates a curfew from 11:00 p.m. to 6:45 a.m. with steep fines administered to those that break the curfew.
- The airport restricts the number of nighttime movements that occur after 10:00 p.m.

Through NAV CANADA, aircraft are requested to operate approach and departure patterns that avoid overflying residential areas on the Toronto Islands.

ON THE GROUND

The primary source of noise on the ground is aircraft, although other sources of ground noise include vehicles, the airport ferry and construction activity. Aircraft ground noise occurs when aircraft are maneuvering or holding their position on the aprons, taxiways or runways.

PortsToronto and the operators have implemented infrastructure elements and operational practices to reduce ground noise. They include:

- Construction of the Ground Run-up Enclosure to reduce noise associated with maintenance run-up of aircraft engines.
- Provision of noise barriers along portions of the north dock walls.
- Implementing procedures where commercial aircraft taxiing to the terminal operate with one engine shut down.
- Prohibiting noise generating activity during the curfew period.
- Transporting construction equipment and vehicles to the airport via barge as a means of reducing construction-related traffic noise in the Bathurst Quay Neighbourhood

Going Forward

When looking at industry trends globally over the past five years, certain parts of the world are seeing a shift away from turboprop aircraft. In the United States, all mainline air carriers have retired turboprop aircraft, utilizing regional jets for their operations. However, in Canada, the three main air carriers, Air Canada, WestJet and Porter Airlines, continue to utilize the Q-400 turboprop aircraft for their operations.

In early 2019, Air Canada announced that it would boost capacity on regional routes across Western Canada with Q-400 turboprop aircraft, as this would result in enhanced services for customers. Porter Airlines has increased their fleet in recent years, by purchasing three additional Q-400 turboprop aircraft. The Q-400 turboprop aircraft is used extensively in the Asia and European markets.

In 2019, PortsToronto will initiate a noise study that will identify sources of ground noise at the airport, and through analytical noise modelling techniques assess opportunities in which to reduce the impact of ground sourced noise on the community. This could include the implementation of noise barriers and other noise attenuation methods.

At the same time, PortsToronto is reviewing other opportunities to reduce ground sourced noise and planning for infrastructure or process improvements for further noise reduction. They include:

- Converting the ferry to electric power.
- Increased use of electric powered ground transportation vehicles such as shuttle busses.
- Implementing additional operational procedures that could include managing aircraft operations during noise sensitive periods.
- In the future, the introduction of electric aircraft could have a significant impact on reducing noise levels at the airport. Electric-powered flight training aircraft currently exist that have the capability of operating for up to 90 minutes on a single charge. An example is the Pipistrel Alpha Electro, a two-seat training aircraft constructed in Slovenia and certified to operate in Canada. Although limited in endurance, the aircraft is well suited to circuit training associated with flight instruction and is considerably cheaper to operate than comparable conventional training aircraft.

8.3
Wildlife Management

The airport takes a proactive approach towards managing wildlife, to ensure the safety and security of passengers and wildlife. The Wildlife Management Plan details the scope of the wildlife management control program and is monitored on a daily basis. Staff conduct daily checks of the airfield to ensure birds or other wildlife are not beginning to nest on the airfield property of the airport. Staff have techniques and resources available that do not harm wildlife and by keeping grass and brush to a minimum, the opportunity for nesting is minimized.

In accordance with Transport Canada (TC) Airport Certification requirements and the Canadian Aviation Regulations, Part III subpart 2—Airports, PortsToronto maintains a comprehensive Wildlife Management Plan (WMP) for Billy Bishop Airport as a requirement for passenger safety. This WMP has been approved by TC and is in accordance with the Airports Safety Management System. Further, to assist in the on-going wildlife management control program, PortsToronto utilizes Falcon Environmental Services, a recognized industry leader in aviation Wildlife Management Control, over and above their own Wildlife Control Officers.

In accordance with the Canadian Aviation Regulations and the Airport's Safety Management System, significant changes in the airport's operating environment, will require a review of the Wildlife Management Plan. This analysis would be undertaken in unison with the changes in the Airport Certification and Airport Operations Manual.

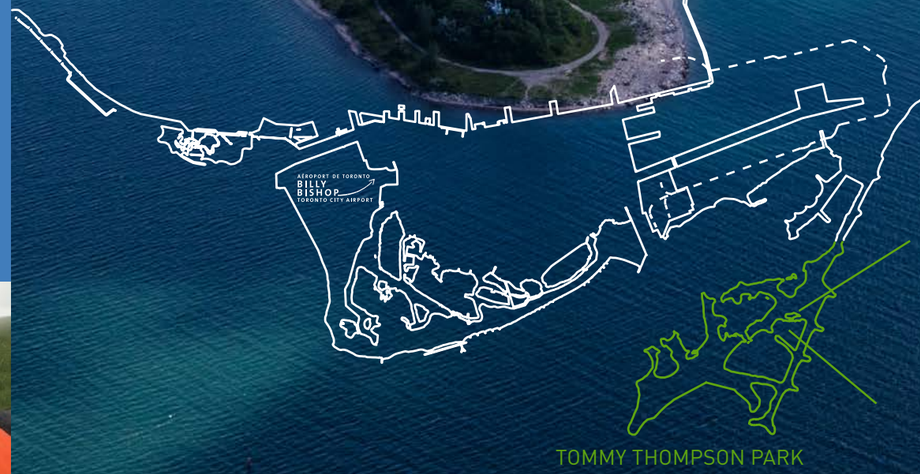
PortsToronto has been working with the Toronto and Region Conservation Authority to create new wetlands at Tommy Thompson Park. This collaboration has seen the creation of two wetlands. The Cell 1 wetland, completed in 2007, saw the creation of a seven-hectare coastal wetland that has increased bird and fish populations, with reports of pike and walleye returning to the harbour. The Cell 2 wetland, completed in September 2016, provides an additional 9.3 hectares of habitat for a variety of fish and wildlife and more green space for the recreational enjoyment of the surrounding communities. This collaboration will see a further 700 to 800 hectares of wetland become part of Tommy Thompson Park and an area to promote wildlife habitat in a safe environment.

In addition, PortsToronto has been a member of Aquatic Habitat Toronto, with members from all levels of government who represent a consensus-based partnership between agencies with a vested interest in the improvement of aquatic habitat on the Toronto Waterfront. As part of this collaboration, underwater telemetry equipment to track the movement of fish species is located within the airport's marine exclusion zone (MEZ). This location was determined to be a good location for the equipment, as marine traffic and fishing is not permitted in the MEZ.




Going Forward

PortsToronto will continue to ensure the safety and security of passengers and wildlife through a proactive approach, which is in keeping with our Wildlife Management Plan.



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8.4
Air Quality

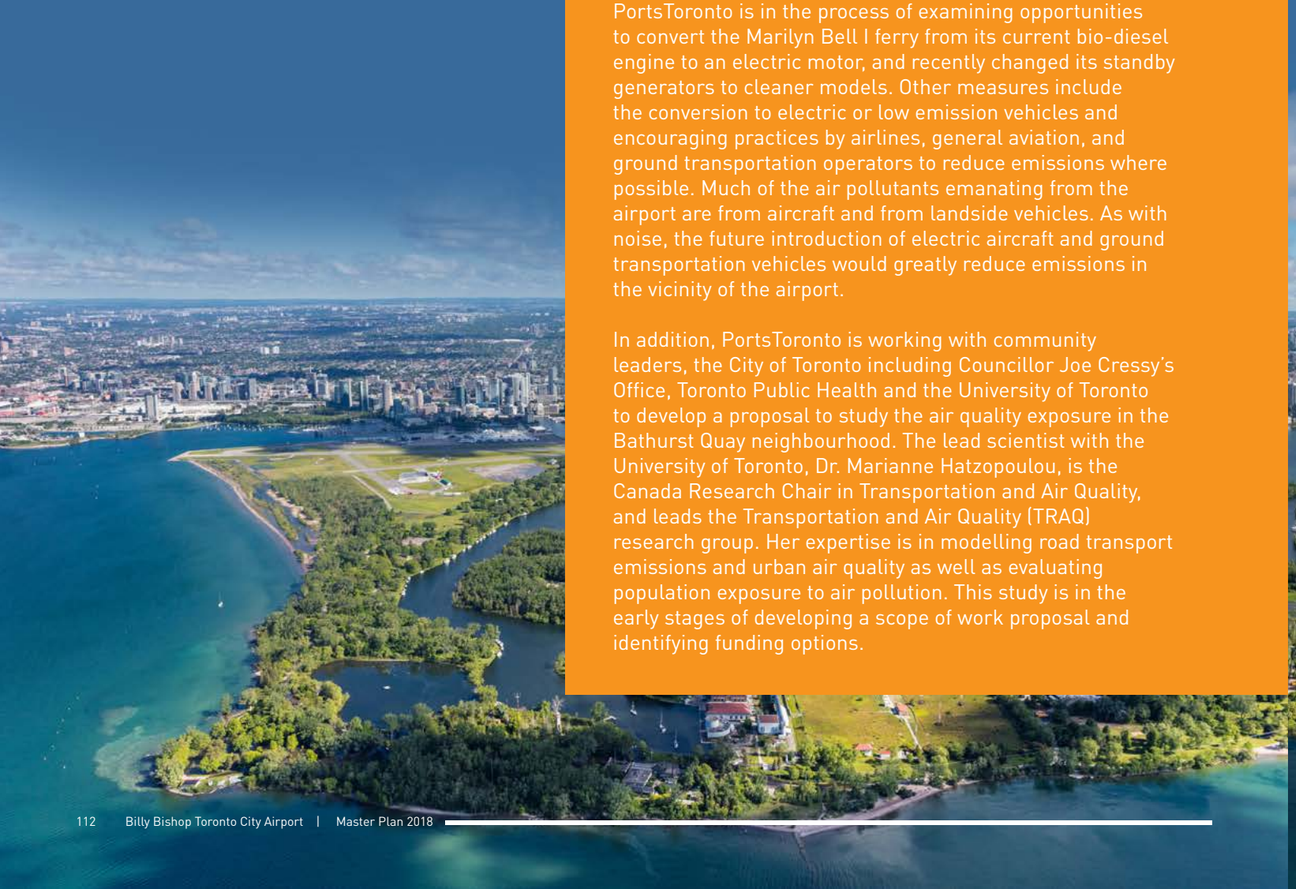
The communities in close proximity to the airport have been, and continue to be, concerned with the air quality impacts from airport operations. Based on a study commissioned by Toronto Public Health, the largest contributor to the local community is from vehicle traffic on the Gardiner Expressway/Lakeshore Boulevard and surrounding highway network. The airport contributed approximately 10-15 per cent of emissions in the air shed, with the primary contributor being the diesel fuel from the airport ferry.

