

Environmental Assessment Study Report

Runway End Safety Area, Billy Bishop Toronto City Airport

PortsToronto

60733457

October 2025

Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by AECOM Canada ULC ("AECOM") for the benefit of the Client ("Client") in accordance with the agreement between AECOM and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations");
- represents AECOM's professional judgement in light of the Limitations and industry standards for the preparation of similar reports;
- may be based on information provided to AECOM which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context;
- was prepared for the specific purposes described in the Report and the Agreement; and
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

AECOM shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. AECOM accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

AECOM agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but AECOM makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

Without in any way limiting the generality of the foregoing, any estimates or opinions regarding probable construction costs or construction schedule provided by AECOM represent AECOM's professional judgement in light of its experience and the knowledge and information available to it at the time of preparation. Since AECOM has no control over market or economic conditions, prices for construction labour, equipment or materials or bidding procedures, AECOM, its directors, officers and employees are not able to, nor do they, make any representations, warranties or guarantees whatsoever, whether express or implied, with respect to such estimates or opinions, or their variance from actual construction costs or schedules, and accept no responsibility for any loss or damage arising therefrom or in any way related thereto. Persons relying on such estimates or opinions do so at their own risk.

Except (1) as agreed to in writing by AECOM and Client; (2) as required by-law; or (3) to the extent used by governmental reviewing agencies for the purpose of obtaining permits or approvals, the Report and the Information may be used and relied upon only by Client.

AECOM accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information ("improper use of the Report"), except to the extent those parties have obtained the prior written consent of AECOM to use and rely upon the Report and the Information. Any injury, loss or damages arising from improper use of the Report shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

AECOM: 2024-12-21

© 2009-2024 AECOM Canada ULC All Rights Reserved.

Authors

Report Prepared By:



Saeideh Rasouli, Ph.D.
Deputy Project Manager
AECOM Canada ULC



Nelson Gonzalez Toledo, HBAS
Environmental Planner
AECOM Canada ULC



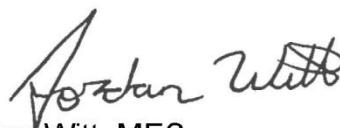
Tyler Huguet, BA, PMP
Environmental Planner



Marilena Di Giuseppe, BSc (Hon), MASc, EPT
Environmental Planner, Planning & Permitting
AECOM Canada ULC



Christopher Scott, MES
Environmental Planner
AECOM Canada ULC



Jordan Witt, MES
Environmental Planner
AECOM Canada ULC

Report Reviewed By:



Marc Rose, Senior Advisor
Growth Director, Canada
SLR Consulting



Joanne Wang, MES, MCIP, RPP
Senior Environmental Planner
AECOM Canada ULC

Report Verified By:



Britta Patkowski, BSc (Env), MCIP, RPP
Associate Vice President,
Department Manager, IAP
AECOM Canada ULC

Report Approved By:



Karl Grueneis, B.A
Project Manager
AECOM Canada ULC

Prepared for:

PortsToronto
207 Queens Quay West, Suite 500
Toronto, ON M5J 1A7

Prepared by:

AECOM Canada ULC
105 Commerce Valley Drive West, 8th Floor
Markham, ON L3T 7W3
Canada

T: 905.886.7022

F: 905.538.8076

aecom.com

Revision History

Rev #	Revision Date	Revised By:	Revision Description
0	November 2024	AECOM	Draft Environmental Assessment Study Report
1	May 2025	AECOM	Draft Environmental Assessment Study Report
2	October 2025	AECOM	Final Environmental Assessment Study Report

Distribution List

# Hard Copies	PDF Required	Association / Company Name
	✓	PortsToronto
	✓	Avia NG Airport Consultants

Land Acknowledgement

Billy Bishop Toronto City Airport operates under its mandate on the traditional territory of many nations, including the Mississaugas of the Credit, the Chippewa, the Haudenosaunee, and the Wendat peoples, and is now home to many diverse First Nations, Inuit and Métis peoples. We respect that the Crown and Mississaugas of the Credit signed Treaty 13, which covers the lands of the City of Toronto. Today, Toronto is still home to Indigenous people and we are grateful to have the opportunity to meet and work on this territory.

Executive Summary

E1. Introduction

PortsToronto, the owner and operator of the Billy Bishop Toronto City Airport, has conducted an Environmental Assessment for the implementation of a Runway End Safety Area (RESA) at this airport ('the Project').

The purpose of the Project is to comply with the Canadian Aviation Regulations introduced in January 2022, which mandate RESAs for airports serving over 325,000 commercial passengers annually. A RESA is designed to minimize damage if an aircraft overshoots or undershoots the runway. At Billy Bishop Toronto City Airport, the RESA requirements apply only to the primary runway, Runway 08/26, which enables commercial aircraft use.

The construction of RESAs, as well as any additional improvements, will not lengthen the primary runway, facilitate the use of new aircraft, or increase operations at Billy Bishop Toronto City Airport. The boundaries and size of the existing Marine Exclusion Zone will also remain unchanged.

Although there are no regulatory requirements under the federal or the provincial acts that mandate the Environmental Assessment process for the Project, a Section 82 evaluation under the Impact Assessment Act is required for all Project components that fall on Transport Canada-owned land. In the City of Toronto's Official Plan (2024c), policies exist for projects where lakefilling in Lake Ontario shall undertake an Environmental Assessment, which needs to be considered. As such, PortsToronto has undertaken a non-statutory Environmental Assessment process for the RESA project at Billy Bishop Toronto City Airport.

This Environmental Assessment aims to identify a short-list of alternatives, evaluate their environmental effects, and identify the preferred RESA alternative. It also outlines mitigation and monitoring measures, compensation plan and commitments for future work. The Environmental Assessment seeks a clear understanding of both the positive and negative effects of implementing RESA at Billy Bishop Toronto City Airport. The findings are expected to inform and engage the public and potentially affected stakeholders and provide information to support decision-making on the design and construction of the RESA while ensuring compliance with Transport Canada regulations, City of Toronto Official Plan policies, and approval and permitting required by federal, provincial and municipal authorities.

This Environmental Assessment is conducted based on the existing operational baseline, which will be maintained with the implementation of the RESA. It is not intended, nor should it be interpreted, as a comparison of the environment in the absence of the airport.

The Project Study Area encompasses all Billy Bishop Toronto City Airport lands involved in the RESA implementation, including the Marine Exclusion Zone. The Project Study Area is illustrated in **Figure ES-1**.

E2. Planning Context

The Project incorporates and aligns with a range of planning policies, which include:

■ **Provincial Policies**

- Provincial Planning Statement (2024).

■ **Regional Policies**

- Toronto Waterfront Aquatic Habitat Restoration Strategy (2003).

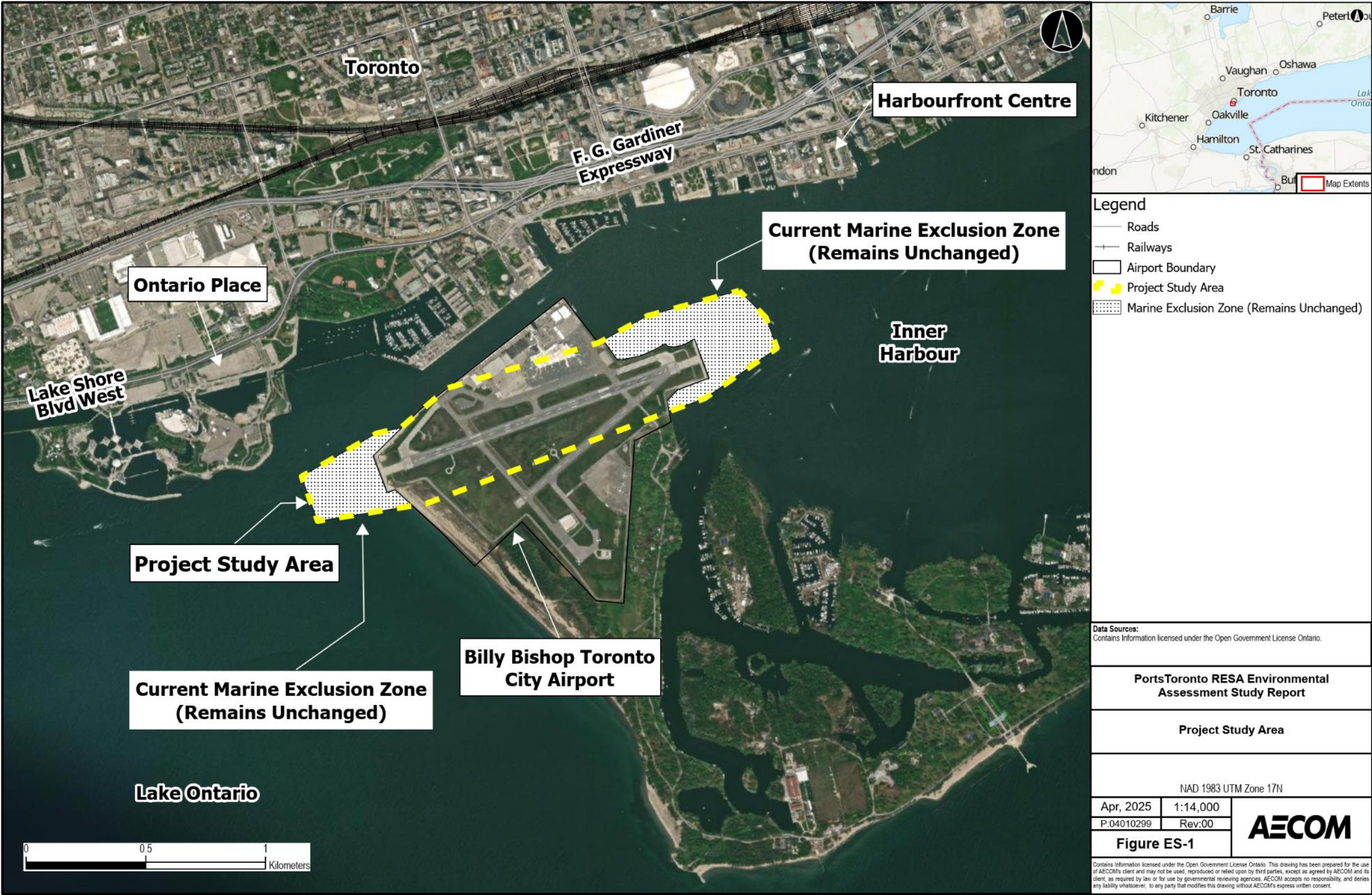
■ **Municipal Policies**

- City of Toronto Official Plan (2024c).
- Toronto Island Park Master Plan (2024b).
- Making Waves – Central Waterfront Secondary Plan II (2003).
- Port Lands Planning Framework (2017).

■ **Airport-related Policies**

- Billy Bishop Toronto City Airport Master Plan (2018).
- PortsToronto Environmental Social and Governance Priorities (2023).

Figure ES-1: Project Study Area



E3. Existing Conditions

Desktop research, agency consultation, and field work were undertaken to inform the existing conditions of the Project. The following is a summary of the Project's existing conditions, a detailed description of which can be found in **Section 3**.

Natural Environment

Terrestrial Ecosystems

The terrestrial study area for the Project is partially located within the Hanlan's Beach Environmentally Significant Area and the candidate Toronto Islands Life Science Area of Natural and Scientific Interest, which includes Hanlan's Beach, Mugg's Island, and other parts of the Toronto Islands.

The Toronto Islands, including the terrestrial study area, are crucial stopover sites for migratory birds along the Atlantic Flyway. The islands also serve as important refuges for migrating butterflies, especially Monarchs.

The review of the Significant Wildlife Habitat Criteria Schedule for Ecoregion 7E identified seasonal concentrations areas for waterfowl and Monarch butterflies.

The background review identified 21 terrestrial Species at Risk within or near the terrestrial study area. Of the 21 Species at Risk, two terrestrial species - Piping Plover (*Charadrius melodious*), and Bank Swallow (*Riparia riparia*) - have a medium potential to occur in the terrestrial study area. However, suitable habitat is present only for the Piping Plover, which has a history of nesting on Hanlan's Beach and potentially in the Mineral Open Beach/Bar community.

Fish and Fish Habitat

The aquatic study area has a cold-water thermal regime, which supports a diverse community of migratory and resident fish species. Background data sources identified 63 fish species potentially present in the area, with most of these species listed as "Not at Risk" under the Endangered Species Act and the Species at Risk Act. One aquatic Species at Risk, American Eel (*Vallisneria americana*), designated as Endangered provincially, was identified as having medium potential to occur in the aquatic study area.

Marine Physical Environment

The shoreline of the Toronto Islands is influenced by both natural processes and human development, while the islands are formed from clay till and sand deposits from glacial Lake Iroquois, with bedrock consisting of shale, limestone and siltstone. Much of the Inner Harbour shoreline, including the north, east, and west shores of the Toronto Islands, is reinforced with engineering structures such as seawalls and revetments,

while the south shoreline, shaped by sediment transport and erosion, has created Gibraltar Point and Hanlan's Point Beach.

Sediment sources within the marine physical study area are limited due to heavily engineered shorelines, with a maximum recorded current velocity in the Western Channel of 0.52 metres per second. Waves conditions are dominated by wind-generated waves with strong southwesterly winds elevating wave height at the west end of the marine physical study area and transporting sediment northward toward the airport.

Water Circulation and Quality

The Toronto Harbour faces pollution challenges mainly from combined sewer overflows during heavy rain and storm sewer discharges of sediment and pollutants, particularly from the Don River. These sources have resulted in high levels of nutrients and fecal coliform bacteria, exceeding Provincial Water Quality Objectives. Toronto Harbour's water dynamics have been shaped by various factors that influence water quality and circulation patterns, such as water current entering through the Western Channel and exiting through the Eastern Channel and the Don River plume.

Groundwater

The local groundwater in the Project Study Area was observed between 0.9 metres to 1.5 metres below ground surface, with elevations ranging from 74.6 metres to 74.9 metres above sea level. The Project Study Area is near Intake Protection Zone 2 and is located on a Highly Vulnerable Aquifer.

Stormwater and Drainage

Billy Bishop Toronto City Airport has generally flat topography with limited elevation above the average Lake Ontario water levels, resulting in a high groundwater table across the site. Billy Bishop Toronto City Airport stormwater and drainage management consists of sloped and graded surfaces, catchments from built-up and impervious areas, which are all directed to low lying areas. This promotes infiltration into the underlying groundwater regime or drainage structure, ultimately draining into Lake Ontario. Under existing conditions, there is potential for contaminant runoff from paved surface on the airfield.

Soils and Sediment

The onshore subsurface conditions typically included a surface layer of concrete, asphalt pavement, or topsoil underlain by fill materials such as sand and gravel, clayey silt, and sand with ballast. Native sand was also found below the fill in some locations.

Offshore conditions consisted of lakebed elevations ranging from 63.6 metres to 71.8 metres, with water depths of 2.9 metres to 11.1 metres. Fill materials, including sand, silty sand, gravelly silty sand, and clayey silt, were present at the lakebed, extending to depths of 8.7 metres to 13.8 metres. Underlying the fill, native materials such as sand, silty sand, and sandy silt were encountered, varying in thickness and condition, while below these strata, bedrock of the Georgian Bay Formation was contacted.

The sediment analysis results in the Project Study Area showed that sediment quality generally met sediment standards, except at the east end of the Project Study Area. Specific issues were found with metals and mercury at BH24-OFF-08, BH24-OFF-09, BH24-OFF-10, and BH24-OFF-11; Polycyclic Aromatic Hydrocarbons at BH24-OFF-08; and dioxins and furans at BH24-OFF-06, BH24-OFF-08, BH24-OFF-09, BH24-OFF-10, and BH24-OFF-11. Additionally, sediment exceeded Industrial/Commercial/Community Excess Soil Quality Standards at BH24-OFF-08, BH24-OFF-09, BH24-OFF-10, and BH24-OFF-11.

Socio-Economic Environment

Air Quality

The air quality study area contains fourteen sensitive receptors (residential dwellings) and three critical receptors (retirement homes, hospitals, childcare centres, and/or schools). Analysis of the ambient air quality revealed that most contaminant levels remained below the provincial Ambient Air Quality Criteria and federal Canadian Ambient Air Quality Standards except for nitrogen dioxide concentrations, which exceeded the federal Canadian Ambient Air Quality Standards in the existing background levels.

Noise

The primary source of noise from ground operations at the airport is from the aircraft run up area located on the eastern edge of the airport dock wall south of the Stolport hanger and east of gates 10 & 11. Additionally, sound sources associated with Billy Bishop Toronto City Airport include airborne aircraft, aircraft on the ground, (i.e., taxiing, idling, engine run up, engine-braking upon landing), airport ground support equipment, and the Marilyn Bell Ferry, while sources of ambient noise within or adjacent to the noise study area include nearby road traffic and light rail transit. A noise wall currently exists at the west end of Runway 08/26 along the north edge of Taxiway A.

Social Environment

The following socio-economic values exist within the socio-economic study area:

- **Residential Uses:** The socio-economic study area is characterized by a high population density, which has been steadily increasing and includes a mix of residential and commercial (office) properties.
- **Recreational Uses:** The socio-economic study area contains parks, natural areas, beaches, trails and sport facilities.
- **Public Facilities, Services and Institutional Uses:** There are a wide variety of public facilities, services and institutions in the socio-economic study area. Billy Bishop Toronto City Airport is a public facility itself, providing recreational, commercial, and emergency air services to the residents of the Greater Toronto Area, while providing service across the Province of Ontario and to regional centres to parts of Northeastern Canada and the United States.
- **Economy and Tourism Uses:** Billy Bishop Toronto City Airport has indicated its role in contribution to the growth and prosperity of the City of Toronto and the regional economy. New investment in tourism uses of the area is planned and is anticipated to result in increased tourism use of the Toronto waterfront.
- **Non-Use Values:** Include maintaining options for future generations to develop and use the waterfront, preserving aspects of the natural environment for future use and enjoyment and representing or contributing to the “brand” of Toronto as a major “waterfront” city.