As part of its environmental stewardship, PortsToronto has made a significant effort in reducing emissions and minimizing impacts on air quality. This includes 100 per cent reliance on clean renewable electricity through Bullfrog Power and the introduction of cleaner, more fuel-efficient vehicles and electric vehicles. At present much of the ground equipment at the airport, including baggage tugs, are electric.

Going Forward

PortsToronto is in the process of examining opportunities to convert the Marilyn Bell I ferry from its current bio-diesel engine to an electric motor, and recently changed its standby generators to cleaner models. Other measures include the conversion to electric or low emission vehicles and encouraging practices by airlines, general aviation, and ground transportation operators to reduce emissions where possible. Much of the air pollutants emanating from the airport are from aircraft and from landside vehicles. As with noise, the future introduction of electric aircraft and ground transportation vehicles would greatly reduce emissions in the vicinity of the airport.

In addition, PortsToronto is working with community leaders, the City of Toronto including Councillor Joe Cressy's Office, Toronto Public Health and the University of Toronto to develop a proposal to study the air quality exposure in the Bathurst Quay neighbourhood. The lead scientist with the University of Toronto, Dr. Marianne Hatzopoulou, is the Canada Research Chair in Transportation and Air Quality, and leads the Transportation and Air Quality (TRAQ) research group. Her expertise is in modelling road transport emissions and urban air quality as well as evaluating population exposure to air pollution. This study is in the early stages of developing a scope of work proposal and identifying funding options.



8.5
Water Quality

PortsToronto is committed to protecting the water environment and preserving the natural habitat for all users of the waterfront. A key aspect of this, is the collection and containment of glycol used in the de-icing of aircraft. Aircraft de-icing activities at the airport are undertaken in a defined area where the surface runoff is directed to underground storage tanks. From there, the effluent is fed into the City of Toronto sanitary system where it is directed to a treatment facility.

The community has raised concerns about the safety of the public living in close proximity of the airport, and this is one of our top priorities. As is the case with all Canadian and U.S. airports, the airport provides aircraft rescue and firefighting services in accordance with Federal Aviation Administration (FAA) airport certification requirements. At present FAA requirements compel the use of firefighting foam that contains PFAS, known as Aqueous Film Forming Foam (AFFF). AFFF is extremely effective at suppressing and extinguishing aircraft fuel fires, providing passengers and crew with the ability to safely evacuate from burning aircraft in the event of aircraft accidents or fuel fires. PortsToronto, together with several other airports across the country, have also been advocating through our trade association, Airports Council International-North America (ACI-NA), for expedited review and approval of PFAS/AFFF-free alternatives to suppress and extinguish potential aircraft fuel fires. In August 2019, Billy Bishop Airport received approval from Transport Canada and became the first airport in Canada to use PFAS/AFFF-free foam for its fire fighting efforts.

Going Forward

PortsToronto has commissioned a study to update its current Storm Water Management and Glycol Containment Plan, which was developed in 2003. The purpose of the study is to assess the airport's current storm water discharge system and to provide recommendations with respect to potential improvements, recognizing the need for the airport to maintain environmental compliance. The study will report on glycol management practices and provide a long-term de-icing strategy, including a report on the facilities required for aircraft de-icing and the responsible management of spent aircraft de-icing fluids. As part of this Master Plan, storm water management and glycol capacity requirements for future land use will need to be identified for planning purposes and climate change and extreme weather implications taken into consideration.

8.6 Environmental Projects

8.6.1 Climate Change & Extreme Weather Vulnerability Assessment

In 2017, record high water levels in Lake Ontario and the St. Lawrence River caused widespread impacts. The high water levels have been attributed to the amount of precipitation received across the Lake Ontario and St. Lawrence River basins in early 2017 along with the timing of the winter melt and spring precipitations. The Lake Ontario water level at the end of May 2017 exceeded the highest levels recorded since 1918. Outflow from Lake Ontario is controlled by the International Lake Ontario —St. Lawrence Board at the international dam located on the St. Lawrence River at Cornwall, Ontario. Outflow is controlled to ensure that levels in Lake Ontario are controlled within a planned range, that downstream locations are not damaged/impacted, and to maintain safe commercial marine operations.

As a result of these high water levels in Lake Ontario, PortsToronto's facilities and operations were affected, especially at Billy Bishop Airport. A climate change risk assessment of PortsToronto's infrastructure assets was completed by AECOM using Public Infrastructure Engineering Vulnerability Committee (PIEVC) Protocol. The Protocol is a five-step process that begins by defining the problems being addressed and gathering data to support the completion of the risk assessment.

Ice in Lake Ontario is anticipated to decrease in extent, cover, and thickness based on a review of available data. Significant downward trends have been found in historical wind data near Lake Ontario and climate projections show similar results, although one study indicates a slight increase in wind levels. While there are no projections for future Lake Ontario wave characteristics in the literature, a decrease in wave amplitude is expected, due to decreasing wind.

The outcome of this vulnerability assessment concluded that the airport's assets are resilient to the current and projected climate that will be experienced in the Toronto area. High water levels that were experienced in 2017 and 2019, created the need for proactive steps to ensure airport operations, including the ferry service, continued to operate during these natural weather events. Monitoring water levels and sharing information with other government agencies, including the Toronto and Region Conservation Authority and the City of Toronto, is key to ensuring we address climate change.

8.6.2 South Channel Dock Wall Rehabilitation and Beautification

The South Channel Dock Wall Rehabilitation and Beautification Project on the island side of Billy Bishop Airport was announced in June 2018. The work will be completed in phases with the first phase dedicated to restoring the structural integrity of the wall built circa 1913, which will include repair work above and below the water.

From there, PortsToronto will layer design elements such as boardwalk decking, plants and seating to make this a place people can visit and enjoy. Design work commenced in 2018, which set out a plan for a two-staged approach with the first phase occurring in 2019 and the second phase targeted for 2020 and 2021.

This investment on the waterfront will improve the south dock wall along the Western Channel by enhancing the area into public space that can be enjoyed by passengers, staff and the community. Ideally people can take the ferry or tunnel, and sit along the dock wall to enjoy some of the best views of the city's downtown waterfront.

The public realm on the north dock wall of the Western Channel will also be enhanced through the work being undertaken in 2019 by the City of Toronto along the dock wall from the Canada Malting Silo to Ireland Park and the Administration Building, all of which is City Property. The City-led work will provide public access along the waterfront and coincide with the community space being planned in the repurposed Administration Building. Throughout the project, PortsToronto will work on the enhancement with the City of Toronto and our stakeholders to ensure this work aligns with the Bathurst Quay Neighbourhood Plan and other initiatives along the waterfront.

8.7
Greenhouse Gas Emissions

At a global level, the reduction of greenhouse gas emissions and the need to tackle climate change is a collective responsibility. PortsToronto strives to reduce greenhouse gas emissions and has established a carbon reduction target of 35 per cent below 2015 levels by 2035. These targets are aligned with those of the City of Toronto, the Provincial Government and the Federal Government. Excluding aircraft movements, the GHG emissions generated by airport operations is relatively modest. One hundred per cent of the electricity consumed at Billy Bishop Airport is from renewable sources provided through Bullfrog power. Additional steps that have been taken to reduce emissions include: transition to electric vehicles, where possible; sourcing cleaner equipment that must rely on fossil fuels, such as diesel generators and pumps; and implementing best practices such as the introduction of anti-idling policies.

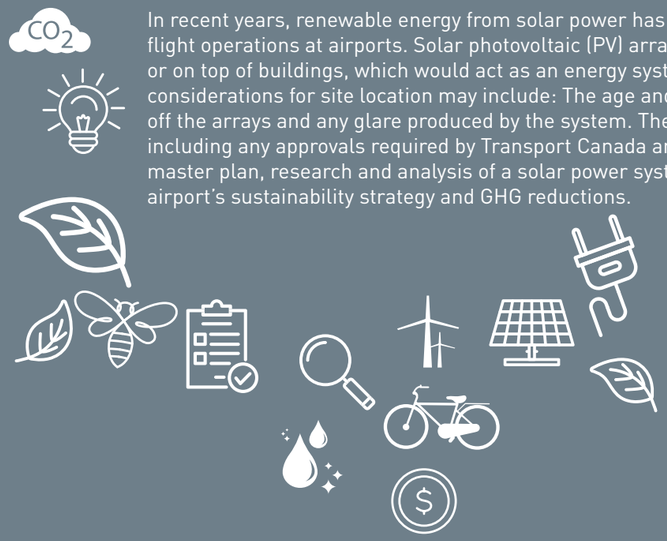
The global aviation industry is making strides towards reducing GHG emissions. The International Air Transport Association (IATA) has adopted a number of targets to mitigate CO_2 emissions from aircraft. They include:

- Improving aircraft fuel efficiency by 1.5 per cent per year from 2009 to 2020.
- Capping net aviation CO_2 emissions from 2020 (carbon-neutral growth).
- Reduction in net aviation CO_2 emissions of 50 per cent by 2050, relative to 2005 levels.

Airlines, including Porter and Air Canada, have begun to trial the use of biofuels in their aircraft. In April 2012 Porter conducted the first biofuel-powered revenue flight in Canada using a 50/50 blend of biofuel and Jet A1 fuel in a Q-400 operating to Ottawa Airport. As biofuels become more available they promise to significantly reduce the level of CO_2 emissions by as much as 50—80 per cent.

The Airport and airlines have been working with NAV CANADA under the Required Navigation Performance (RNP) program, to find more direct flight paths through improved air traffic to Billy Bishop Airport. The changes to the flight path will reduce the number of track miles flown by arriving commercial aircraft to the airport by an estimated 82,000 nautical miles and will reduce GHG emissions by 973 metric tonnes in 2020. One such flight change path will begin in December 2019.

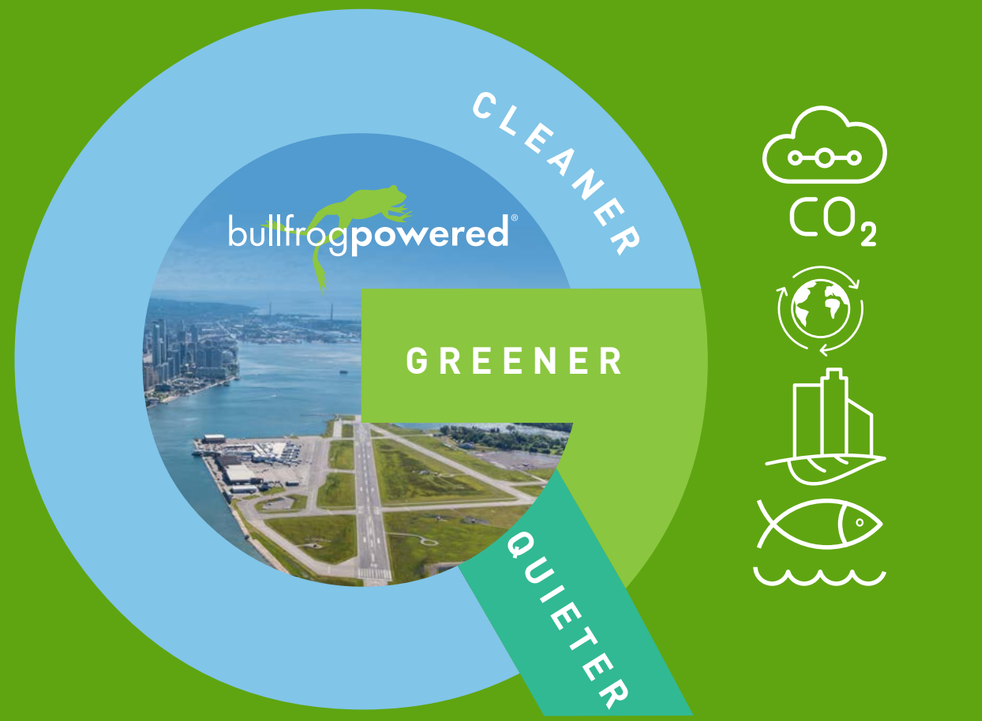
In recent years, renewable energy from solar power has become more financially viable with minimal effects on flight operations at airports. Solar photovoltaic (PV) arrays could be installed on available airport property, lands or on top of buildings, which would act as an energy system or farm to supply the airport operations. Some key considerations for site location may include: The age and condition of roofs, including the weight and wind loading off the arrays and any glare produced by the system. The airport would need to consider land use planning including any approvals required by Transport Canada and the City of Toronto. As a recommendation of the master plan, research and analysis of a solar power system at the airport will be reviewed as part of the airport's sustainability strategy and GHG reductions.



PortsToronto has adopted a more comprehensive sustainability strategy reporting, in alignment with the Global Reporting Initiative (GRI). The GRI has pioneered and developed a comprehensive sustainability-reporting framework that is widely used around the world. It includes guidance on economic, environmental, social and governance performance. GRI is considered a best practice in public disclosure. More than 7,000 organizations from 60 countries use the GRI guidance approach as a baseline to produce their sustainability reports.

The practice of disclosing sustainability information inspires accountability, helps identify and manage risks, and enables organizations to seize new opportunities. Reporting with the GRI Standards supports companies striving to protect the environment and improve society, while at the same time improving governance and stakeholder relations, enhancing reputations and building trust. Companies, whether they are public or private, report on performance based on standards that recognize growth and improvement can occur using sustainable practices.

As communicated in PortsToronto's 2018 Annual Sustainability Report, we are tracking our progress towards GRI compliance with a commitment to achieve carbon reductions in line with Federal targets by 2030.



Conversion to electric or low emission vehicles and equipment.

Single engine taxiing and reducing engine idling.

Implement LEED principles in new buildings.

Electric shuttle buses.

Going Forward

On October 2, 2019, Toronto City Council voted unanimously to declare a climate emergency and adopted a stronger emissions reduction target for Toronto—net zero by 2050. A 2018 report issued by the United Nations Intergovernmental Panel on Climate Change stressed that global CO_2 emissions need to be net zero by 2050 to limit global warming to 1.5 degrees and avoid catastrophic impacts. In recent years, Toronto residents and businesses have experienced more frequent flooding and other severe weather events. Toronto is joining more than 800 cities around the world in acknowledging the scale of the climate crisis including Amsterdam, Auckland, Barcelona, Edmonton, London, Los Angeles, Montréal, New York City, Ottawa, Paris, San Francisco, Sydney and Vancouver. As part of PortsToronto and the airport's annual reporting on sustainability progress, a review of additional emission reductions is built into our performance review.

While work continues in the aviation industry on the production of more fuel-efficient aircraft and the substitution of conventional fuel with more sustainable biofuels, we are continually implementing operational changes to the airport's operations through substitution of the diesel fuel for the ferry to biofuel, with the ultimate goal of converting the ferry to electric power in the near term.

Initiatives include conversion to electric or low emission vehicles and equipment, and encouraging airlines and general aviation to implement practices that reduce GHG emissions. This includes single engine taxiing, reducing engine idling and the use of Ground Power Units (GPUs) contribute to a reduction in GHG. The introduction of autonomous vehicles, electric shuttle buses and electric taxis will further reduce GHG emissions landside. The design of new buildings at the airport can implement LEED principles with respect to reducing GHG emissions both during construction and in their operation.

It is recommended that the airport review the Airports Council International Airport Carbon Accreditation Program that provides a strategy framework and tools for active carbon management. The program includes a four-level process to guide and support airport environmental management through a process of continual improvement and partnership. In addition, we will continue to follow the progress of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) being led by the International Civil Aviation Organization (ICAO) with regards to setting long-term targets for reducing emissions.

The Environment, Sustainable Development, and Corporate Social Responsibility

Since joining the bullfrogpowered community, Billy Bishop Airport has displaced more than 12,361 tonnes of CO_2.