Public Health

As mentioned above, nitrogen dioxide was the only contaminant found to exceed the federal Canadian Ambient Air Quality Standards in the existing ambient air levels within the air quality study area. Further, noise levels exceeding 45 dBA L_{eq} (average sound level) and 60 dBA L_{max} (maximum sound level) may disturb sleep. The average nighttime sound levels in the noise study area exceed 45 dBA L_{eq} and maximum noise levels exceed 60 dBA L_{max} , under existing conditions, considering urban environment noise from sources other than airport operations.

Marine Navigation

The marine navigation study area is commonly used by various types of vessels, including recreational motorboats, sailing vessels, paddleboats, passenger ferries and tour boats. Additionally, several yacht clubs and marinas on the Toronto Islands offer private shuttle services. Physical shoreline characteristics range from concrete, timber or steel vertical seawalls to beaches, marshes and stone revetment slopes.

Built Form and Land Use

The Billy Bishop Toronto City Airport lands are designated as Parks and Natural Areas, as demonstrated in Map 18 of the City of Toronto Official Plan. Development in these areas is generally prohibited, with exceptions for recreational, cultural, conservation, public transit, and essential public infrastructure projects, provided they meet the necessary assessments. While Parks and Natural Areas are primarily intended for preservation, projects such as public works and utilities may be allowed if no reasonable alternatives exist. These projects must minimize environmental impact and prioritize the restoration and enhancement of vegetation and natural heritage features.

Billy Bishop Toronto City Airport is situated adjacent to the Central Waterfront Secondary Plan Area, bordered by Lake Shore Boulevard West to the north, Dan Leckie Way to the west, Yonge Street to the east, and the waterfront to the south. The adjacent land uses include a diverse community with parks, amenities, retail, cultural venues, recreational spaces, and residential buildings, connected by a continuous waterfront promenade. The built environment includes mid-rise structures along the waterfront and scattered high-rise buildings north of Queens Quay West.

One of the core principles of the Central Waterfront Secondary Plan is aimed at achieving a high level of environmental health in the Central Waterfront to promote a clean and green environment. A wide variety of environmental strategies will be employed to create sustainable waterfront communities. Priority for sustainable modes of transportation is one of the “Big Moves” for this principle showcasing the City’s commitment to a clean and green waterfront that is safe and healthy and contributes to a better environment for the city as a whole. A sustainable transportation system that gives priority to transit, cycling, walking and water transport and reduces the need for car use will form the basis for transportation planning in the Central Waterfront. Future travel demand will be mainly met by non-auto means. PortsToronto and Billy Bishop Toronto City Airport has been tracking and reporting on its sustainability initiatives through its annual Environmental, Social and Governance reports over the past 10 years. Environmental strategies employed by PortsToronto along the central waterfront include: converting the Airport ferry - the Marilyn Bell – from diesel to bio-diesel and then electric in December 2021 which resulted in a 10-15% reduction in greenhouse gases; launching the Trash Trapping Program in 2019 removing hundreds of thousands of pieces of plastic debris from the Toronto Harbour; promoting non-vehicle use to and from the Airport has resulted in more than half (on average 55 per cent) of passengers choosing to walk, bike, take public transit or the complimentary shuttle bus from the airport, to name a few.

The Canada Malting Silos, located at the base of Bathurst Street on Eireann Quay, are a key heritage landmark on Toronto’s Central Waterfront, situated near Billy Bishop

Toronto City Airport. As part of the Bathurst Quay Revitalization Plan, the silos are undergoing a major transformation. The City of Toronto plans to retain and enhance the structure, seeking innovative proposals for a blend of public and private activities to transform the silos into a unique special place on the Toronto waterfront.

As of November 2024, there were five active development applications and two planned developments within the built form and land use study area.

Traffic and Transportation

The traffic and transportation study area contains the following transportation networks:

- **Road Network:** The road network in the immediate area of the ferry terminal includes Lake Shore Boulevard, Dan Leckie Way, Stadium Road, Eireann Quay and Queens Quay.
- **Public Transit:** Public transit access to and from the Billy Bishop Toronto City Airport terminal on the mainland is provided by two Toronto Transit Commission streetcar routes (509 and 511) and a complimentary Airport Shuttle service, operated by Nieuport Aviation.
- **Active Transportation:** The Martin Goodman Trail forms part of the multi-use Waterfront Trail that runs along the shoreline of Lake Ontario. The trail transitions to an on-street bicycle lane on Queens Quay.
- **Billy Bishop Toronto City Airport Pedestrian Tunnel:** The tunnel provides direct connections for staff, deliveries, the public and airport passengers barrier-free access to the airport via elevators and moving escalators. The tunnel connects to the City's pedestrian & trail network, public transit & free Airport Shuttle service, as well as bike rentals as modes of transportation.
- **Billy Bishop Toronto City Airport Marilyn Bell Ferry:** The fully electric ferry provides road network connectivity all-year round from the mainland to the island, for airport deliveries, as well as non-airport city service vehicles and trucks, which includes priority service for emergency vehicles.

Cultural Environment

Marine Archaeology

The marine archaeology study area primarily consists of construction debris, with no significant artifacts or features of cultural or historical importance identified. No pre-contact artifacts or historically significant objects were found, and the potential for Indigenous artifacts is considered low. Targets detected were non-cultural, including buoy markers, construction debris, and features related to the airport's development.

Terrestrial Archaeology

The majority of the terrestrial archaeology study area was previously assessed and does not require further assessment. For additional lands not covered by previous assessments, it is noted that the current conditions of these areas include extensive and intensive deep land alterations as well as areas consisting of a manufactured landmass.

Built Heritage Resources and Cultural Heritage Landscapes

A total of 11 cultural heritage resources were documented within or adjacent to the cultural heritage study area on Toronto Island. This includes one potential cultural heritage landscape (Hanlan's Point Beach), five commemorative landscape features and four potential built heritage resources identified adjacent to the cultural heritage study area, in the vicinity of Hanlan's Point Beach. Lastly, one built heritage resource is located at the boundary of the Billy Bishop Toronto City Airport, directly adjacent to the cultural heritage study area.

Technical and Engineering

Runway 08/26 is, and will remain, certified to TP312 3rd Edition, Code 2C, non-precision instrument standards as documented in the Transport Canada-approved Airport Operations Manual. Runway 08/26 is protected by a series of imaginary surfaces, which are designed to ensure safety by providing clear space around the runway, free of obstructions, and are used to define areas that require special consideration for the protection of aircraft operations. For airport, and non-airport vehicles including city emergency vehicle, utility services, vehicles for the Toronto and Region Conservation Authority, public service vehicles, as well as large truck connection from the mainland to the Toronto islands, there is a need for vehicle crossing of Runway 08/26, and contacting the airport control tower to co-ordinate crossings.

Billy Bishop Toronto City Airport has a comprehensive infrastructure system to support its operations, and the operations of the City of Toronto, which include:

- Transportation and infrastructure, which includes a pedestrian tunnel.
- Utilities, including power, gas communication lines, watermain, storm and sanitary sewers, etc.
- Electrical infrastructure.

Lastly, at Billy Bishop Toronto City Airport, ice buildup of 1 metre to 2 metres have been observed at the steel sheet pile wall on the west end of Runway 08/26. The runway's east end has not had any reported ice inundation. Freezing spray poses an operational

challenge, particularly on the exposed western shore, where it can form ice up to 0.3 metres thick on pre-threshold pavement.

E4. Evaluation of Alternatives

The Project Team evaluated several alternatives using the following four-step process:

- Step 1: Review the long-list of RESA alternatives identified as part of a detailed RESA Alternatives Study.
- Step 2: Screen the long-list against key technical considerations to identify technically viable and feasible short list of alternatives.
- Step 3: Evaluate the short-list of alternatives against a list of relevant criteria.
- Step 4: Recommend a Preferred Alternative.

Of the seven long-list alternatives, four were screened out during the screening process and three alternatives were evaluated using a comprehensive list of relevant criteria, which included 44 criteria across 31 factors. These alternatives included:

- RESA 1 – Minimum Landmass, which proposes the minimum landmass expansion to meet RESA requirements.
- RESA 2 – Taxiway Improvements, which incorporates additional airfield improvements in conjunction with the RESA work at both runway ends.
- RESA 3 – Noise Wall and East Utility Conduit, which adds further elements to improve operational safety and provide additional benefits.

The three alternatives were evaluated based on their ability to enhance airport safety and operations while supporting the surrounding community, including island and waterfront residents and users, and minimizing impacts on natural, social, economic, and cultural environments. The outcome of the evaluation ranked the alternatives across each category that was explored (i.e., technical and engineering, natural environment, socio-economic environment, etc.) in order to select a preferred RESA alternative.

E5. Preferred Alternative

Based on the comprehensive evaluation of each RESA alternative, RESA 3 was selected as the preferred alternative. RESA 3 includes a landmass expansion of 73 metres from the seawall by approximately 220 metres wide (29,980 square metres) on the east end, and 82 metres from the seawall by approximately 150 metres wide (12,600 square metres) on the west end. The east end landmass expansion allows for an underground utility conduit, which could support the burial of underground conduits,

pipes and other essential conduits for airport and other infrastructure to connect utilities to the Toronto Islands. RESA 3 also includes taxiway modifications along both the east and west ends of the airport. In addition, RESA 3 accommodates an extension of the existing noise wall (6 to 8 metres tall) installed at the western end of Runway 08/26, in addition to the introduction of a new noise wall at the east end of the runway.

Further improvements from the proposed components of RESA 3 include:

- Relocation of localizer 26 (navigational aid).
- Enhanced Visual Glide Slope Indicator System (Precision Approach Path Indicator 26).
- An armoured stone breakwater structure along both the east and west ends of Runway 08/26 to address shoreline and coastal flood protection.
- Unrestricted airside roads around both ends of Runway 08/26, which allows airport and non-airport vehicles to circumvent the controlled runway environment, eliminating the need for Control Tower permissions currently in place. This reduces the risk of runway incursions, which supports the Transportation Safety Board of Canada's Watchlist.

It is anticipated that the construction of RESA 3 could be completed in two phases (three stages):

- Phase 1/Stage 1 includes breakwater and RESA construction to meet Transport Canada's RESA operational deadline.
- Phase 2/Stage 2 includes offshore and onshore construction activities.
- Phase 2/Stage 3 consists of onshore construction activities only.

Following discussions among all signatories to the Tripartite Agreement (PortsToronto, Transport Canada and City of Toronto), and further to Toronto City Council's approval of RESA 1, PortsToronto will proceed with the implementation of RESA 1. Construction of RESA 1 is expected to commence as early as 2026 with final Project close-out by Spring 2028. The required RESA landmass will be constructed by the compliance deadline of July 12, 2027, with remaining ancillary work continuing into early 2028. All construction activities are anticipated to occur during nighttime (11:00 pm to 6:45 am).

E6. Potential Environmental Effects, Mitigation Measures

Natural Environment

Terrestrial Ecosystems

RESA 1 removes 575 m² vegetation limited to low-quality, secondary growth Cultural Willow Deciduous Thickets. RESA 2 removes more vegetation (2,935 m²), but still from low-quality secondary-growth Cultural Willow Deciduous Thickets. Neither of these two alternatives is expected to impact Cottonwood Treed Dune, Mineral Open Beach Bar, the candidate Toronto Islands Area of Natural and Scientific Interest, and the terrestrial Species at Risk and their habitats. With proper mitigation and restoration plans, the impact of RESA 1 is expected to be negligible to none, while RESA 2 is anticipated to have a negligible net negative effect. RESA 3 removes the most vegetation (4,480 m²), including 1,080 m² of the regionally rare Mineral Open Beach Bar and approximately 730 m² of the provincially rare Cottonwood Treed Dune, which supports regionally rare vascular plant species. However, the overall loss is minimal in the context of the remaining natural features along Hanlan's Point Beach—representing only 0.99 percent of the Mineral Open Beach Bar and 0.006 percent of the Cottonwood Treed Dune. The removal of 1,080 m² of Mineral Open Beach Bar also includes the loss of approximately 0.99 percent of potential Piping Plover (Species at Risk) habitat. In addition, RESA 3 affects approximately 0.16 percent of the candidate Toronto Islands Area of Natural and Scientific Interest. However, these impacts are manageable through several strategies: Increased vegetation loss can be compensated through larger or ecologically equivalent compensation plantings using native species. Compensation or equivalent enhancement measures to beach and dune communities can ensure the vegetation removal does not result in long-term impacts to the remaining habitats and key ecological functions of these communities. The temporary impacts on Piping Plover habitat during construction will be minimized with targeted mitigation. Details of enhancement and restoration measures will be confirmed during detailed design in partnership with all Aquatic Habitat Toronto agencies who have representation from all levels of government. By leveraging these agencies shoreline expertise, habitat compensations strategies could advance the objectives of the Toronto Waterfront Aquatic Habitat Restoration Strategy, prior to the commencement of RESA construction, and to the satisfaction of the City of Toronto; acting reasonably. In addition, detailed design must also comply with all applicable airport safety regulations, ensuring that these measures do not inadvertently attract wildlife or pose bird hazard risks to airport operations. Taking all of these measures into account, the overall net negative effect of RESA 3 is anticipated to be low.

Refer to **Table 6-1** and **Table 6-2** for the mitigation measures for terrestrial ecosystems.

Fish and Fish Habitat

RESA 1 has the smallest in-water footprint (east end: 15,225 m²; west end: 20,770 m²), minimizing disruption to aquatic habitats, including those of aquatic Species at Risk (American Eel). RESA 2 has a larger in-water footprint (east end: 31,860 m²; west end: 26,995 m²), increasing the potential for habitat disruption, including those of the American Eel. RESA 3 has the largest in-water footprint (east end: 57,870 m²; west end: 30,380 m²), resulting in the greatest potential for impacts on aquatic habitats, including those of the American Eel. All RESA alternatives are expected to cause a moderate net negative effect on fish habitat due to the unavoidable loss of habitat within the aquatic study area. While construction-related impacts can be mitigated through mitigation measures and adherence to timing windows, each alternative will result in the loss of a significant area of fish habitat. However, these effects will be offset by aquatic habitat compensation measures, developed in consultation with Fisheries and Oceans Canada and the Ministry of the Environment, Conservation and Parks. Enhancement and / or restoration measures will be developed during detailed design in consultation with regulatory agencies and in partnership with the Toronto and Region Conservation Authority, which will cover an area equal in size or impact for each RESA alternative.

Refer to **Table 6-3** (construction) and **Table 6-4** (operation) for the mitigation measures for fish and fish habitat.

Marine Physical Environment

As stated by Shoreplan from their recent Sediment Transport Assessment (2024), any landmass expansion at the west end RESA will have a beneficial impact on sediment transport in the vicinity, reducing sedimentation in the Western Channel and potentially supporting the Gibraltar Point Sediment Management Plan, including trapping sediment along Hanlan's Point Beach, which will help to sustain the beach. The longer landmass extensions for both RESA 2 and RESA 3 offer greater long-term benefits for sediment transport. While RESA 1 still provides short-term benefits to sediment management, its smaller landmass expansion limits its ability to deliver the same long-term advantages as RESA 2 and RESA 3. RESA 1 is expected to have a low net positive effect, while RESA 2 and RESA 3 are expected to have a moderate net positive effect. Over time, sediment transport processes will generate a lakeshore morphology that has adapted to the barrier, and sediment will continue to be transported into the Western Channel. Effects on sediment erosion and deposition within the Inner Harbour are likely to be minor and negligible. No net effects on the water levels within the marine physical study area have been identified and there may be minor and localized changes related to wave formation and currents, specifically in the vicinity of the west end RESA and Western Channel. Erosion and sedimentation risk should be managed with appropriate

construction means and methods, to reduce the temporary and localized impacts from construction.

Refer to **Table 6-5** (construction) and **Table 6-6** (operation) for the mitigation measures for marine physical environment.

Water Circulation and Quality

The water quality effects assessment concluded that all RESA alternatives would have no impacts on water quality in the Inner Harbour. This conclusion is based on 3D modelling of Inner Harbour velocities and circulations performed by AECOM for previously considered runway extension alternatives, each of which is more of an encroachment into the harbour than the current proposed RESAs.

Refer to **Table 6-7** (construction) and **Table 6-8** (operation) for the mitigation measures for water circulation and quality.

Groundwater

None of RESA alternatives are anticipated to have any net effects related to groundwater.

Refer to **Table 6-9** for the mitigation measures for groundwater quality during construction.

Stormwater and Drainage

None of RESA alternatives are anticipated to have any net effects related to stormwater quality and quantity. RESA 2 and 3 will have moderate net positive effect on flood protection due to increased elevation of Taxiway D.

Refer to **Table 6-10** (construction) and **Table 6-11** (operation) for the mitigation measures for stormwater and drainage.

Soil and Sediments

All RESA alternatives have the potential to encounter, displace, and dispose of contaminated soil and sediment (i.e., various metals, mercury, polycyclic aromatic hydrocarbons, dioxins and furans were found in off-shore sediment samples at the east end of the Project Study Area in levels exceeding Table 3.1 Industrial / Commercial / Community Excess Soil Quality Standards) during construction activities. With the implementation of avoidance and mitigation measures, no net effects are anticipated.

Refer to **Table 6-12** for the mitigation measures for soil and sediments during construction.

Socio-Economic Environment

Air Quality

During construction, the cumulative concentrations at all sensitive and critical receptors within the air quality study area were below the applicable air quality criteria and standards for carbon monoxide, sulphur dioxide, suspended particulate matter, particulate matter (<10 microns), and particulate matter (<2.5 microns). However, nitrogen dioxide cumulative concentrations exceeded the federal Canadian Ambient Air Quality Standards for both the 1-hour and annual averaging periods at three sensitive receptors (1, 13, and 14) and two critical receptors (2 and 3). The highest annual nitrogen dioxide exceedance was observed at sensitive receptor 1 (marina on Stadium Road, located 0.18 kilometres from the construction site at Billy Bishop Toronto City Airport), primarily due to elevated existing ambient air quality levels, while the maximum 1-hour exceedance was at sensitive receptor 14 (a multi-unit residential dwelling located at 401 Queens Quay West, within 0.49 kilometres from the construction site at Billy Bishop Toronto City Airport), where emissions from the Project alone are predicted to exceed the federal Canadian Ambient Air Quality Standards less than 2% of the time. Additionally, odour and dust may cause temporary public annoyance at existing sensitive and critical receptors within the air quality study area.

During operation, the annual greenhouse gas emissions from on-road vehicle operations are projected to increase from 592 tonnes in 2023 to:

- 967 tonnes in 2027 (Future Conditions) for RESA 1, primarily due to the increase in distance traveled from the rerouting of vehicles to a restricted airside perimeter road. This increase accounts for only 0.00214% of Ontario's reported greenhouse gas emissions for the Transportation Sector in 2021 (45,000,000 tonnes). Although runway crossings are removed, delays from the control tower remain, resulting in no change to idling times.
- 974 tonnes in 2027 (Future Conditions) for RESA 2, also due to the increase in distance traveled from the rerouting of vehicles to a restricted airside perimeter road. This increase accounts for only 0.00216% of Ontario's reported greenhouse gas emissions for the Transportation Sector in 2021 (45,000,000 tonnes). As with RESA 1, delays from the control tower remain, resulting in no change to idling times.
- 891 tonnes in 2027 (Future Conditions) for RESA 3, due to the increase in distance traveled from the rerouting of vehicles to an unrestricted airside perimeter road. This increase accounts for only 0.00198% of Ontario's reported greenhouse gas emissions for the Transportation Sector in 2021 (45,000,000 tonnes). However, unlike RESA 1 and RESA 2, this alternative

eliminates the need for vehicles to stop at runway crossings, thereby avoiding idling times and partially offsetting the increased emissions associated with longer travel times.

For aircraft taxiway operations, annual greenhouse gas emissions are projected to decrease from 693 tonnes to 508 tonnes under both RESA 2 and RESA 3, due to improved taxiway efficiency and reduced fuel consumption. Since RESA 1 does not include any improvements to taxiways, no changes from the existing greenhouse gas emissions relevant to taxiway operation are anticipated.

Refer to **Table 6-13** (construction) and **Table 6-14** (operation) for the mitigation measures for air quality.

Noise

During construction, noise impacts for RESA 1 at all points of receptions are predicted to be negligible. For RESA 2 and RESA 3, sound levels from construction activities are predicted to exceed existing nighttime average background sound levels at two points of reception during Stage 3 construction (onshore work only). The difference in average nighttime sound levels is predicted to be potentially perceptible but have marginal impact (between 2 and 4 dB increase) at point of reception 4 (6 sub-receptors), and imperceptible (1 dB increase) and negligible at point of reception 5 (5 sub-receptors). Existing nighttime background noise conditions and predicted construction sound levels are anticipated to exceed Health Canada's thresholds for adverse sleep impacts at assessed points of reception. However, the estimated change in percentage of population 'highly annoyed' at all locations is less than Health Canada's suggested mitigation level. Although impacts are predicted to be below this threshold, recommendations for general construction noise mitigation measures have been developed, which may be implemented to reduce the risk of noise disturbance.

With taxiway modifications and noise walls in RESA 3, taxiway noise levels are predicted to range from negligible increase (0 to 1 dB increase) to significant reduction (more than 5 dB decrease), depending on source taxiway and receptor height, at points of reception 2 to 6, 10, and 19. Taxiway noise levels are predicted to range from negligible reduction (0 to 1 dB decrease) to marginal reduction (greater than 1 dB but less than 5 dB decrease) at the other points of reception.

With taxiway modifications (no noise walls) in RESA 2, taxiway noise levels are predicted to range from negligible increase (0 to 1 dB increase) to marginal reduction (1 to 5 dB decrease), depending on source taxiway and receptor height, at points of reception 2 to 8. Taxiway noise levels are predicted to range from negligible increase (0 to 1 dB increase) to negligible reduction (0 to 1 dB decrease) at the other points of reception.

RESA 1 does not change operational noise levels, offering no advantages, with no net effect.

Refer to **Table 6-15** (construction) and **Table 6-16** (operation) for the mitigation measures for noise.

Social Environment

For all RESA alternatives, the negative net effects are primarily the direct result of the infill of the Toronto Harbour that is required to construct the Project. Although the extent of the Marine Exclusion Zone is not changing, some residential and recreational users may experience a negative effect from infill, as it changes the viewshed and reduces passive enjoyment of the waterfront due to the reduction in visible water-area. Additionally, the infill from the RESA is a permanent change that fixes use of that area as land, precluding potential future uses of that area for water-based activities or enjoyment, impacting the Non-Use Values associated with the Toronto Waterfront and Harbour.

There are also positive net effects identified due to proposed design elements, including modifications to the alignment of Taxiway B and D and the construction of a new noise wall on the east side, and extension of the existing noise wall on the west end of the airport. Residents along the waterfront and recreational users of the area are expected to experience positive changes due to the taxiway modifications. These changes will result in a reduction of emissions due to reduced aircraft idling and taxi time, and a reduction in noise of aircraft when on the ground due to the new noise walls.

Finally, no net effects are anticipated for the economic and tourism conditions of the socio-economic study area, as all RESA alternatives will enable Billy Bishop Toronto City Airport to remain operational at current operating levels and continue its existing contribution to the economic, business and tourism uses within the socio-economic study area.

Refer to **Table 6-17** (construction) and **Table 6-18** (operation) for the mitigation measures for socio-economics.

Public Health

Refer to Air Quality and Noise.

Marine Navigation

In-water construction for all three RESA alternatives could potentially affect boaters due to the location of the construction equipment and construction lighting; however, notifying the boating community and adding signs/lighting will help mitigate the impact.

The addition of the landmass at the western and eastern RESA could change the pattern and reflection of waves, currents and sedimentation (water depths) as the coastal environment adjusts to the new landmass. However, replacement of the vertical sheet pile wall with the stone revetment will potentially reduce wave reflection, reducing negative impacts on vessels. Recreational and commercial boaters will need to adjust their approach to the Western Channel or around the eastern Marine Exclusion Zone. The west and east RESA extensions create a larger peninsula in the water. Boaters will need to travel further from the shoreline to view the waters beyond.

Refer to **Table 6-21** (construction) and **Table 6-22** (operation) for the mitigation measures for marine navigation.

Built Form and Land Use

No impact to current land use or any areas of planned or approved future development in the built form and land use study area is anticipated.

All alternatives incorporate the direction of the City of Toronto Official Plan's policies on Heritage Conservation (Policy 3.1.6). The landmass expansion in all three RESA alternatives will impact the lands currently designated as Natural Heritage System along the periphery of Billy Bishop Toronto City Airport indicated on Map 9 of the Official Plan (Policies 3.4.11 and 3.4.13). All alternatives will also alter the boundaries defined by Site and Area Specific Policies 192 and 194. All alternatives are subject to Policy 3.4.17 because of lakefilling in Lake Ontario. They all meet the natural hazard protection requirements outlined in this policy. All RESA alternatives will serve aviation uses in accordance with Site and Area Specific Policy 194. All RESA alternatives will impact the lands currently designated as Parks and Natural Areas indicated on Land Use Map 18 of the Official Plan, where development is generally restricted (Policies 4.3.2, 4.3.3, and 4.3.6).

RESA 1 meets the conditions of being an essential public work (City of Toronto, 2024a), which is a City of Toronto policy requirement for lakefilling in Lake Ontario and development in Parks and Natural Areas. It is consistent with Site and Area Specific Policies 192 and 194, following amendments made to the Tripartite Agreement in January 2025. RESA 1 and RESA 2 will have no impact on Natural Heritage System with Environmentally Significant Qualities and the Provincially Significant Natural Heritage Features (Policies 3.4.14 and 3.4.15). RESA 2 and RESA 3, pending the City's decision on whether they are considered essential public works, do not fully conform to lakefilling and land use policies. The expanded footprint of these alternatives may not conform with Site and Area Specific Policies 192 and 194 due to their extension into environmentally sensitive areas. RESA 3 will impact a portion of Natural Heritage System with Environmentally Significant Qualities and Provincially Significant Natural

Heritage Features. Overall, RESA 1 complies with existing municipal policies and is recognized by the City as qualifying essential public work required to approve lakefill projects. RESA 2 and RESA 3 are in partial conformity with land use policies, with some policy conflicts that may require resolution through planning tools.

Refer to **Table 6-23** for the mitigation measures for built form and land use.

Traffic and Transportation

It is anticipated that construction works for all three RESA alternatives are to be carried out during nighttime to avoid impacts to the airport operations. Materials are expected to be hauled to the island by barge to minimize traffic impacts on mainland intersections and airport operations. As such, impacts to vehicular traffic and pedestrian operations on the mainland, especially during peak periods, as well as on the island, are expected to be minimal. While some short-term traffic disruptions may occur during construction, efforts will be made to minimize traffic disruptions, where possible.

Refer to **Table 6-24** for the mitigation measures for traffic and transportation during construction.

Cultural Environment

Marine Archaeology

The marine archaeology study area is considered free of any marine archaeological resources, and no additional archaeological mitigation is required; however, compliance legislation must be adhered to in the event of the discovery of deeply buried cultural material or features.

Refer to **Table 6-25** for the mitigation measures for marine archaeology.

Terrestrial Archaeology

AECOM's Stage 1 background study for the Project has determined that the potential for the recovery of pre- and post-contact Indigenous and 19th century settler archaeological resources within the terrestrial archaeology study area has been removed due to natural areas being subject to extensive and intensive deep land alterations, as well as the remaining land consisting of a manufactured landmass. The terrestrial archaeology study area does not retain any archaeological potential. No impacts to land-based archaeological resources by the proposed undertaking are anticipated and no further archaeological assessment is recommended.

Refer to **Table 6-26** for the mitigation measures for terrestrial archaeology.

Cultural Heritage

Based on data collection including a review of heritage registers and previous heritage reporting, the Ministry of Citizenship and Multiculturalism Criteria Checklist (2016), stakeholder consultation, field review conducted by a Qualified Person, and professional knowledge and experience, 11 cultural heritage resources are located within or adjacent to the Project Study Area. One potential cultural heritage landscape, Hanlan's Point Beach, is anticipated to be directly impacted by this Project. RESA 3 is proposed to convert a small section (2108.5 m²) of this publicly accessible beach along the northern edge of Hanlan's Point Beach for the construction of a breakwater structure. As the proposed work is minor and will not hinder the remainder of beach's overall public use, no adverse impacts to its potential cultural heritage value are anticipated.

The Toronto Island Airport Terminal "A" Building and the Ned Hanlan Memorial, both listed on the Municipal Heritage Register, are located outside the Project Study Area. While all three alternatives are not anticipated to directly impact these built heritage resources, Section 3.1.6, Policy 22 of the City of Toronto's Official Plan stipulates that a Heritage Impact Assessment is required to evaluate the impact of a proposed alteration to a property on the Heritage Register, and/or to properties adjacent to a property on the Heritage Register. Therefore, individual Heritage Impact Assessments are required for the Toronto Island Airport Terminal "A" Building and the Ned Hanlan Memorial.

RESA 2 and RESA 3 offer an approximate 80 metres expansion from the seawall at the west end, compared to the approximate 50 metres expansion provided by RESA 1. This extended reach in RESA 2 and 3 would allow for longer-term sediment management and stability of Hanlan's Point Beach. Therefore, from a cultural heritage standpoint, RESA 2 and RESA 3 have moderately net positive effect compared to RESA 1.

Refer to **Table 6-27** (construction) and **Table 6-28** (operation) for the mitigation measures for cultural heritage.

E7. Climate Change Vulnerability Assessment

The primary objective of the Climate Change Vulnerability Assessment was to build on the previous work and conduct a Climate Change Vulnerability Assessment on the proposed RESA Alternatives and the associated infrastructure at Billy Bishop Toronto City Airport using the Public Infrastructure Engineering Vulnerability Committee High-Level Screening Guide. The Public Infrastructure Engineering Vulnerability Committee High-Level Screening Guide is a practical tool designed to help assess the potential risks that climate change poses to infrastructure. It provides a structured approach for identifying vulnerabilities and prioritizing areas that need more detailed analysis or immediate action. The guide is flexible and can be applied to various types of infrastructure, from single elements to entire portfolios.

The risk assessment for the historical period (1971-2000) and the future 2041–2070 and 2071–2100 timeframes using Shared Socio-economic Pathways 5-8.5 climate projections associated with high greenhouse gas emissions shows similar risks for most climate indicators across the periods. However, significantly higher risks were identified for heat waves (temperature-based heat warning frequency), extreme rainfall (100-year return values for daily rainfall), short-duration high-intensity rainfall (50-year return values for 15-minute rainfall), and thunderstorms. Only medium- and high-risk interactions were considered for developing adaptation measures, as this approach prioritizes critical vulnerabilities requiring immediate action or further study, while excluding low-risk interactions that do not necessitate action at this time.

The Project Team identified risk treatment and adaptation measures for reducing or controlling unacceptable risks to acceptable levels based on available literature and professional judgment. These measures are summarized in **Table 7-1**.

E8. Cumulative Effects

The Cumulative Effects Assessment evaluates the environmental, social, and economic changes caused by the Project in combination with other past, present, and reasonably foreseeable future projects and activities. This high-level assessment generally follows the Impact Assessment Agency of Canada guidance, and is based on professional judgment and available information, focusing on the Project's potential interactions with other developments.

The cumulative effects assessment demonstrates that the Project contributes to cumulative effects in the broader area. The key findings are:

- **Noise: Minor** cumulative effects during construction are manageable with mitigation and communication strategies across all RESA alternatives. While some projects contribute to a moderate magnitude of cumulative noise due to potential overlaps, the overall significance is reduced due to the localized extent, short-term duration, occasional frequency, and reversibility. RESA 2 and RESA 3's operational improvements may contribute to noise reduction during operation. Overall, the Project will result in a minor cumulative effect during construction, with RESA 2 and RESA 3 contributing to positive cumulative effects during operation.
- **Air Quality: Negligible** cumulative effects during construction are anticipated due to minimized emissions, limited temporal and spatial overlap, and effective mitigation measures. The overall low magnitude, localized extent, short-term duration, infrequent frequency, and full reversibility result in negligible cumulative effects.

- **Habitat Alteration: Moderate** cumulative effects are anticipated due to the additive loss of aquatic and terrestrial habitats from multiple lakefilling and shoreline modification projects. Projects with shoreline or in-water activities, such as the East Bayfront Project and Metrolinx Ontario Line Transit Project, contribute to additive habitat loss. RESA 3, with its larger construction footprint, results in a higher level of cumulative effect compared to RESA 1 and RESA 2. However, habitat compensation programs and habitat restoration measures are recommended to mitigate these effects and facilitate regional connectivity. Collaboration with other restoration projects is recommended to enhance regional ecosystems health and reduce the overall effect over time.
- **Transportation Disruptions: Negligible** cumulative effects during construction are minimized through nighttime scheduling and the use of barging. The low magnitude, localized extent, short-term duration, infrequent frequency, and full reversibility result in negligible cumulative effects during construction. The Project has no effect on traffic during the operation phase.

Recommendations:

- Refer to Mitigation measures provided in **Section 6** of this Report.
- Where feasible, engage with other proponents from nearby undertakings to co-ordinate habitat restoration efforts, plan construction schedules to avoid overlapping overly noisy or dusty activities, share data to ensure work is not duplicated, and align objectives to maximize ecological benefits.

With appropriate habitat compensation plans, and mitigation measures in place in co-ordination with proponents of the nearby undertakings, the Project can proceed without causing unacceptable cumulative impacts on aquatic and terrestrial habitats and other environmental components. Continued diligence in mitigation and collaboration will help ensure that cumulative effects remain within acceptable levels.

E9. Compliance With the City of Toronto Policies

The Project takes into account multiple policies under the City of Toronto's Official Plan, including those related to 'Toronto's Green Space System and Waterfront' (Policy 2.3.2.6), 'Heritage Conservation' (Policy 3.1.6), 'Natural Environment' (Policies 3.4.1, 3.4.3, 3.4.11, 3.4.13, 3.4.14, 3.4.15, 3.4.16) and Policy 3.4.17 (Lakefilling Projects in Lake Ontario). It also considers Policies 4.3.2, 4.3.3, and 4.3.6 concerning Parks and Open Space Areas.

Pertinent to the 'Natural Environment' policies, the potential impacts to habitat for aquatic and terrestrial native flora and fauna, water and sediment quality, landforms

(beaches and dunes), shorelines, seasonal movements of migration species have been identified. Sustaining, restoring and enhancing the health and the integrity of the natural ecosystem has been addressed through mitigation, enhancement and compensation considerations discussed in the Natural Heritage Effects Assessment Report in **Appendix B**. Additionally, mitigation measures to avoid or minimize impacts on air quality, noise, soil, surface and groundwater quality, and to manage stormwater quality and quantity, are outlined in the relevant tables in **Section 6** of this Report.