This is the equivalent of taking 2,608 cars off the road for one year.

It is the amount of carbon that would be sequestered by more than 4,737 hectares of forest in one year.

Emissions reduction target for

TORONTO

—net zero by 2050.

9
Priorities and Recommendations

Billy Bishop Airport is an important air transportation asset and economic driver to the city of Toronto, providing business and leisure travellers access to the city's core, while stimulating economic benefits by providing direct connections to key centres in Canada and the United States. The airport is important to the general aviation community, supporting a range of activities including air ambulance services, corporate charter, flight training, and recreational flying.

PortsToronto recognizes that the airport's operational activities provide numerous economic and social benefits to the city and region, but also impact the enjoyment of the waterfront and residents in the community. An appropriate balance must be managed between the activities of the airport and the interests of the community.

Moving forward, the areas that define sustainability at the airport—Environmental Stewardship, Community Engagement, and Economic Performance—remain as key priorities in the ongoing planning of the future of the airport.

9.1 Priorities

Priorities associated with this Airport Master Plan include:

- Cleaner, Greener, Quieter: Expand upon PortsToronto's ongoing initiatives towards operating the airport in an increasingly sustainable and environmentally responsible manner.
- Improve operational efficiency of the airside to minimize delays and reduce ground noise.
- Increase scheduled air carrier slots in a balanced manner that minimizes impacts on the community but meets the growing economic needs specific to the city of Toronto and the travelling public.
- Improve operational efficiency with respect to landside curb activities, and encourage greater use of the airport shuttle and public transit.
- Provide improved infrastructure and facilities for general aviation.

Optimize the airport, as a general aviation airport, with a mix of general aviation activities and scheduled air service, while balancing airport operations, interests of the community and the protection of the environment through initiatives that will mitigate the negative impacts associated with airport operations.

9.2 Recommendations

9.2.1 Infrastructure

Recommended infrastructure improvements include the following:

- Expand apron and tie-down areas for general aviation and provide opportunities for hangar development. This should include a study to determine the demand from general aviation users for additional facilities, including a business case for providing such facilities;
- Improve the efficiency of the taxiway system by providing a parallel taxiway for Runway 08-26;
- Provide a new Combined Services Building and equipment storage shed;
- Improve the efficiency of the airport's landside curb operations by implementing dedicated pick-up and drop-off curbs;
- If and when required by Transport Canada, undertake the process required to fulfill the mandate for Runway End Safety Areas at both ends of Runway 08-26. This process will include consultation with airport stakeholders and the community;
- Provide improved wayfinding signage;
- Improve the pedestrian environment along the Western Gap channel dock walls; and,
- Renovate former Terminal A building as a multi-purpose facility that potentially could include an airport-themed restaurant, aviation museum and an event space, if the business case supports this use.

9.2.2 Access

Recommended access improvements include the following:

- Work with the operator of the airport shuttle to optimize its operation including the provision of additional stops or routes, and plan for provision of utilities through infrastructure projects in the future to support electric powered ground transportation vehicles such as shuttle busses;
- Work with the Toronto Transit Commission (TTC) to encourage greater awareness among TTC patrons of public transit access to the airport and encourage increased usage by airport patrons.
- Improvements include: Identifying Billy Bishop Airport on TTC route maps, similar to that provided for Toronto Pearson International Airport, identifying the streetcar stop as "Billy Bishop Airport" and providing improved amenities to transit riders including enhanced shelters at the streetcar stop locations, improved wayfinding signage, well-lit pathways between the tunnel pavilion and the streetcar, and installation of dedicated baggage racks;
- Implementation of passenger wayfinding and route planning tools to and from the airport to alleviate traffic in the neighbourhood;
- Work with City of Toronto to: Improve enforcement of City parking and traffic regulations in areas impacted by the airport; and develop and implement policies that can improve parking and access;
- As part of the City of Toronto's Bathurst Quay Neighbourhood Plan, make modifications to airport parking, school and community parking, as well as airport arrival and departure curbs. We will continue to work collaboratively with the City of Toronto towards the operational improvements within the community through funding and participation in the City-led Bathurst Quay Neighbourhood Plan; and
- Work with the City of Toronto Transportation Planning unit on additional opportunities and strategies for expanded access and mobility, through expanded shuttle service routes and/or stops and continued origin/destination traffic studies and strategies to promote higher modal split to and from the airport.

9.2.3 Community Focussed Mitigation

Recommended community focussed mitigation improvements include the following:

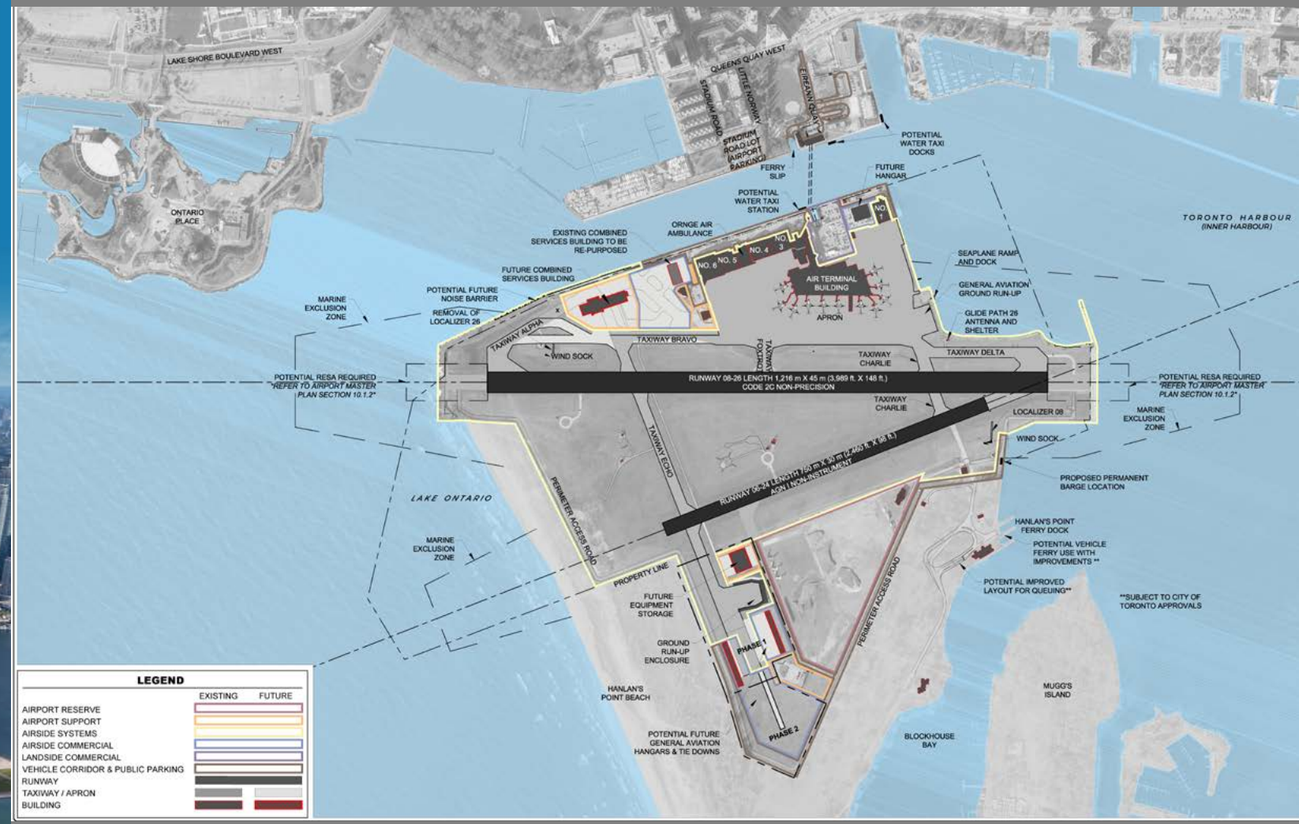
- Undertake a noise study that examines and models the sources of airport noise, and assesses opportunities to mitigate impacts through the implementation of infrastructure and other physical and operational means;
- Review potential changes to airport operations and procedures that could mitigate operational impacts on the community and the environment. This could include managing both airline and general aviation movements during noise sensitive periods such as evenings and weekends; enforcing procedures on single engine taxiing and idling;
- Introduce fee structures that penalize noisier aircraft and create incentives for quieter aircraft;
- Review the opportunity to implement a vehicle ferry operation between the Port Lands and Hanlan's Point in order to eliminate heavy commercial vehicles from Eireann Quay. This opportunity is subject to receiving approvals from the City of Toronto, Transport Canada and other agencies for such an undertaking;
- Invest in equipment and vehicles that are electric or operate with reduced emissions. This could include the introduction of electric shuttle busses; and,
- Invest in innovation that leads to improved airport efficiency and reduced community impacts. This includes opportunities to invest, support and plan for the future potential development and introduction of electric and hybrid general aviation and regional commercial aircraft, and ground transportation vehicles, and could involve developing partnerships with research agencies, manufacturers and operators.