Specific to the 'Development in or Near Natural Heritage System' (Policies 3.4.11 and 3.4.13), portions of the Project including the shorelines on the east and west fall within or adjacent the City's Natural Heritage System. The terrestrial and aquatic natural heritage values to be impacted by all three RESA alternatives have been recognized, and all direct and indirect potential impacts have been assessed. Following Policy 3.4.14 (Natural Heritage System with Environmentally Significant Qualities), and Policy 3.4.15 (Provincially Significant Natural Heritage Features), the sensitive areas (e.g., Hanlan's Beach Environmentally Significant Area and the candidate Toronto Islands Life Science Area of Natural and Scientific Interest) within the Project impact area have also been assessed in detail, particularly for RESA 3. For all impacts to Natural Heritage System including sensitive areas, mitigation measures, including compensation and enhancement/restorations measures have been identified to minimize adverse impacts and where possible, restore and enhance the Natural Heritage System, and associated sensitive areas. Commitments to completing compensation and/or enhancement/restoration measures proportional to the area of impact for each RESA alternative have been made and the details of such including specific requirements and opportunities related to habitat compensation / offsetting will be developed and confirmed during detailed design with the City of Toronto, and in consultation with the relevant regulatory agencies (e.g., Fisheries and Oceans Canada) and relevant stakeholders (e.g., Toronto and Region Conservation Authority, Aquatic Habitat Toronto).

Given the landmass expansion into Lake Ontario, the Project is also required to follow Policy 3.4.17 regarding lakefilling. The Environmental Assessment demonstrates that the Project has no adverse impact on water quality and quantity, and the terrestrial and aquatic habitats will be protected with the implementation of the mitigation/compensation/restoration measures, where feasible. The Environmental Assessment study also confirms that the Project will not create or exacerbate existing natural hazards. RESA 1 meets the policy requirement of being an essential public work (City of Toronto, 2024a). The determination of whether RESA 2 and RESA 3 qualify as essential public works will depend on the City's decision through a separate process.

With Regard to policies related to Parks and Open Space Areas (Policies 4.3.2, 4.3.3 and 4.3.6), all RESA alternatives are located within or adjacent to Natural Areas, impacting these zones. The potential environmental impacts of all three alternatives

have been assessed and mitigation measures recommended aiming at minimizing harm, enhancing, and restoring the natural areas. The construction of a RESA is required to comply with the new Canadian Aviation Regulations as such there is no reasonable alternative to avoid impacts to these designated areas. However, RESA 1 has the least impact among the alternatives on Natural Areas.

In addition, Site and Area Specific Policies 192 & 194 apply to the Project, delineating the boundaries of the Toronto Islands and Billy Bishop Toronto City Airport, respectively. Compliance with RESA requirements will require altering the land boundary in the form of lakefills to the east and west island to accommodate the landmass/ breakwater structure, RESA, turf/grooved asphalt, and airside perimeter roads. The Tripartite 2025 Amending Agreement allows a minimal landmass extension to enable construction of a RESA in accordance with the draft site plan and uses as set out in Schedule “A” (the Proposed RESA Design). An Official Plan Amendment may be required for RESA 2 and RESA 3 to alter the Billy Bishop Toronto City Airport boundary.

Please refer to **Table 9-1** for detailed City of Toronto Official Plan 2024 policy requirements, their implications for the Project, and how these requirements will be addressed.

E10. Consultation

To facilitate the consultation process, the Project Team implemented the following engagement and consultation activities to reach Indigenous communities, members of the public, community groups, and federal, provincial and municipal agencies and provide the opportunity to submit comments and feedback for consideration by the Project Team:

- Project website (<https://www.safecleanquiet.ca>).
- Project Contact List.
- Emails via the Project Team email address (info@safecleanquiet.ca).
- Mailings/notifications (via physical mail or email).
- Newspaper advertisements.
- Public Meetings and Open House #1 (two sessions, held in-person on July 17, 2024, first session held from 2:00 to 4:00 pm and second session held from 6:00 to 8:00 pm, at George Brown College – Waterfront Campus).
- Public Meetings and Open House #2 (two sessions, held in person on October 15, 2024, first session held from 2:00 to 4:00 pm and second session held from 6:00 to 8:00 pm, at The Westin Harbour Castle Conference Centre).
- Correspondence and meetings with federal, provincial and municipal agencies.
- Outreach regarding engagement and consultation with Indigenous communities.

- Correspondence and meetings with technical stakeholders and local community groups.
- Draft Environmental Assessment Study Report consultation process.

E11. Next Steps and Commitments for Future Work

Table 11-1 identifies specific items to be reviewed and confirmed during the detailed design and construction phases of the Project. A list of federal and provincial legislation, and other jurisdictional permits and/or approvals applicable or potentially applicable to the Project are summarized in **Table 11-2**.

Following the publication of the Environmental Assessment Study Report, the Project is expected to advance through the following key activities and milestones: Detailed Design and Permitting Approvals, Stakeholder Consultation, Phase 1 Construction (breakwater construction and RESA development), and Phase 2 Construction (remaining Project elements).

As the owner and operator of Billy Bishop Toronto City Airport, PortsToronto required two amendments to the Tripartite Agreement to enable RESA construction to meet compliance of Transport Canada regulations by July 2027. These two amendments include:

- Extending the landmass to accommodate RESA.
- Extending the Tripartite Agreement's term to secure financing for this major capital Project.

On October 9, 2024, City Council passed motions which added 12 years onto the Tripartite Agreement, extending the airport lease to 2045, and endorsed the proposed landmass extension for RESA Alternative 1.

Despite the outcome of the present Environmental Assessment, a decision was required amongst the Tripartite Partners to amend the Tripartite Agreement, completed on January 28, 2025. The amended agreement provides the conditions required to achieve compliance with Transport Canada mandated RESA. Among the other conditions outlined in the amended agreement, PortsToronto shall develop a RESA construction management plan that minimizes community impacts including overnight work and shall develop a traffic management plan related to construction activities, prior to the commencement of construction, and to the satisfaction of the City, acting reasonably.

PortsToronto will now collaborate with City staff and Transport Canada to implement RESA based on the terms outlined in the January 2025 Tripartite Amending Agreement.

It is recommended that an addendum to the Environmental Assessment Study Report be prepared if a significant change in the environmental setting occurs or changes to the Project are proposed following the completion of the Environmental Assessment Study that result in new effects or significantly greater effects than what has been assessed. Key circumstances that may necessitate an addendum to this Project include significant changes in the environmental setting or adjustments to the Project's footprint, infrastructure, or activities that were not covered in this Environmental Assessment Study, during detailed design.

Table of Contents

1.	Introduction	1
1.1	Project Background	2
1.2	Billy Bishop Toronto City Airport	3
1.2.1	Land Ownership	3
1.2.2	Tripartite Agreement	3
1.3	The Proponent	6
1.4	Project Overview	6
1.4.1	Purpose and Need of the Project	6
1.4.2	Transport Canada's RESA Requirements	7
1.5	Study Areas	7
1.5.1	Project Study Area	7
1.5.2	Effects Assessment Study Areas	9
1.6	Environmental Assessment Process	11
1.6.1	Federal Impact Assessment Act	11
1.6.1.1	Designated Projects Under the Impact Assessment Act	11
1.6.1.2	Section 82 of the Impact Assessment Act	12
1.6.2	Ontario Environmental Assessment Act	13
1.6.3	City of Toronto Official Plan	14
1.7	Environmental Assessment Process Followed	15
1.8	Overview of the Environmental Assessment Study Report	17
2.	Planning Context	18
2.1	Provincial Planning Policies	18
2.1.1	Provincial Planning Statement	18
2.2	Regional Planning	19
2.2.1	Toronto Waterfront Aquatic Habitat Restoration Strategy	19
2.3	Municipal Planning	19
2.3.1	City of Toronto Official Plan	19
2.3.2	Toronto Island Park Master Plan	25
2.3.3	Bathurst Quay Neighbourhood Plan	25
2.3.4	Making Waves - Central Waterfront Secondary Plan II	25
2.3.5	Port Lands	26
2.4	Airport-related Planning	26
2.4.1	Billy Bishop Toronto City Airport Master Plan	26
2.4.2	PortsToronto Environmental Social and Governance Priorities	27
3.	Existing Conditions	28
3.1	Natural Environment	28
3.1.1	Terrestrial Ecosystems	28
3.1.1.1	Data Collection	28
3.1.1.1.1	Desktop Review	28
3.1.1.1.2	Field Investigations	28

3.1.1.2	Description of Existing Environmental Conditions	29
3.1.1.2.1	Natural Heritage Features	29
3.1.1.2.2	Policy Areas	29
3.1.1.2.3	Vegetation Communities and Plants	31
3.1.1.2.4	Wildlife and Wildlife Habitat	33
3.1.1.2.5	Significant Wildlife Habitat	34
3.1.1.2.6	Species at Risk	36
3.1.2	Fish and Fish Habitat	36
3.1.2.1	Data Collection	36
3.1.2.1.1	Desktop Review	36
3.1.2.1.2	Field Investigation Methodology	37
3.1.2.2	Description of Existing Environmental Conditions	37
3.1.2.2.1	Aquatic Habitat	37
3.1.2.2.2	Policy Areas	37
3.1.2.2.3	Fish Species	39
3.1.2.2.4	Aquatic Vegetation Species	39
3.1.2.2.5	Aquatic Species at Risk	40
3.1.3	Marine Physical Environment	40
3.1.3.1	Data Collection	41
3.1.3.2	Description of Existing Environmental Conditions	41
3.1.3.2.1	Shoreline Morphology	41
3.1.3.2.2	Sediment	41
3.1.3.2.3	Currents	42
3.1.3.2.4	Waves	42
3.1.3.2.5	Water Levels	42
3.1.4	Water Circulation and Quality	43
3.1.4.1	Data Collection	43
3.1.4.2	Description of Existing Environmental Conditions	43
3.1.4.2.1	Existing Processes Regulating Water Quality in the Toronto Harbour	43
3.1.4.2.2	Water Dynamics in the Toronto Harbour	44
3.1.5	Groundwater	44
3.1.5.1	Data Collection	44
3.1.5.2	Description of Existing Environmental Conditions	45
3.1.5.2.1	Groundwater Levels	45
3.1.5.2.2	Source Water Protection	45
3.1.6	Stormwater and Drainage	45
3.1.6.1	Data Collection	45
3.1.6.2	Description of Existing Environmental Conditions	45
3.1.7	Soil and Sediments	46
3.1.7.1	Data Collection	46
3.1.7.2	Description of Existing Environmental Conditions	46
3.1.7.2.1	Onshore	46
3.1.7.2.2	Offshore	46
3.1.7.2.3	Sediment Quality	47
3.2	Socio-Economic Environment	47
3.2.1	Air Quality	47
3.2.1.1	Data Collection	47
3.2.1.2	Description of Existing Environmental Conditions	48
3.2.2	Noise	50
3.2.2.1	Data Collection	50
3.2.2.2	Description of Existing Environmental Conditions	50

3.2.3	Socio-Economic Assessment	52
3.2.3.1	Data Collection	52
3.2.3.2	Description of Existing Environmental Conditions	53
3.2.4	Public Health	57
3.2.4.1	Data Collection	57
3.2.4.2	Description of Existing Environmental Conditions	57
3.2.4.2.1	Air Quality	57
3.2.4.2.2	Noise	58
3.2.5	Marine Navigation	58
3.2.5.1	Data Collection	58
3.2.5.2	Description of Existing Environmental Conditions	58
3.2.5.2.1	Type of Vessels and Shoreline Characteristics	58
3.2.5.2.2	Waves and Currents	59
3.2.6	Built Form and Land Use	59
3.2.6.1	Data Collection	59
3.2.6.2	Description of Existing Environmental Conditions	59
3.2.6.3	Existing Land Uses	59
3.2.6.3.1	Current Land Use Designation of Billy Bishop Toronto City Airport	59
3.2.6.3.2	Adjacent Land Uses	61
3.2.6.4	Future Planned or Approved Developments	63
3.2.7	Traffic and Transportation	64
3.2.7.1	Data Collection	64
3.2.7.2	Description of Existing Transportation Network	64
3.2.7.2.1	Road Network	64
3.2.7.2.2	Public Transit	64
3.2.7.2.3	Active Transportation	65
3.2.7.2.4	Billy Bishop Toronto City Airport Pedestrian Tunnel	65
3.2.7.2.5	Billy Bishop Toronto City Airport Marilyn Bell Ferry	65
3.3	Cultural Environment	65
3.3.1	Marine Archaeology	65
3.3.1.1	Data Collection	65
3.3.1.2	Description of Existing Environmental Conditions	66
3.3.2	Terrestrial Archaeology	66
3.3.2.1	Data Collection	67
3.3.2.2	Description of Existing Environmental Conditions	67
3.3.3	Built Heritage Resources and Cultural Heritage Landscapes	68
3.3.3.1	Data Collection	68
3.3.3.2	Description of Existing Environmental Conditions	68
3.4	Technical and Engineering	70
3.4.1	Airport Operations and Safety	70
3.4.2	Utilities and Servicing Infrastructure	70
3.4.3	Ice Formation	71
4.	Evaluation of Alternatives	72
4.1	Alternatives to the RESA	72
4.1.1	Alternatives To RESA	72
4.1.2	Do Nothing Alternative	72
4.2	RESA Alternatives	72
4.2.1	Step 1: Long Listed RESA Alternatives	72

4.2.1.1	Alternative 1: Reduction in Usable Runway Length	74
4.2.1.2	Alternative 2: Reconfigured Thresholds/Pre-Threshold Areas	74
4.2.1.3	Alternative 3: Engineered Materials Arresting System	77
4.2.1.4	Alternative 4: RESA 1 – Minimum Landmass	77
4.2.1.5	Alternative 5: RESA 2 – Taxiway Improvements	80
4.2.1.6	Alternative 6: Refined RESA 3 – Noise Wall and East Utility Conduit	80
4.2.1.7	Alternative 6B: RESA 3B – West Public Road/Pathway, Sound Barrier and Underground Utility Conduit	82
4.2.1.8	Consideration of Other RESA Alternatives	85
4.2.1.8.1	Deck on Piers Alternative	85
4.2.2	Step 2: Screening of Long Listed RESA Alternatives	85
4.2.2.1	Screened Alternatives	86
4.2.2.1.1	Alternative 1: Reduction in Usable Runway Length	87
4.2.2.1.2	Alternative 2: Reconfigured Thresholds/ Pre-Threshold Areas	87
4.2.2.1.3	Alternative 3: Engineered Materials Arresting Systems	87
4.2.2.1.4	Alternative 6B: RESA 3B - West Public Road/ Pathway, Sound Barrier and Underground Utility Conduit	89
4.2.3	Step 3: Short-listed RESA Alternatives	90
4.2.4	Evaluation Framework and Criteria	92
4.2.5	Evaluation of Short-listed RESA Alternatives	95
4.2.6	Summary of Evaluation	95
4.2.6.1	Summary of Technical and Engineering Evaluation	96
4.2.6.1.1	Summary of Ranking in Technical and Engineering Category	97
4.2.6.2	Summary of Natural Environment Evaluation	98
4.2.6.2.1	Summary of Ranking in Natural Environment Category	102
4.2.6.3	Summary of Socio-Economic Evaluation	103
4.2.6.3.1	Summary of Ranking in Socio-Economic Category	107
4.2.6.4	Evaluation Summary of Climate Change	109
4.2.6.4.1	Summary of Ranking in Climate Change Category	111
4.2.6.5	Summary of Cultural Environment Evaluation	111
4.2.6.5.1	Summary of Ranking in Cultural Environment Category	112
4.2.6.6	Summary of Cost and Constructability Evaluation	112
4.2.6.6.1	Summary of Ranking in Cost and Constructability Category	113
4.2.7	Step 4: Selection of Preferred RESA Alternative	113

5. Preferred Alternative 116

5.1	Design Components	116
5.1.1	Landmass	116
5.1.2	Utility Conduit	116
5.1.3	Taxiway and Visual Approach Slope Guidance System Modifications	117
5.1.4	Noise Barriers	117
5.1.5	Airside Operational Improvements	117

5.1.5.1	Relocation of Navigational Aid (Localizer 26)	117
5.1.5.2	Glidepath 08 (Navigational Aid)	118
5.1.5.3	Enhanced Visual Glide Slope Indicator System (Precision Approach Path Indicator 26)	118
5.1.6	Breakwater	119
5.1.7	Unrestricted Access Road	119
5.1.8	Run Up Pads	119
5.2	Constructability and Staging	120
5.2.1	Land Construction Activities	121
5.2.1.1	New Taxiway Construction and Removals	121
5.2.1.2	Utilities	122
5.2.1.3	Runway End Airside Access Roads	122
5.2.1.4	Relocation of Localizer 26	123
5.2.2	Marine Construction Activities	123
5.2.3	Construction Staging Areas	124
5.2.4	Construction Timing and Schedule	124

6. Potential Environmental Effects and Mitigation Measures

126

6.1	Natural Environment	126
6.1.1	Terrestrial Ecosystems	126
6.1.1.1	Net Effects Analysis - Construction	126
6.1.1.2	Net Effects Analysis - Operation	126
6.1.2	Fish and Fish Habitat	133
6.1.2.1	Net Effects Analysis - Construction	133
6.1.2.2	Net Effects Analysis - Operation	133
6.1.3	Marine Physical Environment	137
6.1.3.1	Net Effects Analysis - Construction	137
6.1.3.2	Net Effects Analysis - Operation	137
6.1.4	Water Circulation and Quality	141
6.1.4.1	Net Effects Analysis - Construction	141
6.1.4.2	Net Effects Analysis - Operation	141
6.1.5	Groundwater	143
6.1.5.1	Net Effects Analysis - Construction	143
6.1.5.2	Net Effects Analysis - Operation	143
6.1.6	Stormwater and Drainage	145
6.1.6.1	Net Effects Analysis - Construction	145
6.1.6.2	Net Effects Analysis - Operation	145
6.1.7	Soil and Sediments	148
6.1.7.1	Net Effects Analysis - Construction	148
6.1.7.2	Net Effects Analysis - Operation	148
6.2	Socio-Economic Environment	150
6.2.1	Air Quality	150
6.2.1.1	Net Effects Analysis - Construction	150
6.2.1.2	Net Effects Analysis - Operation	150
6.2.2	Noise	153
6.2.2.1	Net Effects Analysis - Construction	153
6.2.2.2	Net Effects Analysis - Operation	153
6.2.3	Social Environment	156