10
Airport Development Plan

The proposed Airport Development Plan for Billy Bishop Airport, illustrated in Figure 10-1 and provided in Appendix B, addresses many of the requirements described in Section 8. The Airport Development Plan recommends a number of incremental improvements that respond to existing constraints, position the airport to meet its obligations under the Tripartite Agreement, and minimize impacts to the community and environment. It is intended that elements of the Airport Development Plan be phased in over time, based on demand, and financial viability. Key elements of the development plan include:

- Modest enhancements to the taxiway system to make the ground movements of aircraft more efficient, potentially reducing both ground noise and emissions;
- Making provision for a new Combined Services Building north of Runway 08-26, and new equipment storage building in the south field;
- Providing additional apron, tie-down and hangar areas for general aviation north of Runway 08-26 and in the south field;
- In collaboration with the City of Toronto, exploring initiatives to provide the means for commercial vehicles to access the airport and Toronto Islands for the City of Toronto from Hanlan's Point ferry docks; and,
- Restoration and relocation of the historic Terminal A building to a new location which could repurpose the building for aviation use into the future.

Figure 10-1 Airport Development Plan



10.1 Airside

10.1.1 Runways

Under the Airport Development Plan, no revisions to Runways 08-26 and 06-24 are contemplated, other than the introduction of Runway End Safety Areas (RESA) for Runway 08-26 if and when mandated by Transport Canada.

10.1.2 Runway End Safety Areas

In May 2016, Transport Canada issued a Notice of Proposed Amendment (NPA 2016-007) to the Canadian Aviation Regulations (CARs) and specifically Transport Canada publication 'TP312 Aerodrome Standards and Recommended Practices' that outlined the requirement of Runway End Safety Areas (RESAs) at selected Canadian Airports. It should be noted that the requirement for RESAs has yet to be mandated as part of the Canadian Aviation Regulations. The directive to install RESAs must first be published in the Canada Gazette 1, Part II and approved by an Act of Parliament. As of the date of this Master Plan writing, Transport Canada has not identified a time frame in which to proceed with this process.

A Runway End Safety Area is a cleared and graded area of land located immediately beyond the threshold (end) of the runway that is designed to reduce the severity of damage to an aircraft undershooting or overrunning the runway. The introduction of a RESA does not extend the length of a runway. The RESA is to be constructed to also facilitate the movement of emergency vehicles.

Although not yet mandated by regulation, it is anticipated that Transport Canada will require the RESA to extend 150 metres beyond the end of the runway and be twice the width of the runway.

The airport has been identified as one of the airports potentially subject to the installation of RESAs on those runways serving scheduled commercial passenger services. Transport Canada has, under NPA 2016-007, identified three options as to how the requirement for RESAs might be applied to airports. NPA 2016-007 proposes possible compliance with RESA in three ways, which include:

I. **Adding Prescribed Length of RESA**

II. **Installation of Engineered Materials Arresting Systems**

III. **Reduced Declared Distances**

I. ADDING PRESCRIBED LENGTH OF RESA

Under this option, a RESA would be added to each end of the runway, providing a clear and graded area 150 metres beyond the threshold of the runway.

Figure 10-2 illustrates a typical RESA comprised of a graded area beyond the end of the runway. The surface of the RESA does not have to be paved but it must be designed to minimize damage to the aircraft as well as safely accommodate the weight of emergency vehicles. To accommodate a RESA at Billy Bishop Airport under this scenario, an extension to the landmass at both ends of Runway 08-26 would be needed.

Figure 10-2 Runway End Safety Area

II. INSTALLATION OF ENGINEERED MATERIALS ARRESTING SYSTEMS

Under this option, Engineered Material Arresting Systems (EMAS) would be installed just beyond the threshold at each runway end. EMAS is a bed of engineered, high energy absorbing materials that are designed to crush under the weight of an aircraft, thus stopping the aircraft while minimizing damage to the aircraft. The EMAS is typically designed for a specific aircraft type ("the design craft") and in the case of Billy Bishop Airport, the EMAS would be designed for the Bombardier Q-400 aircraft.

At present, there is only a single FAA approved manufacturer of EMAS systems (Runway Safe) with the second one (Zodiac) recently announcing they are discontinuing their production. The main component in their EMAS designs are a crushable lightweight aggregate. Figure 10-3 illustrates EMAS located at the threshold of a runway. Figure 10-4 illustrates an aircraft that has been brought to a stop using EMAS.

The possible application of EMAS at Billy Bishop Airport would have to be reviewed in detail. There are concerns that wave action and/or the buildup of ice could jeopardize the integrity and performance of an EMAS installation, and inadvertent damage to the EMAS could result in non-compliance and closure of the runway for an extended period of time. Similarly, the fact that there is only one certified manufacturer of EMAS in the world raises concerns about the manufacturer's long-term support of the system.

Figure 10-3 Engineered Material Arresting System

Figure 10-4 Aircraft Stopped by Engineered Material Arresting System (EMAS)

III. REDUCED DECLARED DISTANCES

Under this option, a portion of the existing runway would be used as the Runway End Safety Area. This would result in the effective runway length being reduced for both landing and takeoff. Already constrained by the limited runway length available, use of the existing runway to create a RESA at Billy Bishop Airport is not feasible as it would have an unsustainable operational impact on the air carriers and general aviation, including fixed-wing air ambulance operations.

Runway End Safety Areas

Timing

Transport Canada is expected to announce the requirement for RESA in 2020. This announcement will be made in Canada Gazette, Part I. Transport Canada has indicated airports will have three years to implement RESA starting from publication in Canada Gazette, Part II. Prior to finalizing a solution, detailed analysis and design will be required along with a stakeholder and public consultation process. PortsToronto has identified to Transport Canada that a longer duration up to five years would be required to consult with stakeholders, the public and partners in the Tripartite Agreement and detailed design work.

AÉROPORT DE TORONTO BILLY BISHOP TORONTO CITY AIRPORT

Runway End Safety Areas

10.1.3
Taxiways

Much of the taxiway system has been reconstructed over the past three years. This included the widening of fillets to better accommodate operations of the Q-400 aircraft. The existing taxiway system could be improved by extending and realigning Taxiway Bravo to the threshold of Runway 08, providing a full parallel taxiway. Doing so would reduce taxi times and distances, which in turn would reduce aircraft emissions and related ground noise. Extending Taxiway Bravo would also release lands currently occupied by Taxiway Alpha for other uses including a new Combined Services Building and/or hangar facilities. Extending Taxiway Bravo would require the removal/relocation of the existing localizer for Runway 26.

In addition to developing Taxiway Bravo as a full parallel taxiway, it is recommended that a taxiway bypass be provided near the threshold of Runway 08. This bypass would allow for improved efficiency of the taxiway system by providing an area where an aircraft, subject to a ground delay could position themselves and not impact the flow of other maneuvering aircraft. This in turn could reduce aircraft-related ground noise and emissions.

To support potential general aviation development of the south side of the airport, an expanded taxiway system could be required to service hangars and aircraft tie-down areas. Depending upon future general aviation activity, a taxiway parallel to Runway 06-24, could be constructed in the long term to support the efficient movement of aircraft at the south field. In the short-term any general aviation development on the south side of the airport would utilize existing pavements.

10.1.4
Aprons

An existing constraint at the airport is the lack of apron and tie-down space. Given the airport's physical constraints, there is limited opportunity to provide additional apron area, especially north of Runway 08-26. With the potential extension of Taxiway Bravo, there is an opportunity to provide additional apron area west of the control tower. The Airport Development Plan proposes a new apron area be provided between the existing control tower and a new combined services building. The new apron would accommodate itinerant general aviation activity. With the construction of a new combined services building, a portion of the existing facility could be used to accommodate functions supporting general aviation.

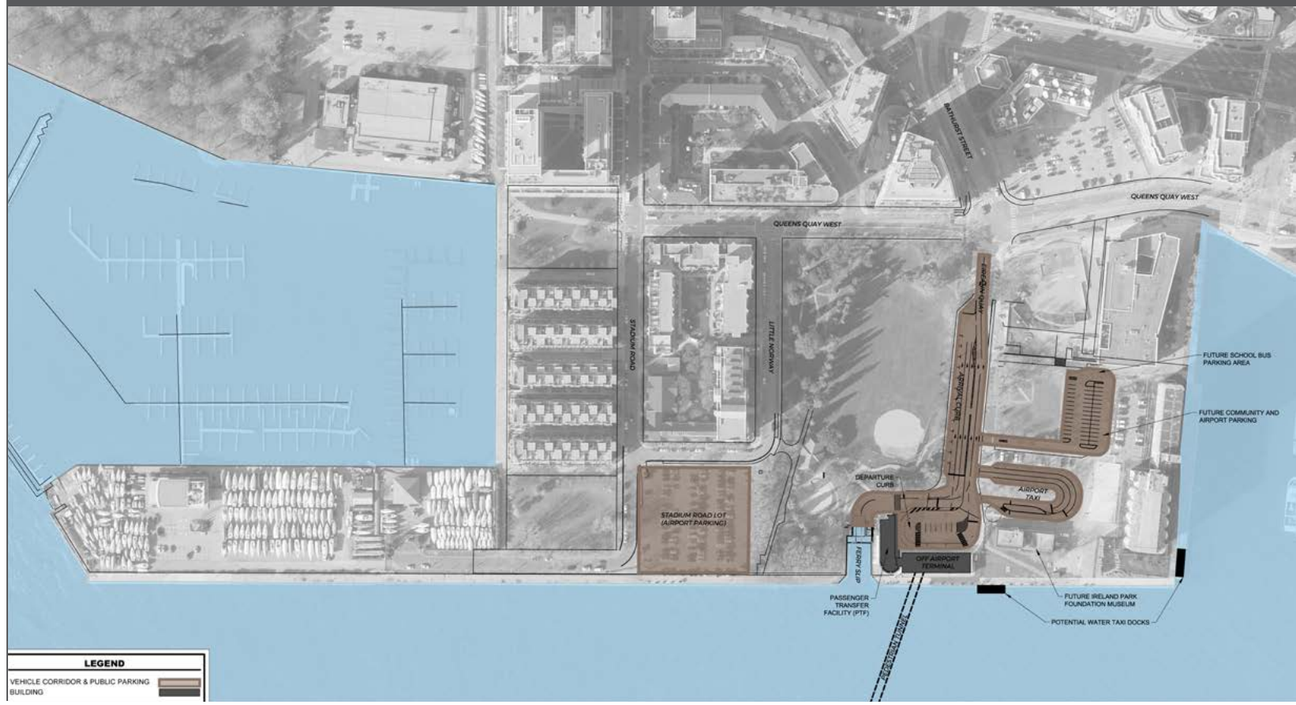
Areas of the south field could be used to accommodate tie-down areas for general aviation. Given its remote location on the airfield, this area is more suitable to accommodating aircraft that are based at the airport and flown less frequently. It is proposed that access to the site could be accommodated by an on demand shuttle from the north side of the airport.

10.2
Landside

As part of the City-led Bathurst Quay Neighbourhood Plan, modifications to the taxi corral, airport parking, school and community parking, school pick-up and drop-off as well as airport arrival and departure curbs are being modified to better manage all these uses. The improvements will create benefits for the public realm and streetscaping for the community, as well as visitors and passengers that will use the airport as a regional transportation gateway which welcomes business and leisure travellers to the city of Toronto.

Figure 10-5 details the proposed landside development located on the mainland. This concept has been prepared in conjunction with the City of Toronto in its development of the Bathurst Quay Neighbourhood Plan. Elements of the plan were initiated in late 2018, including the provision of a passenger pick-up curb on the west side of Eireann Quay.

Figure 10-5 Landside Development Plan



10.2.1 Access

Under the Airport Development Plan, the primary landside access to the airport remains via Eireann Quay. As a means of reducing the volume of commercial vehicle traffic on Eireann Quay, PortsToronto will be evaluating the opportunity to divert large commercial vehicles to the Port Lands and then by ferry to the south side of the airfield. This would include vehicles accessing the Toronto Islands for the City of Toronto as well as large fuel tankers accessing the fuel farm at the airport.

The accommodation of a larger ferry would require modifications to dock walls, as well as the roadway approaching the dock. PortsToronto has been in discussions with the City of Toronto and Waterfront Toronto on the viability of this opportunity, and would require support and approvals from the City, Transport Canada and potentially other agencies.

10.2.2 Parking

As part of the Bathurst Quay Neighbourhood Plan, there are no changes being proposed to the Stadium Road parking lot in the short term. In the next two years, the parking lot at Canada Malting site is being re-purposed from parking and construction staging areas to parking, school pick-up/drop-off, public realm and open space use based on the concepts prepared by the City of Toronto. The area to the east and south of the Toronto District School Board property will be used for school bus and parent pick-up/drop-off, as well as parking. This parking lot will be shared by the Toronto District School Board, and community in the evenings and weekends, and PortsToronto in the daytime during the week.

10.2.3 Taxi Corral

As part of the Bathurst Quay Neighbourhood Plan, modifications and optimization to the taxi corral are being implemented to better manage operations while ensuring public and passenger safety. These enhancements will improve the public realm and streetscaping for the community, visitors and passengers to Toronto's waterfront through the gateway of Billy Bishop Airport.

10.2.4 City Of Toronto Administration Building

Under the City of Toronto-led Bathurst Quay Neighbourhood Plan, staff have had discussions with interested stakeholders to determine who may be interested in leasing available space in the Administration Building. Billy Bishop Airport has been leasing office space in this building for operations including security, construction and meeting space. The City of Toronto has undergone a process to seek interested groups within the community that may want to lease space in the building, as there is unutilized space up for lease. Ireland Park Foundation has secured a lease agreement with the City of Toronto, in addition to the continued lease agreement by PortsToronto for airport office space. The Administration Building at the foot of Eireann Quay will continue to provide office space for airport use, with portions of the building being re-purposed for uses by the Ireland Park Foundation for community use, as well as becoming a destination along Toronto's waterfront for visitors.

10.2.5 Curbs/Drop-Off

The airport finger lot has been redesigned based on discussion with the City of Toronto to provide better access and movement for trucks and vehicles. A dedicated passenger pick-up curb on the west side of Eireann Quay is anticipated to accommodate private vehicles picking up family and friends. By providing this temporary space, it is hoped that these private vehicles will not enter the local neighbourhood looking for temporary parking while waiting to pick-up arriving passengers from the airport.

10.2.6 Ferry Service

PortsToronto is currently assessing the opportunity to convert the *Marilyn Bell I* ferry's bio-diesel engine to an electric motor. This would add a significant environmental benefit to the local community as ferry noise and pollution from diesel engines are among the primary sources of airport-related complaints.

10.2.7 Water Taxi Service to Move People

Although no such service has yet to be proposed, one opportunity to reduce the number of automobiles accessing the airport is to offer a new mode of transport. A water taxi service could carry passengers from various locations along the waterfront and downtown core of Toronto, directly to the terminal building. A three-season service could also service high density residential areas located to the west of the airport, as well as future, residential/commercial areas located in the Port Lands. PortsToronto would need to have discussions with the City of Toronto and Waterfront Toronto on the viability of this opportunity, and would require approvals from the City, Transport Canada and other agencies.

10.3
Terminal Facilities

The air terminal building recently underwent a significant upgrade that included enlarging the lounges, improving food and retail services, and providing one additional gate for a total of eleven gates. No further expansion of the terminal building is contemplated as part of this Airport Master Plan. However, modifications to the interior of the building may be necessary should a U.S. Preclearance facility be introduced in the future.

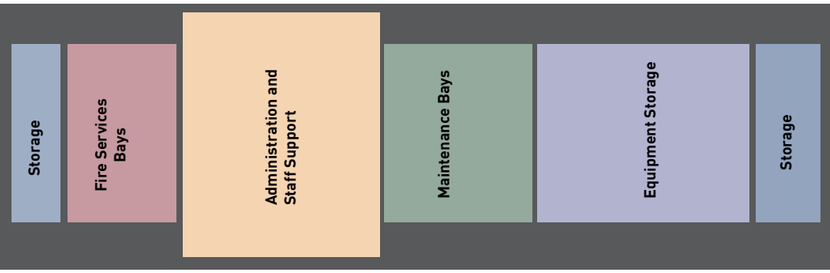
10.4
Airport Support Facilities

10.4.1
Combined Services Building

The existing combined services building (CSB) is nearing the end of its useful life and already fails to meet the current and projected needs of the airport. A new facility is required to accommodate both fire services and equipment maintenance/storage functions. Such a facility should be located on the north side of Runway 08-26. This allows the facility to have groundside access and provides fire services with direct access to the terminal building and hangar line while avoiding having them cross the active runway when responding to calls.

A proposed facility is anticipated to include: elements such as two drive-through bays for fire service vehicles; two drive-through bays for equipment maintenance; three to four drive-through bays for front line equipment storage; and additional space for administrative and staff support functions as well as dry storage. The CSB should also include a wash bay. Such facilities could be accommodated in a building of approximately 2,700 – 3,000 square-metres. Figure 10-6 illustrates a typical layout for a future CSB facility.

Figure 10-6
Typical Combined Services Building Layout



10.4.2
Equipment Storage Building

It is intended that not all airfield equipment be accommodated in the Combined Services Building. At present, a tensile structure located south of the runways is used as unheated dry storage. This facility cannot fully accommodate all of the intended equipment, and in addition, equipment such as broom sweepers contaminated with snow can freeze up in the winter. A potential resolution is to construct a permanent heated structure on the south side of the airport.