6.2.3.1	Net Effects Analysis - Construction	156
6.2.3.2	Net Effects Analysis - Operation	156
6.2.4	Public Health	161
6.2.4.1	Net Effects Analysis - Construction	161
6.2.4.2	Net Effects Analysis - Operation	161
6.2.5	Marine Navigation	164
6.2.5.1	Net Effects Analysis - Construction	164
6.2.5.2	Net Effects Analysis - Operation	164
6.2.6	Built Form and Land Use	166
6.2.6.1	Net Effects Analysis - Construction	166
6.2.6.2	Net Effects Analysis - Operation	166
6.2.7	Traffic and Transportation	169
6.2.7.1	Net Effects Analysis - Construction	169
6.2.7.2	Net Effects Analysis - Operation	169
6.3	Cultural Environment	171
6.3.1	Marine Archaeology	171
6.3.1.1	Net Effects Analysis - Construction	171
6.3.1.2	Net Effects Analysis - Operation	171
6.3.2	Terrestrial Archaeology	173
6.3.2.1	Net Effects Analysis - Construction	173
6.3.2.2	Net Effects Analysis - Operation	173
6.3.3	Cultural Heritage	175
6.3.3.1	Net Effects Analysis - Construction	175
6.3.3.2	Net Effects Analysis - Operation	175
7.	Climate Change Vulnerability Assessment	178
7.1	Data	178
7.1.1	Elements	178
7.1.2	Climate Data	179
7.2	Climate Risk Assessment	180
7.3	Risk Treatment and Adaptation Measures	181
8.	Cumulative Effects	183
8.1	Cumulative Effects Assessment Methodology	183
8.1.1	Scoping and Boundaries	183
8.1.2	Determining Potential Significance: Cumulative Effects Evaluation Decision Matrix	183
8.1.3	Net Effects Considered	184
8.2	Other Projects or Activities Considered	186
8.2.1	Airport Past, Current and Future Projects	186
8.2.2	City of Toronto Past, Current and Future Projects	186
8.2.2.1	Municipal Infrastructure & Development Projects	186
8.2.2.1.1	Lakeshore Boulevard West	186
8.2.2.1.2	Gardiner Expressway Strategic Rehabilitation Plan	187
8.2.2.1.3	East Bayfront Project	187
8.2.2.1.4	Don River and Central Waterfront Wet Weather Flow System	187
8.2.2.1.5	Lake Shore Boulevard East Reconfiguration	188
8.2.3	Provincial and Regional Projects	188

8.2.3.1	Ontario Place Revitalization	188
8.2.3.2	Metrolinx	188
8.2.3.3	Toronto Island Park Flood and Erosion Mitigation Project	189
8.2.3.4	The Port Lands Flood Protection Project	189
8.3	Cumulative Effects Analysis	189
8.3.1	Summary of Cumulative Effects	207
8.3.1.1	Noise	207
8.3.1.2	Air Quality	208
8.3.1.3	Habitat Alteration	209
8.3.1.4	Traffic Disruptions	211
8.4	Conclusion	212
9.	Compliance with the City of Toronto Policies	213
9.1	October 2024 Council Resolution	221
10.	Consultation	223
10.1	Overview of the Consultation and Engagement Process	223
10.1.1	Record of Consultation	223
10.2	Project Notices	224
10.2.1	Notice of Commencement of Environmental Assessment and Public Meeting and Open House #1	224
10.2.2	Notice of Public Meeting and Open House #2	224
10.2.3	Notice of Completion of the Environmental Assessment	224
10.3	Indigenous Community Consultation and Engagement	225
10.3.1	Meetings with Indigenous Communities	225
10.4	Engagement with Technical Stakeholders	228
10.5	Public Consultation	230
10.5.1	Public Meeting and Open House # 1	230
10.5.2	Public Meeting and Open House # 2	231
10.5.3	Public Review of the Draft Environmental Assessment Study Report	232
10.6	Consultation with Agencies	233
10.7	Project Website	234
10.8	Draft Environmental Assessment Study Report Public Consultation and Review Period	234
11.	Commitments for Future Work	237
11.1	Commitments to Future Work	237
11.2	Permits and Approvals	240
11.3	Next Steps	243
11.4	Project Changes	244
12.	References	246

Figures

Figure 1-1:	Land Ownership Map of Billy Bishop Toronto City Airport	5
Figure 1-2:	Project Study Area	8
Figure 1-3:	Environmental Assessment Key Steps – Federal, Provincial and the Project	16
Figure 3-1:	Natural Heritage Features	30
Figure 3-2:	Ecological Land Classification	32
Figure 3-3:	Aquatic Study Area	38
Figure 3-4:	Critical and Sensitive Receptors – Air Quality	49
Figure 3-5:	Points of Reception – Noise	51
Figure 3-6:	City of Toronto Land Use Plan	60
Figure 3-7:	Central Waterfront Secondary Plan	62
Figure 4-1:	RESA Alternatives Evaluation Process	73
Figure 4-2:	Alternative 1: Reduction in Usable Runway Length	75
Figure 4-3:	Alternative 2: Reconfigured Thresholds/Pre-Threshold Area	76
Figure 4-4:	Alternative 3: Engineered Materials Arresting Systems	78
Figure 4-5:	Alternative 4: RESA 1- Minimum Landmass	79
Figure 4-6:	Alternative 5: RESA 2 - Taxiway Improvements	81
Figure 4-7:	Alternative 6: RESA 3 - Noise Wall and East Utility Conduit	83
Figure 4-8:	Alternative 6B: RESA 3B – West Public Road/Pathway, Sound Barrier and Underground Utility Conduit	84

Tables

Table 1-1:	Study Area Definition by Discipline	10
Table 3-1:	Summary of 2024 Terrestrial Confirmatory Field Surveys Conducted for the Study Area	28
Table 3-2:	Aquatic Species at Risk Records Within the Vicinity of the Aquatic Study Area	40
Table 3-3:	Future Planned or Approved Developments	63
Table 3-4:	Summary of Built Heritage Resource and/or Cultural Heritage Landscapes Adjacent to the Cultural Heritage Study Area	69
Table 4-1:	Summary of RESA Alternatives Subject to Evaluation	91
Table 4-2:	Factors and Criteria for Evaluation of Short-Listed RESA Alternatives	93
Table 6-1:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Terrestrial Ecosystems – Construction	127
Table 6-2:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Terrestrial Ecosystems – Operation	132
Table 6-3:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Fish and Fish Habitat – Construction	134
Table 6-4:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Fish and Fish Habitat - Operation	136

Table 6-5:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Marine Physical Environment– Construction	138
Table 6-6:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Marine Physical Environment– Operation	139
Table 6-7:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Water Quality – Construction	142
Table 6-8:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Water Quality - Operation	142
Table 6-9:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Groundwater - Construction	144
Table 6-10:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Stormwater and Drainage - Construction	146
Table 6-11:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Stormwater and Drainage - Operation	147
Table 6-12:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Soil and Sediments – Construction	149
Table 6-13:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Air Quality – Construction	151
Table 6-14:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Air Quality – Operation	152
Table 6-15:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Noise-Construction	154
Table 6-16:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Noise-Operation	155
Table 6-17:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Social Environment – Construction	157
Table 6-18:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Social Environment - Operation	159
Table 6-19:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Public Health – Construction	162
Table 6-20:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Public Health - Operation	163
Table 6-21:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Marine Navigation – Construction	165
Table 6-22:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Marine Navigation - Operation	165
Table 6-23:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Built Form and Land Use – Operation	167
Table 6-24:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Traffic and Transportation – Construction	170
Table 6-25:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Marine Archaeology – Construction	172
Table 6-26:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Terrestrial Archaeology – Construction	174

Table 6-27:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Cultural Heritage – Construction _____	176
Table 6-28:	Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Cultural Heritage - Operation _____	177
Table 7-1:	Summary of Proposed Climate Change Adaptation Measures _____	182
Table 8-1:	Cumulative Effect Evaluation Decision Matrix _____	185
Table 8-2:	Cumulative Effects Analysis for Noise Increases During Construction _____	190
Table 8-3:	Cumulative Effects Analysis for Temporary Air Quality Degradation During Construction _____	194
Table 8-4:	Cumulative Effects Analysis for Habitat Alteration _____	197
Table 8-5:	Cumulative Effects Analysis for Traffic Disruptions During Construction _____	204
Table 9-1:	City of Toronto Official Plan Policy Alignment _____	214
Table 10-1:	Summary of Correspondence with Indigenous Communities _____	226
Table 10-2:	Summary of Meetings with Indigenous Communities _____	227
Table 10-3:	Summary of Technical Advisory Committee Meetings _____	229
Table 10-4:	Summary of Agency Consultation and Correspondence _____	235
Table 11-1:	Commitments to Future Work _____	238
Table 11-2:	Anticipated Key Permits and Approvals _____	241

Appendices

Appendix A.	Gap Analysis Memorandum
Appendix B.	Natural Heritage Effects Assessment Report
Appendix C.	Marine Physical Effects Assessment Report
Appendix D.	Water Quality Effects Assessment Report
Appendix E.	Borehole Drilling Report
Appendix F.	Air Quality Assessment Report
Appendix G.	Noise Impact Assessment Report
Appendix H.	Socio-Economic Report
Appendix I.	Marine Navigation Effects Assessment Report
Appendix J.	Marine Archaeology Assessment Report
Appendix K.	Stage 1 Terrestrial Archaeology Assessment Report
Appendix L.	Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment
Appendix M.	Evaluation Matrix
Appendix N.	Preliminary Design
Appendix O.	Consultation
Appendix P.	Climate Change Vulnerability Assessment Report
Appendix Q.	Tripartite Amending Agreement, January 2025

Acronyms and Abbreviations

RESA Runway End Safety Area

Glossary

Glossary Name	Description
Area of Natural and Scientific Interest	An area of land and water that represents significant geological and biological features.
Bathymetry	The study of underwater depth of lake or oceans floors.
Berm	A level space, shelf or raised barrier separating two areas.
Built Heritage Feature	A site with one or more significant buildings, structures, monuments, installations or remains associated with architectural, cultural, social, political, economic or military history and identified as being important to a community.
City of Toronto Official Plan	A plan to ensure that the City of Toronto evolves, improves and realizes its full potential in areas such as transit, land use development and the environment.
Climate Change	A change in the statistical distribution of weather over periods of time that range from decades to millions of years.
Combined Sewer Overflow	An event where stormwater exceeds the capacity of a combined sewer and stormwater/sewage are released to an adjacent water body.
Constructability	The feasibility of constructing a given project component.
Cumulative Effects	An assessment to identify the net effects of the proposal, taking into account the reasonably foreseeable future effects from other actions/projects anticipated within the same time and space as the proposed project.
Declared Distance	An aviation term which describes available runway lengths for the purpose of flight planning and aircraft operational performance calculations.
Environmental Assessment	A process for identifying project and environment interactions, predicting environmental effects, identifying mitigation measures, evaluating significance, reporting and following up to verify accuracy and effectiveness.
Environmentally Sensitive Area	An area with values which are identified to be of local interest and is designated and managed by a municipality or other regulatory authorities.

Glossary Name	Description
Gibraltar Point Erosion Control Project	A project undertaken by Toronto and Region Conservation Authority to provide long-term remedial erosion control works along the southwestern tip of the Toronto Islands known as Gibraltar Point in the City of Toronto.
Government Business Enterprise	A separate legal entity that has been delegated by the federal government the financial and operational authority to carry on a business that may sell goods and services to individuals and organizations outside of the government, maintain its own operations and meet its liabilities from revenues received from sources outside of the government.
Glidepath	A Glidepath is the vertical component of an Instrument Landing System that provides guidance to aircraft during their descent to the runway. It ensures the aircraft maintains the correct angle of descent for a safe landing.
Hydraulic Residence Time	The time required to replace/flush the total volume of water in the harbour, and is used as an indicator of water quality.
Inner Harbour	The area of Lake Ontario bound by the Toronto Islands and the northern shore of Lake Ontario. The Inner Harbour is accessed by the Western and Eastern Channels.
Instrument Landing System	The Instrument Landing System is a precision approach system that provides both lateral and vertical guidance to aircraft during landing.
Lakefill/Lakefilling	The placement of clean fill (material) into a lake to extend an existing landmass.
Marine Exclusion Zone	An in-water marked area in which no vessel shall enter for any purpose without the authorization of PortsToronto.
Mitigation Measure	An action or program intended to offset known impacts to an existing natural resource such as a stream, wetland or endangered species.
Negative Environmental Effects	The negative effects that a project has, or could potentially have, directly or indirectly on the environment at any stage in the project life cycle.
Net Effects	Negative environmental effects of a project and related activities that will remain after mitigation and impact management measures have been applied.
Non-Precision Approach	A Non-Precision Approach provides lateral guidance only, typically using navigational aids.

Glossary Name	Description
Noise Exposure Forecast	A measurement used to estimate how much noise from an airport will affect surrounding areas. It considers the number of flights, types of aircraft, and flight paths to predict the overall noise levels in a specific area.
Nuisance Effect	An effect of a project that is considered to be inconvenient or annoying (e.g., noise and traffic).
Obstacle Limitation Surface	The imaginary surface or series of surfaces that define the limits to which objects may project into airspace.
Outer Harbour	The area of Lake Ontario found between the Port Lands to the north and the Leslie Street Spit to the south. It is accessed by the Main Harbour Channel.
Precision Approach	A Precision Approach is an instrument approach that provides accurate lateral and vertical guidance to an aircraft during landing, typically using an Instrument Landing System. It ensures precise alignment and altitude control, allowing for safe landings in low-visibility conditions.
Runway 08/26	The main runway at Billy Bishop Toronto City Airport.
Runway End Safety Area (RESA)	A level graded area which extends beyond the runway threshold to provide an additional measure of safety in the event of an aircraft undershooting or overrunning the runway.
Shared Socio-economic Pathways	The scenarios that describe different ways society might evolve in the future, focusing on changes in population, economy, technology, and policies. They help researchers and policymakers understand how these changes could influence challenges related to climate change, like emissions, adaptation, and impacts.
Shoreline Morphology	Shoreline morphology refers to the shape, structure, and physical features of a shoreline, including how it changes over time due to natural processes like waves, currents, tides, and sediment movement, as well as human activities like construction or dredging.
Special Concern	A species that may become threatened or endangered due to a combination of biological characteristics and identified treats.
TP 312 - 5th Edition	The 5th edition of Transport Canada's Aerodrome Standards and Recommended Practices. In effect as of September 15, 2015.

Glossary Name	Description
Tripartite Agreement	An agreement originally drafted and signed by the City of Toronto, Transport Canada and PortsToronto in 1983. The Agreement details the conditions under which the Billy Bishop Toronto City Airport operates; such as the flight curfew, the noise limitations, the prohibition of the use of jet aircraft, the prohibition against any lengthening of the operational portion of the runway and the rights and responsibilities of each signatory.
Use Values	Community assets that exist because people use them, such as places, goods, and services associated with tourism and recreation opportunities.
Western Channel	The east-west channel found at the western end of the Inner Harbour between the Billy Bishop Toronto City Airport lands (Toronto Islands) and the Bathurst Quay Neighbourhood (mainland).

1. Introduction

PortsToronto, the owner and operator of the Billy Bishop Toronto City Airport, has conducted an Environmental Assessment for the implementation of a Runway End Safety Area (RESA) at this airport ('the Project').

The purpose of the Project is compliance with Canadian Aviation Regulations, Part III, Subpart 2, Division VI – Runway End Safety Area (RESA), published in January 2022. These regulations apply to Canadian airports that regularly serve at least 325,000 commercial passengers for two consecutive years. A RESA is an area adjacent to, or on, a runway designed to reduce the severity of damage to an aeroplane in the event that the aeroplane undershoots or overruns the runway. The creation of new RESA zones at Canadian airports has three objectives:

- Aligning with international standards and recommendations set by the International Civil Aviation Organization, which emphasizes the importance of RESAs in improving runway safety.
- Reducing the likelihood and severity of accidents involving aircraft overrunning the runway or undershooting it during takeoff or landing.
- Enhancing the safety of passengers and crew by providing an additional margin of safety in the event of an aircraft excursion beyond the runway.

The RESA regulations apply specifically to runways serving scheduled passenger air services. At Billy Bishop Toronto City Airport, RESA requirements only apply to the primary runway, Runway 08/26, as it is the only runway that is engaged in scheduled air service for the purpose of carrying passengers.

There are no regulatory requirements under the federal or the provincial acts that mandate the Environmental Assessment process for the Project. For the components of the Project that fall on Transport Canada-owned land, a Section 82 evaluation under the Impact Assessment Act is required. Additionally, the City of Toronto's Official Plan (2024) requires that lakefilling projects in Lake Ontario undergo an Environmental Assessment to protect or enhance water quality and quantity, and terrestrial and aquatic habitats.