10.5
General Aviation Development

10.5.1
North Development

Opportunities for expanded aviation development on the north side of the airport are limited because of physical constraints. This Airport Master Plan assumes that the existing hangar line will remain largely unchanged for the foreseeable future with the exception of some development within existing leased areas.

With the extension and realignment of Taxiway Bravo, some land located west of the control tower could become available for aviation development. However, the first priority for this site should be the accommodation of a new Combined Services Building.

Figure 10-7 Airport Development Plan —North Field

10.5.2
South Development

The south side of the airport is being considered for the development of a general aviation area that would include areas for aircraft tie-downs and hangar development that cater to privately-owned aircraft. Private aviation enthusiasts that have privately owned aircraft could have access to this area.

Groundside access to this area could be via a shuttle from the north side of the airport or through a secure gate from Hanlan's Point. The potential viability and extent of development on the south side of the airport needs to be confirmed through the preparation of a business case study.

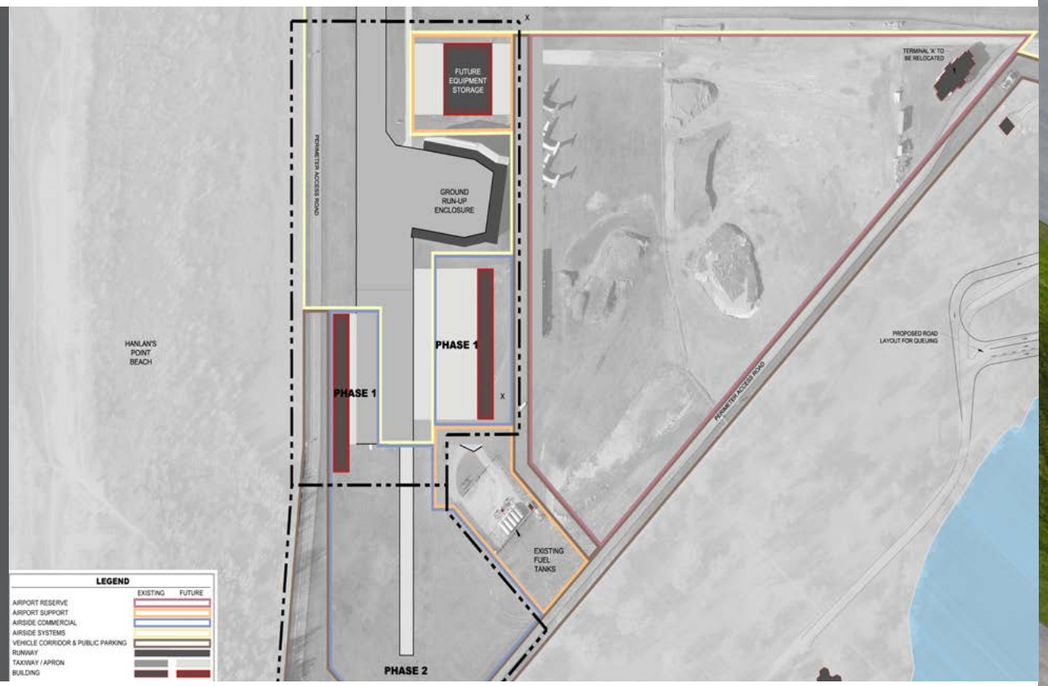


Figure 10-8 Airport Development Plan —South Field

10.6
Airport Land Use Plan

Supporting the Airport Development Plan is the Airport Land Use Plan provided in Figure 10-9. Land use elements include:

Airside Systems (Yellow)

This land use is dedicated to the safe and efficient maneuvering of aircraft and includes areas required for runways, taxiways, aprons, and navigational equipment.

Airport Support (Orange)

This land use describes areas reserved for buildings and other infrastructure that support the operation of the airport and include the Combined Services Building, equipment storage, and the fuel farm

Airside Commercial /General Aviation (Blue)

The Airside Commercial /General Aviation land use is reserved for the development of infrastructure supporting commercial enterprises and general aviation functions including apron, aircraft tie-down areas, and hangars.

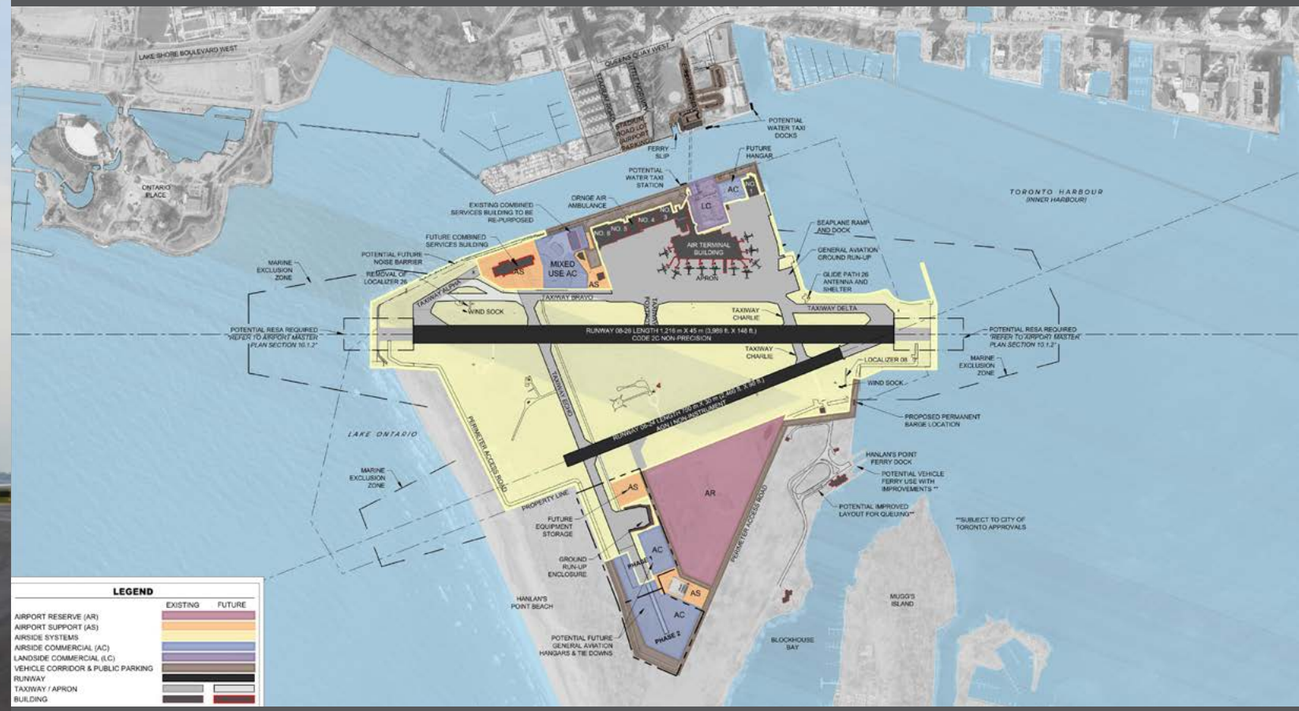
Landside Access/Parking (Brown)

This land use designation includes landside access roads, curbs and parking.

Airport Reserve (Red)

This land use designation identifies areas reserved for longer-term airport development and could include uses such as airside commercial development and/or airport support functions.

Figure 10-9 Airport Land Use Plan – Overview



11
Conclusions

The 2012 Master Plan set the groundwork for developing a vision for Billy Bishop Airport and identified opportunities and challenges that required analysis to determine how impacts from airport operations could be mitigated. As a result of this plan, PortsToronto implemented and maintained a Managed Growth Strategy that included capping the airport at 202 daily movements from the main terminal. This strategy contemplated that although the airport could operate additional slots and still comply with the existing NEF, 202 slots was the appropriate number given the existing and limited infrastructure, restrained mainland access and neighbourhood priorities. The managed growth approach is inclusive of other mitigation strategies linked to enhanced process and infrastructure investment, which have been implemented since 2012 including the Pedestrian Tunnel, the Ground Run-up Enclosure, the reconfigured taxi corral, ferry operations procedures and community outreach and engagement.

Further, in April 2013 City of Toronto Council approved an outline of a phased approach for airport growth which included certain investments and enhancements to ensure the airport remains in balance with the surrounding neighbourhood and is consistent and supportive of the priorities stemming from the Bathurst Quay Neighbourhood Plan. These improvements were all implemented and included:

- Implementation of passenger wayfinding and route planning tools for users of the airport;
- Taxi operational adjustments to achieve increased passenger efficiency;
- Enhancement of shuttle service to achieve an increased modal split, and regular monitoring and reporting of shuttle usage to the City;
- Noise monitoring program that includes a specific airport noise monitoring system, an annual noise report, annual NEF monitoring and reporting by Transport Canada to the City; and,
- Traffic monitoring for Eireann Quay.