The primary objective of this Environmental Assessment study is to identify a short-list of alternatives, evaluate their environmental effects, and identify the preferred RESA alternative. It also outlines mitigation and monitoring measures, compensation plan and commitments for future work. The Environmental Assessment seeks a clear understanding of both the positive and negative effects of implementing RESA at Billy Bishop Toronto City Airport. The findings are expected to inform and engage the public

and potentially affected stakeholders and provide information to support decision-making on design and construction of the preferred alternative, while meeting the requirements of Transport Canada and City of Toronto.

This Environmental Assessment is conducted based on the existing operational baseline, which will be maintained with the implementation of the RESA. It is not intended, nor should it be interpreted, as a comparison of the environment in the absence of the airport.

1.1 Project Background

The Billy Bishop Toronto City Airport's 2012 Airport Master Plan first identified RESA as a potential future requirement for Billy Bishop Toronto City Airport, based on Transport Canada's Notice of Proposed Amendment 2010-2012. This plan highlighted that Runway 08/26 would likely require RESA at both ends.

In 2014, PortsToronto retained AECOM Canada ULC., herein after referred to as "AECOM", to undertake an Environmental Assessment study for a proposed runway extension and introduction of jets at Billy Bishop Toronto City Airport. In November 2015, the Minister of Transport Canada announced that their government would not permit jet aircraft at Billy Bishop Toronto City Airport. In light of this announcement, PortsToronto made the decision to not proceed with further public engagement related activities pertaining to the Environmental Assessment. However, PortsToronto continued to complete the technical studies, compiling them into an Environmental Assessment report, herein after referred to as the "AECOM 2017 Environmental Assessment." This report evaluated the potential environmental impacts of a 200 metres extension at each end of Runway 08/26, and introduction of jet aircraft. In line with the 2012 Airport Master Plan, the AECOM 2017 Environmental Assessment incorporated RESA implementation as a future baseline condition, without the proposed extension of runway and jet operation.

Billy Bishop Toronto City Airport's 2018 Airport Master Plan further anticipated RESA requirements on Runway 08/26, under Notice of Proposed Amendment 2016-007, identifying Billy Bishop Toronto City Airport as one of the airports where RESA would likely be mandatory on runways serving scheduled commercial passenger services.

Since then, PortsToronto has engaged with Transport Canada, Fisheries and Oceans Canada, Toronto and Region Conservation Authority, and waterfront stakeholders, pursuing further studies across various disciplines to better understand the environmental and community impacts around the airport.

PortsToronto is now planning to implement RESAs on Runway 08/26 to comply with new Canadian Aviation Regulations requirements, addressing safety recommendations identified by the Transportation Safety Board of Canada for airports in Canada.

1.2 Billy Bishop Toronto City Airport

Billy Bishop Toronto City Airport is located on the northwest end of Centre Island, part of the Toronto Islands just offshore of Toronto's downtown business and tourism districts. The airport is bounded by the Inner Harbour to the east, Lake Ontario to the west, and the Western Channel, a 120 metres wide waterway to the north connecting the Inner Harbour to Lake Ontario.

Billy Bishop Toronto City Airport is Canada's ninth-busiest airport, and the sixth-busiest airport with passenger service to the United States. Billy Bishop Toronto City Airport serves over 20 cities in Canada and the United States, with connections to more than 80 international destinations. It is an important gateway for travel and a key part of Toronto's economy. The airport continues to add new destinations to meet growing demand. It is important to note that the addition of RESAs is driven by regulatory compliance requirements and is independent of the addition of new destinations to meet growing demand.

Billy Bishop Toronto City Airport also serves as a base for Ornge air ambulance services, two Fixed Base Operators, FlyGTA and Heli Tours, and is home to a personal/general aviation community that includes approximately 50 privately owned planes and two flight schools.

1.2.1 Land Ownership

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 percent) are owned by PortsToronto, 17 hectares (20 percent) by the City of Toronto, and 1.2 hectares (1.4 percent) by the federal government. Refer to **Figure 1-1**.

1.2.2 Tripartite Agreement

On June 30, 1983, a Tripartite Agreement was signed between the federal government, the City of Toronto and PortsToronto. The agreement was first amended in 1985 to allow the operation of the Bombardier (now De Havilland Canada) Q400 (known as the Dash-8), and again in 2003, to allow construction of a pedestrian tunnel. The Agreement required PortsToronto to operate Billy Bishop Toronto City Airport as a public airport for a period of 50 years (until June 2033). As outlined in the Agreement,

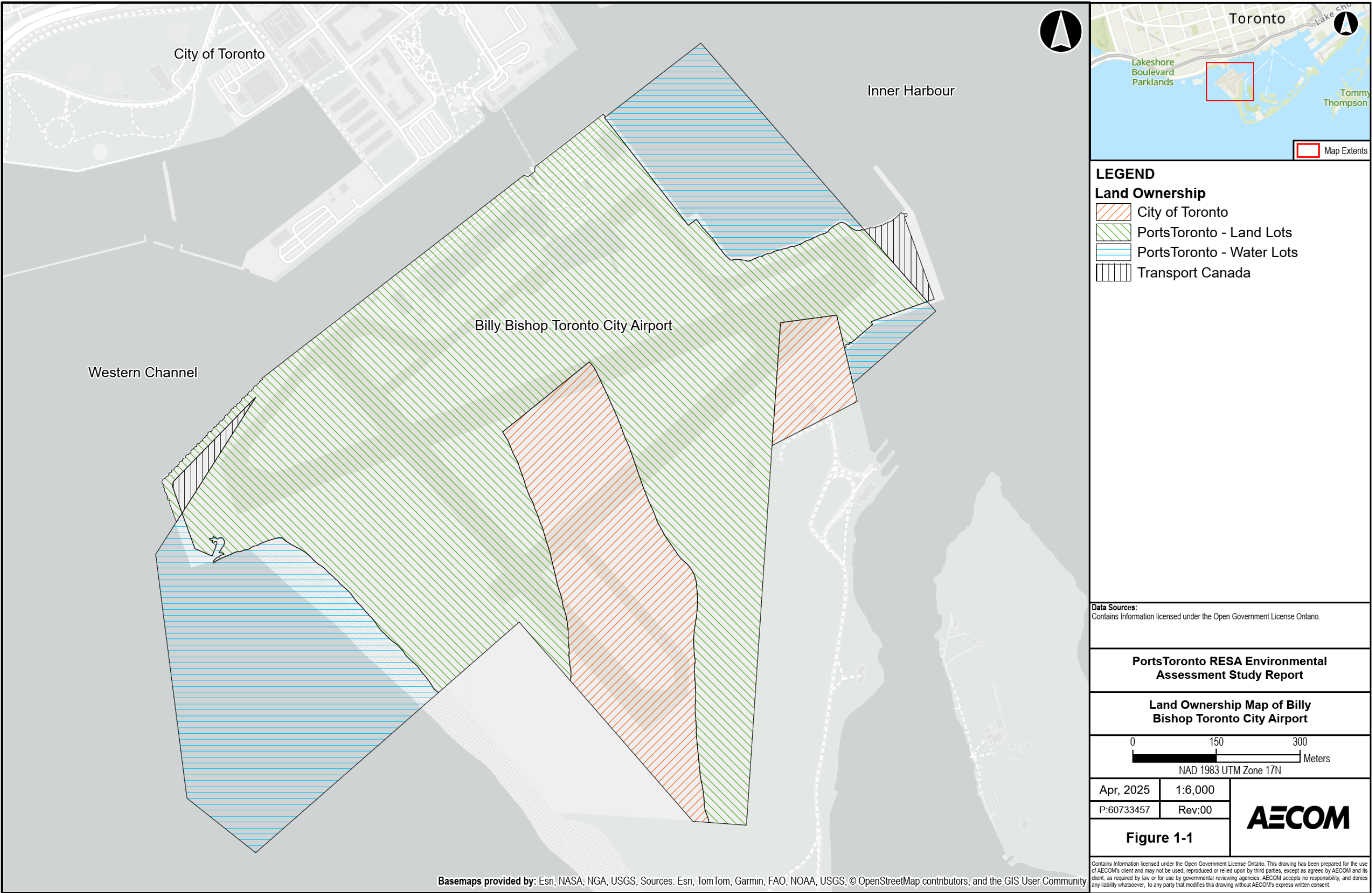
several special conditions must be met to operate the airport, all of which significantly impact the future development of the airport, the surrounding natural environment and extent of aviation activity. These conditions include:

- The construction of additional runways or extensions to existing runways is not permitted.
- Expansion of lands comprising the airport beyond the present land area is not permitted.
- Jet-powered aircraft are not permitted to operate from the airport, with the exception of medical excavations and other emergency uses.
- To regulate the potential noise impacts of aviation activity, the actual 28 Noise Exposure Forecast Contour associated with aviation activity must remain within the boundary of the official 25 Noise Exposure Forecast Contour for 1990.

Any amendments to the Tripartite Agreement require the approval of all signatories. For PortsToronto be able to comply with Transport Canada regulations and construct the RESAs, an extended landmass and a longer agreement term were required, which in turn necessitated amendments to the original 1983 Tripartite Agreement. In October 2024, City Council approved a motion to consider the proposed RESA details and negotiate an amendment to the Tripartite Agreement to permit a landmass extension to meet RESA compliance needs. The Council's decision includes specific conditions PortsToronto must meet. Refer to **Section 9.1** for details of these conditions.

On January 28, 2025, PortsToronto, in co-operation with its Tripartite Agreement partners Transport Canada and the City of Toronto, successfully amended the Tripartite Agreement governing Billy Bishop Toronto City Airport. The amendment enables important works required to achieve compliance with Transport Canada's RESA regulations designed to enhance safety at airports across the country. This amendment includes an extension of the Agreement's term, for financing purposes, to December 31, 2045. A copy of the 2025 Tripartite Amending Agreement is included in **Appendix Q**.

Figure 1-1: Land Ownership Map of Billy Bishop Toronto City Airport



1.3 The Proponent

PortsToronto, formerly known as the Toronto Port Authority, was established in 1999 as part of a federal initiative to modernize port administration. PortsToronto operates the Marine Terminal 52, which provides transportation, distribution, storage and container services to businesses at the Port of Toronto, the Outer Harbour Marina, and Billy Bishop Toronto City Airport. As a government business enterprise, it is mandated to be financially self-sufficient, and as such it does not receive any federal, provincial, or municipal funding. It operates under the Canada Marine Act and the Letters Patent¹ issued by the Minister of Transport Canada, which outline PortsToronto's permissible activities and governance structure.

PortsToronto is accountable to the federal government via Transport Canada and is guided by a nine-member Board of Directors, appointed by federal, provincial, and municipal governments: one by the City of Toronto, one by the Province of Ontario, one by Transport Canada, and six nominated by the Minister of Transport Canada in consultation with stakeholders across commercial, recreational, airport, and port sectors.

1.4 Project Overview

1.4.1 Purpose and Need of the Project

The primary purpose of the Project is to comply with new Canadian Aviation Regulations requirements in response to safety recommendations identified by the Transportation Safety Board of Canada.

PortsToronto is also exploring opportunities to enhance airport operational safety. This includes minimizing regular non-airport and airport vehicular crossings on Runway 08/26, currently necessary for both airport operations and Toronto Islands access requiring co-ordination with the Airport Traffic Control Tower. This effort supports Transportation Safety Board of Canada's objective to reduce the risk of runway incursions at airports.

Additionally, the Project will explore opportunities to reduce air emissions and ground-based noise, during operation, along the lakefront through more efficient use of taxiways, adding sound attenuation noise walls and providing unrestricted perimeter airside road access around the runway ends.

1. Letters Patent is issued by the Minister of Transport Canada under the Canada Marine Act. It outlines PortsToronto's legal authority, permissible activities and governance structure and mandate.

Building on past initiatives, such as incorporating servicing tunnels for City of Toronto utilities in the pedestrian tunnel project, the Project also considers other infrastructure needs based on utility supply requirements.

It is important to note that the implementation of the Project does not change the number and type of aircraft or the frequency of flights at Billy Bishop Toronto City Airport.

1.4.2 Transport Canada's RESA Requirements

The Canadian Aviation Regulations, Part 3, Sub-Part II, Division VI- RESA were registered on December 21, 2021. On January 5, 2022, the Canadian Aviation Regulations came into force and Transport Canada published Regulations in the Canada Gazette, Part II: SOR/2021-269 that mandate Canadian certified aerodromes to extend their current RESAs from the existing minimum 60 metres to a minimum length of 150 metres for existing and future runways. The requirement applies to those runways that serve scheduled air service for the purpose of carrying passengers.

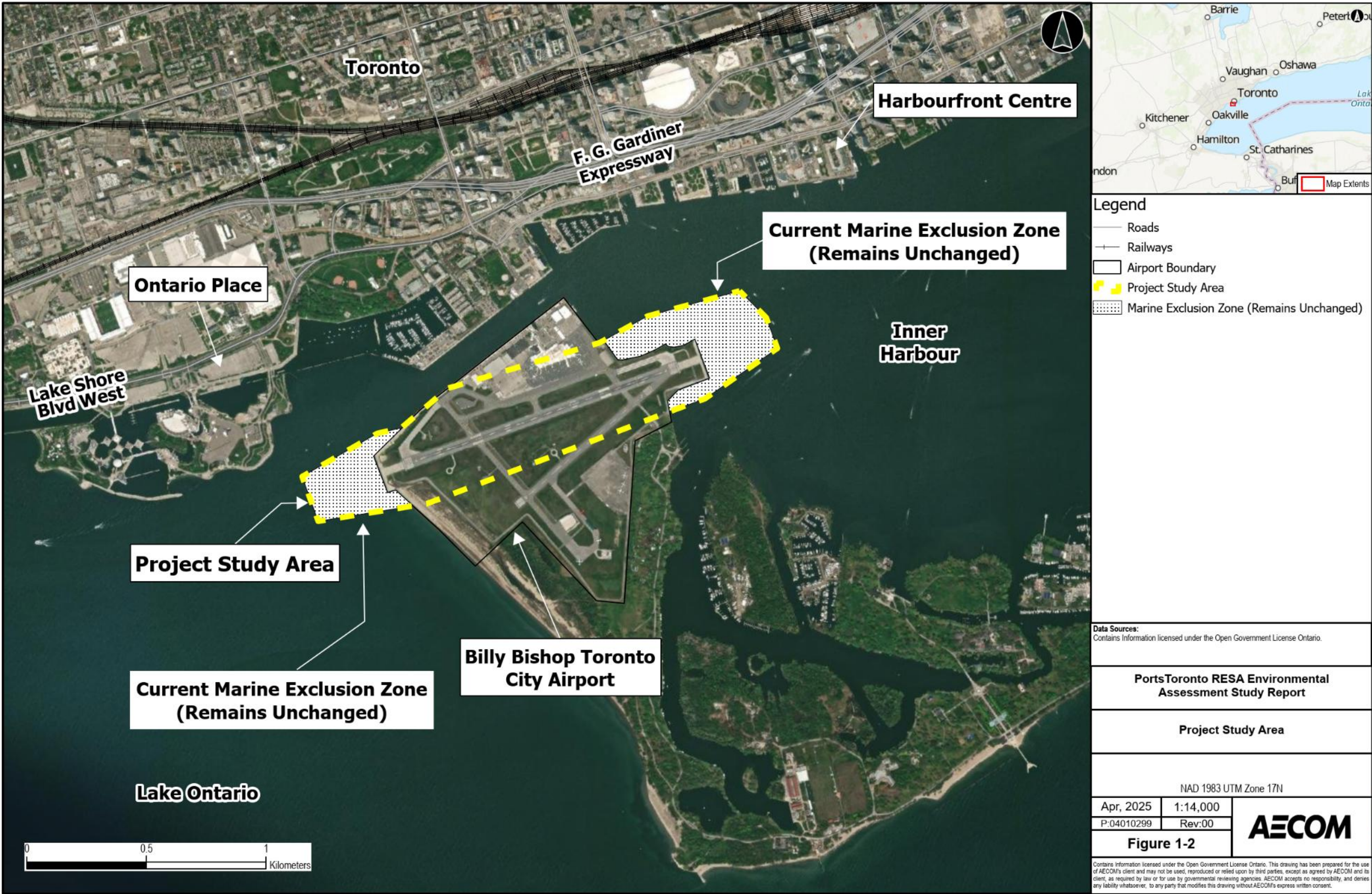
On a letter dated July 12, 2024, Transport Canada informed PortsToronto that, based on information collected by Transport Canada, in partnership with Statistics Canada under the Electronic Collection of Air Transportation Statistics initiative, Billy Bishop Toronto City Airport has surpassed the passenger volume threshold during a period of two consecutive calendar years (2022 and 2023). This requires PortsToronto, as the airport owner and operator, to comply with the RESA regulatory requirements within three years of the date of their letter, July 12, 2027. The official deadline for compliance is set at July 12, 2027. A copy of Transport Canada's letter is included in the Consultation records (**Appendix O**).

1.5 Study Areas

1.5.1 Project Study Area

The Project Study Area encompasses all Billy Bishop Toronto City Airport lands involved in the RESA implementation, including the Marine Exclusion Zone. The Marine Exclusion Zone is a buoy-marked area of the lake where vessel entry is prohibited without PortsToronto's authorization. The Project Study Area is illustrated in **Figure 1-2**.

Figure 1-2: Project Study Area



1.5.2 Effects Assessment Study Areas

The effects assessment for each environmental component was conducted within a geographic area where the specific effect can be reasonably assessed, quantitatively and/or qualitatively. These areas encompass the maximum possible Project footprint, and, depending on the environmental component, also extend to include lands adjacent to the largest Project footprint, relevant portions of the waterfront, nearby islands, and other pertinent sections of the urban landscape, as applicable. This approach ensures a thorough and methodical assessment of potential environmental effects across all relevant geographical contexts, from immediate Project vicinity to broader regional considerations.