Other items identified and that have been implemented include: Construction of the GRE facility, funding for groundside traffic and community infrastructure improvements, regular updates of the Wildlife Management Plan, and completion of this Airport Master Plan which is aligned with the City-led Bathurst Quay Neighbourhood Plan. In 2019, PortsToronto has also committed to undertaking studies regarding the de-icing and chemical management system, storm water management system, and an assessment of ground-based airport noise.

Over the past five years, passenger growth has averaged four per cent per year and totalled 2.808 million in 2018, which is consistent with the 2012 Master Plan projections. The City-led Bathurst Quay Neighbourhood Plan work will be complete in 2021, which will enhance the public realm and streetscape, as well as assist in managing traffic in the surrounding community.

Thank you messages from Island Public School —Kindergarten to Grade 6.

The 2018 Master Plan is inclusive of extensive public outreach, detailed technical analysis and comprehensive socio-economic research. The Master Plan presents opportunities for Billy Bishop Airport that remain consistent with the airport's 2012 Managed Growth Strategy and a future vision for Billy Bishop Airport that optimizes its potential for achieving economic and connectivity benefits while maintaining balance on the waterfront. Opportunities for improvements under the Managed Growth Strategy will continue based on improvements towards performance tracking and expanding mitigation efforts to our operations and infrastructure over the planning horizon of the Airport Master Plan.

Over the past five years, improvements have been implemented which demonstrate that managed airport growth can be balanced with the surrounding waterfront community. The past 18 months of research, analysis, consultation and engagement have identified key findings that are consistent with growth in the city and the airport's role in supporting that growth as a transportation gateway. The forecasted growth in residential units and commerce in the downtown core of the city of Toronto will place added challenges on all modes of transportation within the city. The airport can play a key role in providing easy connections within the downtown core to regional centres in northern Ontario and the eastern seaboard of Canada and the United States.

With key employment nodes being planned in the city in the South of Eastern and Port Lands area, connectivity by rail and public transit to regional transportation systems, such as the airport, will continue to grow and require additional capacity. The increase in air travel by business and leisure travellers is a trend that is forecasted to grow and the ease of access to the airport is appreciated by travellers in the downtown core.

As an urban airport located in the heart of one of North America's greatest cities, Billy Bishop Airport is a unique asset and a source of great opportunity. The airport drives commerce, encourages tourism, promotes connectivity, facilitates health care for Ontarians, generates jobs for the region, and invests in the community. Billy Bishop Airport plays an integral role in servicing Toronto and contributing to what makes this city great. With the opportunity that comes with operating an urban airport in one of North America's greatest cities comes heightened expectations and responsibility to conduct our operations in a manner that reflects balance with the surrounding city. It is our commitment to balance that guides us and informs our vision for this airport and was the driving force behind our new Airport Master Plan.

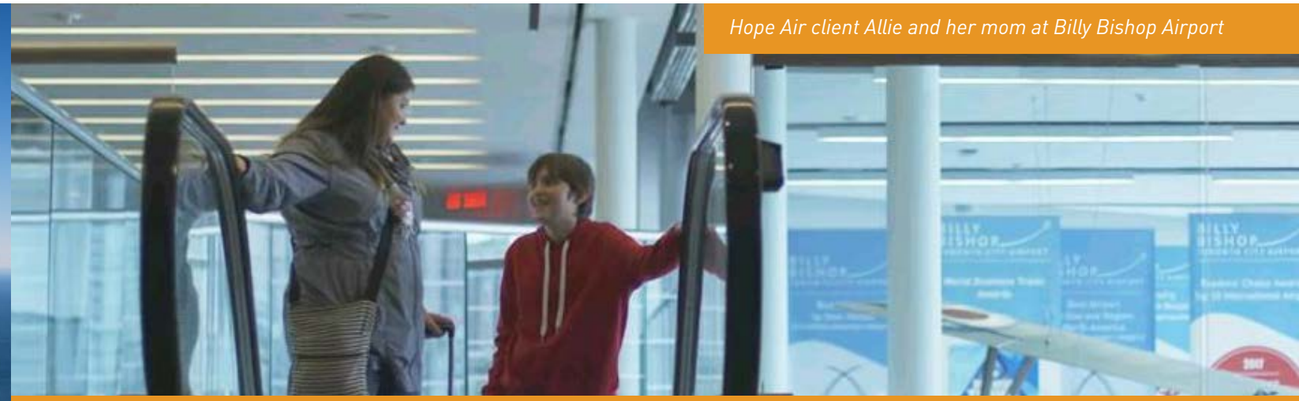
Conclusions

Billy Bishop Airport's vision is to be the global leader in how a modern airport operates in an urban environment. Much has changed and been accomplished over the past five years and our new Master Plan is a more comprehensive look at Billy Bishop Airport and where opportunities lie to make the airport cleaner, greener and quieter. We will achieve this vision by investing in the areas that are meaningful to our passengers, community and stakeholders. With a focus on sustainability and innovation, Billy Bishop Airport is committed to continuous improvement in noise mitigation; environmental protection and air quality improvements; passenger service and convenience; community initiatives and engagement; and, technology development to make what is already great even better.

Much has been accomplished in the last five years to get us closer to our vision and mission for Billy Bishop Airport. Much more will take place in the future to help us achieve our vision of being the global leader in how a modern airport operates in an urban environment. Innovation and partnership will be key to achieving our goals. This means innovation as it pertains to all areas of our business including environmental protection, passenger efficiency and operation impact mitigation. It also means harnessing innovation in new technologies such as the introduction of electric and hybrid aircraft in the future. The opportunity of the 2018 Billy Bishop Airport Master Plan has been designed to allow for a flexible blueprint that enables adaptation to changing circumstances.

In fact, history has proven that the airport has adapted to the changing landscape and is well positioned to continue into the 21st century. As for our own aspirations, Billy Bishop Airport's vision is to be the global leader in how a modern airport operates in an urban environment. Billy Bishop Airport has played an important role for the city of Toronto. It provides a unique gateway for business and tourism; it is a service provider for emergency medical services; private aviation and flight training; it is a job creator and economic driver; it is a partner to community organizations; and it is an asset that benefits the city of Toronto and the region, all while contributing to its world-class status and aspirations.

This Master Plan will serve as an important component to achieve our vision but so will the practices and policies we have put in place to consult with our community, operate in a transparent manner and strike a balance between airport imperatives and the community interest. We are on a journey and this plan will be part of the navigation needed to get us to our destination.



Hope Air client Allie and her mom at Billy Bishop Airport

HOPE AIR

In 2018, Hope Air facilitated more than 1,000 flights for patients travelling to/from Billy Bishop Toronto City Airport.

Of these flights Hope Air patients most frequently travelled for organ transplants, cancer, musculoskeletal, nervous system and gastrointestinal disorders.

Appendix A

A-1
Airport Master Plan Acronyms

ACI—Airports Council International or ACI-NA (North America)

AFFF—Aqueous Film Forming Foam

ARFF—Aircraft Rescue and Fire Fighting

ARP—Airfield Rehabilitation Program

BQNP—Bathurst Quay Neighbourhood Plan

CARs—Canadian Aviation Regulations

CBSA—Canada Border Services Agency

CSB—Combined Services Building

DME—Distance Measuring Equipment

EMAS—Engineered Material Arresting Systems

FAA—Federal Aviation Administration

FBO—Fixed Base Operator

FEC—Field Electrical Centre

FTE—Full Time Equivalent

GDP—Gross Domestic Product

GHG—Greenhouse Gas

GPU's—Ground Power Units

GRI—Global Reporting Initiative

GTA—Greater Toronto Area

GTAA—Greater Toronto Airports Authority

HBS—Hold Bag Screening

IFR—Instrument Flight Rule

ILS—Instrument Landing Systems

LEED—Leadership in Energy and Environmental Design

LRT—Light Rapid Transit

MEZ—Marine Exclusion Zone

MGS—Managed Growth Strategy

NCAMS—NAV CANADA Aircraft Movement Statistics

NDB—Non-Directional Beacon

NEF—Noise Exposure Forecast

NMT—Noise Monitoring Terminal

NPA—Notice of Proposed Amendment

NPSV—Non-Passenger Screening Facility for Vehicles

PIK—Primary Inspection Kiosks

RESA—Runway End Safety Area

RNAV—aRea Navigation

Investing In Balance

Appendix A

A-1
Airport Master Plan Acronyms

SOAN—Southern Ontario Airports Network

TTC—Toronto Transit Commission

Q-400—400 Q-series aircraft (Bombardier)

U.S. Preclearance—United States Preclearance

WMP—Wildlife Management Plan

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3. BILLY BISHOP AIRPORT TODAY
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5. PLANNING INITIATIVES IN THE COMMUNITY
6. ACTIVITY FORECAST
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8.THE ENVIRONMENT, SUSTAINABLE DEVELOPMENT, AND CORPORATE SOCIAL RESPONSIBILITY
9. PRIORITIES AND RECOMMENDATIONS
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