Study areas were developed for each environmental component of the Project, to account for potential impacts. The specific study areas for each environmental component are defined in **Table 1-1**.

Table 1-1: Study Area Definition by Discipline

Discipline	Study Area Definition
Terrestrial Ecosystems	The study area for the terrestrial environment assessment includes adjacent lands within 120 metres of all three RESA alternatives. The 120 metre buffer complies with the Natural Heritage Reference Manual (Ministry of Natural Resources, 2010) for the identification and assessment of impacts to natural heritage features on adjacent lands.
Fish and Fish Habitat	The study area for the aquatic environment assessment focused on the Marine Exclusion Zones at two ends of Runway 08/26.
Marine Physical Environment	The study area for the marine physical effects assessment includes the areas in the vicinity of the landmass expansion, including the west and east ends of Runway 08/26, the Western Channel, and the western and eastern shoreline of the West Island.
Water Circulation and Quality	The study area for water circulation and water quality encompasses the Project Study Area and extends to include the entire Inner Harbour.
Groundwater	The study area for the groundwater study aligns with the Project Study Area (Figure 1-2).
Stormwater and Drainage	The study area for the stormwater and drainage study aligns with the Project Study Area (Figure 1-2).
Excess Soil and Sediments	The study area for the excess soil and sediments study aligns with the Project Study Area (Figure 1-2).
Air Quality	The air quality study area encompasses a 500-m buffer from the Project Study Area to capture potential air quality impacts. This 500-m buffer is recommended by the Ontario Ministry of Transportation’s Environmental Guide for Assessing and Mitigating the Air Quality Impacts and greenhouse gas emissions of Provincial Transportation Projects (2020) (“Ontario Ministry of Transportation Air Quality Guideline”).
Noise	The study area for noise assessment includes the nearest exposed noise-sensitive points of reception and considers the extents of aircraft noise contour limits as established in the Tripartite Agreement.
Social Environment	The study area for social environment assessment is bounded by the Gardiner Expressway to the north, Port Lands to the east (Leslie Street as boundary), Leslie Street Spit to the south, and Ontario Place to the west.
Public Health	The study area used to assess public health assessment aligns with the noise and air quality study areas.
Marine Navigation	The study area for marine navigation consists of local and regional study areas. The local study area for marine navigation includes the area around the two Marine Exclusion Zone. The regional study area for marine navigation extends into Inner Harbour, Outer Harbour and Humber Bay.
Built Form and Land Use	The study area for built form and land use assessment includes three major planning areas that are adjacent to Billy Bishop Toronto City Airport including Central Waterfront, Bathurst Quay Neighbourhood area, and Ontario Place.
Traffic and Transportation	The study for traffic and transportation focused on the mainland area surrounding the Billy Bishop Toronto City Airport ferry terminal; bounded by Lake Shore Boulevard to the north, Dan Leckie Way to the east, the Westen Channel to the south and Stadium Road to the west.
Marine Archaeology	The study area for marine archaeology assessment includes the in-water areas which may be physically affected by the Project undertaking.
Terrestrial Archaeology	The study area for terrestrial archaeology assessment includes the areas which may be physically affected by the Project undertaking.
Built Heritage Resources and Cultural Heritage	The study area for built heritage resources and cultural heritage assessment includes the areas which may be physically affected by the Project undertaking.

1.6 Environmental Assessment Process

1.6.1 Federal Impact Assessment Act

1.6.1.1 Designated Projects Under the Impact Assessment Act

The Impact Assessment Act establishes the federal framework for assessing the impacts of certain projects to prevent or mitigate significant adverse effects on the environment. To identify which projects require assessment, the Physical Activities Regulations under the Impact Assessment Act list specific types of "designated projects" that may pose risks warranting a detailed review. For such projects, proponents must submit an Initial Project Description to the Impact Assessment Agency of Canada. This description enables the Impact Assessment Agency of Canada to determine if a federal impact assessment is warranted based on the potential scale and scope of the project's impacts.

Following initial consultations, in a letter dated October 9, 2024, the Impact Assessment Agency of Canada confirmed that the Project does not meet the criteria of a designated project under the Physical Activities Regulations. As a result, an Initial Project Description was not required.

On November 14, 2024, the Minister of Environment and Climate Change Canada received a request from the community group, Parks not Planes, to designate the Project under Section 9 (1) of the Impact Assessment Act. On December 9, 2024, the Impact Assessment Agency of Canada sent a letter to PortsToronto notifying them of the designation request and requesting information on the proposed Project. PortsToronto responded to the Impact Assessment Agency of Canada's information request on December 23, 2024, providing details on the Project, the proposed design and its potential adverse effects.

The Impact Assessment Agency of Canada subsequently sought input from federal authorities, Ontario provincial ministries, the City of Toronto, the Toronto and Region Conservation Authority, and three potentially affected Indigenous communities: the Mississaugas of the Credit First Nation, Six Nations of the Grand River, and the Huron-Wendat Nation. On January 24, 2025, PortsToronto received a letter from the Impact Assessment Agency of Canada indicating that the Agency conducted a review, and the president of the Impact Assessment Agency of Canada made the decision not to designate the Project pursuant to Section 9 of the Impact Assessment Act, for the following reasons:

- The Project must be carried out in compliance with applicable federal and provincial legislative mechanisms and municipal policies.

- The requirements under the following legislative mechanisms, some of which include consultation with Indigenous communities and public engagement, provide a framework for addressing public concerns related to the adverse effects within federal jurisdiction or the direct or incidental adverse effects that may be caused by the carrying out of the Project and adverse impacts that the Project may have on the rights of Indigenous Peoples recognized and affirmed by section 35 of the Constitution Act, 1982.
- There is a means other than an impact assessment, such as the following legislative and policy mechanisms, that would permit a jurisdiction to address the adverse effects within federal jurisdiction and the direct or incidental adverse effects that may be caused by the carrying out of the project. These mechanisms include:
 - federal legislation, including the environmental effects determination pursuant to section 82 of the Impact Assessment Act, Canadian Navigable Waters Act, Federal Real Property and Federal Immovables Act–Tripartite Agreement, Fisheries Act, and the Migratory Birds Convention Act, 1994.
 - provincial legislation, including the Endangered Species Act, 2007, the Fish and Wildlife Conservation Act, 1997, and the Ontario Heritage Act.
 - municipal policies, including City of Toronto’s Official Plan and Municipal Code.

For more information, please see **Appendix O** detailing the correspondence with the Impact Assessment Agency of Canada.

1.6.1.2 Section 82 of the Impact Assessment Act

Section 82 of the Impact Assessment Act applies to projects on federal lands². According to this section, a federal authority cannot carry out a project on federal lands or approve it under any Act of Parliament unless it determines the project is unlikely to cause significant adverse environmental effects. If the project may cause such effects, it can only proceed if the Governor in Council decides these effects are justified.

For this Project, the majority of the affected land area, as well as the water lots around the airport lands, are owned by PortsToronto. Under PortsToronto’s Letters Patent, these lands and water lots are held as non-federal properties; therefore, Section 82 of the Impact Assessment Act is not triggered for these areas. However, some

2. Section 82 of Impact Assessment Act also applies to projects outside of Canada; however, this is not applicable to this Project.

components of the Project include pavement works on Transport Canada-owned land, which consist of vegetation clearing, removal of existing pavement, laying of new granular and pavement, and site restoration.

According to Section 5(1) Designated Classes of Projects Order, under the Impact Assessment Act, pavement works fall under a certain class of projects (Physical Works Related to Building or Other Structure) for which a determination under Section 82 wouldn't be required if they have a footprint of no more than 1,000 square metres. For this Project, the pavement works on Transport Canada land exceed the 1,000 square metre threshold, meaning a Section 82 evaluation is required for these specific works. According to Transport Canada's guidance, the Section 82 evaluation would be scoped only on the components of the Project that fall on federal land, not to the entirety of the Project.

To meet their joint requirements under Section 82 of the Impact Assessment Act, PortsToronto and Transport Canada have undertaken an Environmental Effects Evaluation to determine if the Project components on Transport Canada's land could cause adverse environmental effects. On January 27, 2025, Transport Canada and PortsToronto issued their Notice of Determination, and it was deemed that the Project is not likely to cause significant adverse environmental effects on federal land.

The Notice of Determination is posted on the federal Impact Assessment Agency of Canada registry. A copy is available in **Appendix O**.

Transport Canada has been actively engaged in the Environmental Assessment process from the start of the Project, participating in Technical Advisory Committee meetings and the public meetings and open houses 1 and 2 held for the Project.

1.6.2 Ontario Environmental Assessment Act

The Ontario Environmental Assessment Act is a provincial regulatory framework that provides a structured planning and decision-making process aimed at identifying and evaluating potential environmental impacts before a project begins. The Act applies to public entities, including provincial ministries, municipalities, and conservation authorities, and covers projects including infrastructure developments, waste management, resource management initiatives, and flood protection.

As the operation of airports falls under the federal government's jurisdiction, the Province of Ontario has no authority under the Environmental Assessment Act regarding the Project. Therefore, no provincial Environmental Assessment requirements are anticipated, and there is no mandate to carry out the Project following a specific provincial process.

PortsToronto has consulted with the Ministry of the Environment, Conservation and Parks to confirm the Project's exemption from Ontario Environmental Assessment Act jurisdiction. On July 16, 2024, PortsToronto submitted a letter to the Ministry of the Environment, Conservation and Parks to confirm that the Project does not trigger the requirements of the Ontario Environmental Assessment Act. In an email letter dated December 18, 2024, the Ministry of the Environment, Conservation and Parks confirmed that the Project does not require a provincial Environmental Assessment under the Environmental Assessment Act, as airports fall under federal jurisdiction. A copy of the Ministry of the Environment, Conservation and Parks letter is included in the consultation records (**Appendix O**).

1.6.3 City of Toronto Official Plan

While the Project does not trigger a Municipal Class Environmental Assessment process under the Ontario Environmental Assessment Act as PortsToronto is not a municipal proponent, the City of Toronto's Official Plan, Section 3, Policy 17 (2024) stipulates that lakefilling projects in Lake Ontario will be supported by the City only where:

- a) "the created land will be used for natural habitats, public recreation or essential public works.
- b) the project has been the subject of an Environmental Assessment which ensures that water quality and quantity and terrestrial and aquatic habitat will be protected or enhanced.
- c) the project does not create new or aggravate existing natural hazards."

During the completion of the RESA Environmental Assessment, policy guidance from the City of Toronto has been integrated in consultation with the City.

City of Toronto has been involved in the Environmental Assessment process from the start of the Project, participating in Technical Advisory Committee meetings and the public meetings and open houses 1 and 2 held for the Project. A copy of the overall RESA Environmental Assessment work program was shared with the City for review and feedback, providing an opportunity to ensure that the RESA Environmental Assessment process satisfies the City's Official Plan Requirements for completing an Environmental Assessment for lakefilling in Lake Ontario (Refer to **Appendix O**).

1.7 Environmental Assessment Process Followed

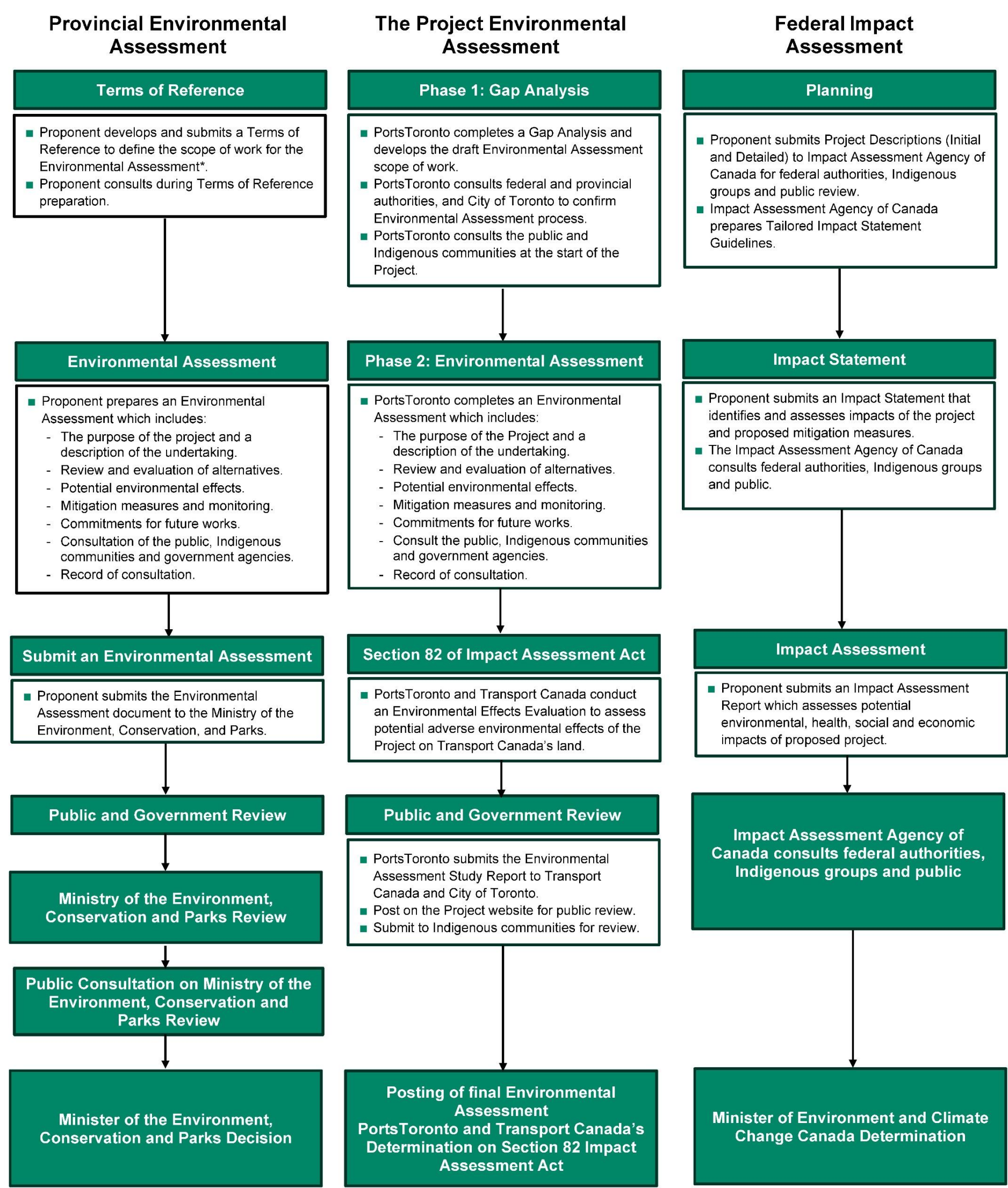
Figure 1-3 illustrates the key steps taken for the RESA Environmental Assessment, as well as the main steps in the federal impact assessment and provincial Environmental Assessment processes.

As illustrated in **Figure 1-3**, the Environmental Assessment process for the Project was structured into two main phases. Phase 1, the Gap Analysis, involved a comprehensive review of existing studies, including the AECOM 2017 Environmental Assessment and subsequent supplementary studies. PortsToronto consulted with Transport Canada and the City of Toronto to confirm their expectations for the Environmental Assessment process and results. The findings of the Gap Analysis were compiled into a memorandum outlining gaps and recommending actions to be taken into consideration as part of the next Environmental Assessment phase (**Appendix A**). Phase 2 focused on the assessment of environmental effects of the Project, and included the following steps:

- Define the purpose of the Project and a description of the undertaking.
- Identify existing environmental conditions.
- Identify RESA alternatives.
- Develop evaluation factors and criteria, and complete evaluation of RESA alternatives.
- Identify the Preferred RESA Alternative.
- Conduct a detailed net effects assessment of the RESA Alternatives and identify the net effects.
- Develop mitigation measures and monitoring plan.
- Identify commitments for future works.
- Engagement and consultation with stakeholders throughout the process.
- Prepare an Environmental Assessment Study Report.

The Environmental Assessment process included multiple opportunities for review and comment throughout the preparation of the Environmental Assessment Study Report. The engagement process enabled input from the public, Indigenous communities, stakeholders, and agencies, ensuring feedback and comments were received and addressed appropriately. This comprehensive approach ensures a thorough assessment of the environmental impacts of the Project, considering both current conditions and potential future changes. The process is designed to be transparent, involving key stakeholders and addressing regulatory requirements while prioritizing safety and environmental protection at Billy Bishop Toronto City Airport.

Figure 1-3: Environmental Assessment Key Steps – Federal, Provincial and the Project



Note: * Individual Environmental Assessment Process.
 Source: 1) Preparing Environmental Assessment , Ministry of the Environment, Conservation and Parks, 2024a.
 2) Impact Assessment Process Overview, Government of Canada, 2024.

1.8 Overview of the Environmental Assessment Study Report

This RESA Environmental Assessment Study Report is organized into the following sections:

- **Section 1:** Introduces the Project, its background, the proponent, and purpose and need of the Project. It outlines the study areas, and describes the Environmental Assessment process followed.
- **Section 2:** Provides an overview of the planning context, highlighting relevant policies and frameworks that influence the Project.
- **Section 3:** Establishes baseline environmental conditions potentially affected by the Project.
- **Section 4:** Details the identification and evaluation of alternatives including alternatives to RESA, review of long-listed RESA alternatives, the screening process to identify short-listed RESA alternatives, evaluation criteria, and selection of the preferred alternative.
- **Section 5:** Provides the details of the preferred RESA alternative, including its conceptual design and preliminary construction plan.
- **Section 6:** Describes potential environmental effects, mitigation measures and monitoring.
- **Section 7:** Outlines the Climate Change Vulnerability Assessment for the proposed RESA Alternatives at Billy Bishop Toronto City Airport, using the Public Infrastructure Engineering Vulnerability Committee High-Level Screening Guide to assess and prioritize climate change risks to infrastructure.
- **Section 8:** Describes the approach taken for the cumulative effects assessment, evaluating how the Project may interact with other existing or planned projects in the area.
- **Section 9:** Outlines compliance with the City of Toronto policies applicable to the Project, including the October 2024 Council Resolution.
- **Section 10:** Summarizes the consultation efforts undertaken throughout the Project, detailing stakeholder engagement activities and the feedback received.
- **Section 11:** Outlines future commitments including commitments related to the Project (i.e., obligations for further work, necessary permits and approvals, etc.), the next steps; and Project changes.

2. Planning Context

2.1 Provincial Planning Policies

2.1.1 Provincial Planning Statement

The Provincial Planning Statement (2024) is Ontario's key planning framework, providing policy direction on land use planning and development. The latest version of the Provincial Planning Statement, effective October 2024, replaces the 2020 Provincial Planning Statement and A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2019), streamlining provincial land use planning framework.

The Provincial Planning Statement includes policies that provide guidance for planning and developments in the vicinity of airports. Namely, the Provincial Planning Statement aims to preserve long-term airport operations and economic utility by promoting land use compatibility of adjacent developments. The policy states that airport facilities must be appropriately designed, buffered, or separated from other major facilities or sensitive land uses. Where avoidance is not possible, mitigation and minimization of potential adverse effects (e.g., odour, noise) to adjacent major facilities, sensitive land uses, and public health and safety must be implemented, while preserving long-term operational and economic viability of the major facilities.

The Provincial Planning Statement also outlines several provisions protecting airports from incompatible uses. Sensitive land uses, specifically new residential developments, are prohibited in areas near airports with a Noise Exposure Forecast³ above 30. The policy encourages the consideration for redevelopment or infilling of existing sensitive land uses in areas near airports with a Noise Exposure Forecast above 30, only if there will be no impact on the long-term function and safety or the airport and aviation, respectively.

Additionally, Chapter 4 of the Provincial Planning Statement provides guidance on the wise use and management of resources. It states that natural features shall be protected for the long-term, and that the diversity and connectivity of natural features, and the long-term ecological function and biodiversity of Natural Heritage Systems should be maintained, restored or, where possible, improved.

3. A Noise Exposure Forecast is a metric used to estimate how much noise from an airport will affect surrounding areas. It considers the number of flights, types of aircraft, and flight paths to predict the overall noise levels in a specific area.

2.2 Regional Planning

2.2.1 Toronto Waterfront Aquatic Habitat Restoration Strategy

The Toronto Waterfront Aquatic Habitat Restoration Strategy aims to develop an aquatic habitat restoration strategy that will maximize the potential ecological integrity of the Toronto waterfront. Developed in 2003, the Toronto Waterfront Aquatic Habitat Restoration Strategy strives to create a more sustainable waterfront by using an ecosystem approach to increase ecological integrity, provide suitable conditions for the maintenance of self-sustaining aquatic communities, and improve ecological connectivity.

Aquatic Habitat Toronto is responsible for the implementation of the Toronto Waterfront Aquatic Habitat Restoration Strategy, providing valuable insights into the current conditions of the Toronto Waterfront and offering design recommendations for habitat restoration across various environments. Aquatic Habitat Toronto represents a consensus-based partnership with a vested interest in the improvement of aquatic habitat on the Toronto Waterfront. Partner agencies include: Environment and Climate Change Canada (now Canada Water Agency) (Co-Chair), Toronto and Region Conservation Authority (Co-Chair), Fisheries and Oceans Canada, Ministry of Natural Resources, City of Toronto Water and Wastewater Divisions, Waterfront Toronto, Mississaugas of the Credit First Nation, and PortsToronto.

PortsToronto, has been a collaborative member of Aquatic Habitat Toronto for many years based on the common stewardship goals of all levels of government and waterfront agencies. The Toronto Waterfront Aquatic Habitat Restoration Strategy aligns with the Canada-Ontario Great Lakes Water Quality Agreement, and the targets identified for Lake Ontario.

2.3 Municipal Planning

2.3.1 City of Toronto Official Plan

This section provides a summary of policies and objectives outlined in the City of Toronto's Official Plan (the Official Plan) that are relevant to the Project (City of Toronto, 2024c). For further details on how the Project addresses these City policies, please refer to **Section 9** of this Report.

Section 2.3.2 Toronto's Green Space System and Waterfront

Section 2.3.2 of Toronto's Official Plan, Green Space System and Waterfront – Policy 6 states that increased public enjoyment and use of waterfront lands will be encouraged

by ensuring that future development and actions from both public and private sectors, including the Toronto Port Authority, will help to achieve the following objectives:

- c)...improve water quality and the quality of beaches.
- g) maintain and enhance the natural heritage of lands near or along the water's edge by protecting existing habitats and, where appropriate, restoring and improving habitat....

Section 3.1.6 Heritage Conservation

Due to the presence of heritage features situated within and/or adjacent to the Project Study Area, some policies from Section 3.1.6 of the City's Official Plan are relevant to the Project, as follows:

- Policy 2 states that properties and Heritage Conservation Districts of potential cultural heritage value or interest shall be identified and evaluated to determine their cultural heritage value or interest consistent with provincial regulations, where applicable, and will include the consideration of cultural heritage values including design or physical value, historical or associative value and contextual value. The evaluation of cultural heritage value of a Heritage Conservation District may also consider social or community value and natural or scientific value. The contributions of Toronto's diverse cultures will be considered in determining the cultural heritage value of properties on the Heritage Register or scientific value.
- Policy 3 states that Heritage properties of cultural heritage value or interest, including Heritage Conservation Districts and archaeological sites that are publicly known will be protected by being designated under the Ontario Heritage Act and/or included on the Heritage Register.
- Policy 4 states that properties on the Heritage Register will be conserved and maintained consistent with the Standards and Guidelines for the Conservation of Historic Places in Canada, as revised from time to time and as adopted by Council.
- Policy 5 states that proposed alterations, development, and/or public works on or adjacent to, a property on the Heritage Register will ensure that the integrity of the heritage property's cultural heritage value and attributes will be retained, prior to work commencing on the property and to the satisfaction of the City. Where a Heritage Impact Assessment is required in Schedule 3 of the Official Plan, it will describe and assess the potential impacts and mitigation strategies for the proposed alteration, development or public work.

- Policy 22 states that Heritage Impact Assessment will address all applicable heritage conservation policies of the Official Plan and the assessment will demonstrate conservation options and mitigation measures consistent with those policies. A Heritage Impact Assessment shall be considered when determining how a heritage property is to be conserved.
- Policy 23 states that Heritage Impact Assessment will evaluate the impact of a proposed alteration to a property on the Heritage Register, and/or to properties adjacent to a property on the Heritage Register, to the satisfaction of the City.
- Policy 35 states that development and site alteration will be permitted on lands containing archaeological resources or areas of potential only where the archaeological resources have been assessed, documented, and conserved. Any alterations to known archaeological sites will only be preformed by licenced archaeologists.
- Policies 36 through 39 address the requirements of archaeological assessments, mitigation of archaeological resources, and best practices for Indigenous engagement.
- Policy 42 states that the City may require an Archaeological Assessment for marine archaeological remains and artifacts, to be conducted by licensed marine archaeologist, when a development is proposed in or along the waterfront and/or shoreline.

Section 3.4 The Natural Environment

Section 3.4 discusses the Natural Heritage System and stresses the importance of protecting, restoring, and enhancing these natural areas, which play a vital role within and beyond the city's boundaries.

Specific to this Project, Policy 1(a) refers to minimizing air, soil, and water pollution, managing the quantity and improving the quality of stormwater and groundwater infiltration, and mitigating the unacceptable effects of noise and light. Policy 1(b) states that development should respect terrestrial and aquatic habitats, water and sediment quality, migration species, landforms, ravines, watercourses, wetlands and the shoreline and associated biophysical processes.

Policy 3 states that a study will be required, when appropriate, to assess a proposed development's impact on the natural environment and propose measures to reduce negative impacts on and where possible improve, the natural environment.

Policy 11 indicates that development is generally not allowed within the Natural Heritage System. However, where the land use designation permits development in or adjacent to this system, it must:

- a) recognize the natural heritage values and potential effects on the ecosystem to the extent reasonably possible, given the area's other objectives.
- b) minimize negative impacts and, where feasible, work to restore and enhance the Natural Heritage System.

Policy 13 indicates that any developments in or near the Natural Heritage System need to be reviewed to determine their effects and identify measures to reduce negative effects or enhance the system. To support this further, an impact study is required based on established guidelines.

Policy 14 also regulates that development or site alteration, aside from appropriate trails and conservation, flood, or erosion control projects, is generally not allowed on lands within the Natural Heritage System. Activities must align with the preservation of natural features and ecological functions. New or expanded infrastructure should only be considered if no reasonable alternatives exist, impacts are minimized, and natural features are restored or enhanced where possible. Any proposed projects in these areas require an impact study unless already covered by an Environmental Assessment.

Policy 15 speaks to provincially significant natural heritage features which are protected by:

- a) Prohibiting development or site changes within provincially significant wetlands.
- b) Prohibiting development or site changes in key habitats of endangered or threatened species and fish habitat, unless allowed under provincial and federal requirements.
- c) Allowing development near these features only if a study confirms no harm to their ecological value:
 - a. Adjacent to significant wetlands or endangered species habitat.
 - b. Adjacent to fish habitat.
 - c. In or near significant areas of natural and scientific interest, woodlands, valleylands, or wildlife habitat.
- d) Restricting new or expanded infrastructure to situations where no reasonable alternatives exist, impacts are minimized, and natural features are restored or enhanced where possible.

Policy 16 states that protecting, restoring and enhancing the Natural Heritage System will recognize the joint role of, and opportunities for, partnerships among public and private landowners, institutions and organizations.

Policy 17 of the Official Plan indicates that: “Lakefilling projects in Lake Ontario will be supported only where:

- a) The land created will be used for natural habitat, public recreation or essential public works;
- b) The project has been the subject of an Environmental Assessment which ensures that water quality and quantity and terrestrial and aquatic habitat will be protected or enhanced; and,
- c) The project does not create new or aggravate existing natural hazards.”

Section 4.3 Parks and Open Spaces

The Billy Bishop Toronto City Airport lands are designated Parks and Open Space Areas in the City’s Land Use Plan – Map 18 (refer to **Figure 3-6**).

Policy 1, Parks and Open Space Areas include parks and open spaces; valleys; watercourses and ravines; portions of the waterfront; golf courses; and, cemeteries.

Policy 2, development is typically not permitted in Parks and Open Space Areas, except for recreational and cultural facilities, conservation initiatives, cemetery uses, public transit, and essential public works and utilities, where justified by appropriate assessments.

Policy 3 indicates that Natural Areas will be preserved primarily in their natural state. Compatible recreational, cultural, and educational uses may be allowed if they minimize impacts on natural features and functions. Conservation projects, public transit, public works, and utilities may also be permitted if no reasonable alternatives exist, provided they are designed to minimize adverse impacts and include measures to restore and enhance vegetation and natural heritage features.

In addition to the above, any permitted development within Parks and Open Space Areas must meet the criteria set out in Section 4.3.3 of the Official Plan. Specifically, development must:

- Protect, enhance, or restore natural heritage features, including trees and vegetation, and maintain or improve connectivity between natural heritage features and areas.

- Preserve or improve public visibility and access, except where this would negatively impact sensitive natural heritage features or pose risks to public safety or security.
- Maintain or create linkages between Parks and Open Space Areas to support continuous recreational corridors.
- Maintain or expand the size of publicly owned Parks and Open Space Areas and improve their usability for public recreational and cultural purposes.
- Respect the physical form, design, character, and function of Parks and Open Space Areas.
- Provide safe and comfortable pedestrian conditions.

These criteria are intended to ensure that any development permitted within Parks and Open Space Areas is compatible with the primary purpose of these lands; supporting recreational, cultural, and natural heritage values; while minimizing potential adverse impacts.

Chapter 7, Site and Area Specific Policy 192 delineates the boundary of Toronto Islands. Site and Area Specific Policy 192 mandates that public transport is to be provided to the Toronto Islands all year round.

Chapter 7, Site and Area Specific Policy 194 is specific to Billy Bishop Toronto City Airport, and states that aviation uses are permitted, subject to the terms of the Tripartite Agreement, provided that:

- The use will be in accordance with the provisions of the lease arrangement among the City of Toronto, PortsToronto and Transport Canada respecting the use of the airport for aviation purposes and uses incidental and accessory thereto.
- The continued use of the airport lands for aviation purposes will be supported, exclusive of the environmentally sensitive area on the west side of the airport lands, including protection of the existing flight paths. Revisions to the provisions of the lease agreement may be undertaken, provided that the City is satisfied that improvements to airport facilities and operations can be made without adverse impact on the surrounding residential and recreational environment.

Climate change hazards and natural hazards are referenced throughout the City's Official Plan, namely in policies within the Natural Environment and Public Realm sections.

2.3.2 Toronto Island Park Master Plan

The Toronto Island Park Master Plan (2024) outlines a long-term vision for development and management of Toronto Island Park, focusing on enhancing the environmental, social, and cultural aspects over the next two years (City of Toronto, 2024b). The Plan focuses on improving access and connectivity, supporting the natural environment, enhancing visitor experiences, promoting equity and belonging, and incorporating Indigenous history and culture.

The Project can contribute to achieving these goals by exploring opportunities for habitat enhancements, improving connectivity, and providing opportunities to strengthen infrastructure. In doing so, the Project aligns with the Toronto Island Park Master Plan's objectives of fostering sustainability, improving connectivity, and providing infrastructure support.

2.3.3 Bathurst Quay Neighbourhood Plan

The Bathurst Quay Neighbourhood Plan Study is a planning initiative focused on the revitalization and development of the Bathurst Quay neighbourhood, a community immediately adjacent to Billy Bishop Toronto City Airport lands (City of Toronto, 2017a). The Neighbourhood Plan study area is generally bounded by Lake Shore Boulevard West to the north, the eastern edge of Coronation Park to the west, Lake Ontario to the south and western edge of the Music Garden to the east. It aims to transform this waterfront neighbourhood into a vibrant, sustainable community that balances residential, commercial, and recreational uses while maintaining its maritime heritage. The Bathurst Quay Neighbourhood Plan highlights the need for a balanced approach to developments in the area, emphasizing the importance of enhancing community services and facilities, enhancing mobility in the area, and improving public realm spaces. The plan also prioritizes the integration of Bathurst Quay with the broader waterfront revitalization efforts, aligning with other regional planning frameworks, while preserving the character and functionality of the waterfront. The plan also includes the planning policy framework to include more detailed direction on the scale, scope and fit of the airport in relation to its context and management of airport operations.

2.3.4 Making Waves - Central Waterfront Secondary Plan II

The Central Waterfront Secondary Plan is the statutory plan for Toronto's central waterfront area, encompassing Marilyn Bell Park to the west, Ashbridges Bay in the east, Lake Shore Boulevard East to the north, and the Lake Ontario shoreline to the south (City of Toronto, 2003). The Central Waterfront Secondary Plan excludes the Toronto Islands and the Billy Bishop Toronto City Airport airside lands. This Secondary Plan was adopted by City Council in 2003 and has been used to guide and implement

policies for waterfront redevelopment. The Central Waterfront Secondary Plan has four guiding principles, including removing barriers/making connections, extending the network of waterfront parks and public spaces, promoting a clean natural environment, and creating dynamic, diverse communities. Although Toronto Island and Billy Bishop Toronto City Airport airside lands are excluded from the Central Waterfront Secondary Plan, their proximity to the Central Waterfront area, means that their neighbouring effects are considered within the broader framework.

2.3.5 Port Lands

The Port Lands Planning Framework, adopted by Toronto City Council in 2017, is a long-term vision for the revitalization and development of the Port Lands over the next 50+ years (City of Toronto, 2017b). It outlines a comprehensive approach to transform the area while balancing diverse land uses and maintaining essential city-serving operations. The planning framework encompasses Keating Channel and Lake Shore Boulevard East to the north, Leslie Street to the east, Unwin Avenue and Cherry Beach to the south, and the Inner Harbour to the west. The Port Lands Planning Framework provides the guiding principles for urban and environmental development in the broader waterfront area, influencing PortsToronto's operations and development at Billy Bishop Toronto City Airport. It ensures that any infrastructure, environmental, or public space initiatives at the airport align with the broader goals of revitalizing and improving the Port Lands area.

2.4 Airport-related Planning

2.4.1 Billy Bishop Toronto City Airport Master Plan

The Billy Bishop Toronto City Airport Master Plan (2018) serves as a long-term planning tool, addressing socio-economic conditions, industry trends and regulatory requirements. It provides guidance on community planning initiatives, infrastructure requirements, utility servicing, environmental and social responsibilities, as well as airport development plans.

Billy Bishop Toronto City Airport's 2018 Airport Master Plan anticipated RESA requirements on Runway 08/26, under Notice of Proposed Amendment 2016-007, identifying Billy Bishop Toronto City Airport as one of the airports where RESA would likely be mandatory on runways serving scheduled commercial passenger services.

Notably, the concept of RESA at Billy Bishop Toronto City Airport was first introduced in the 2012 Airport Master Plan, which highlighted Transport Canada's Notice of Proposed Amendment 2010-2012. This earlier plan recognized that RESA would likely be required at both ends of Runway 08/26 as a future safety measure.

2.4.2 PortsToronto Environmental Social and Governance Priorities

In 2023, PortsToronto published its seventh annual Environmental, Social, and Governance Report, providing a comprehensive overview of its sustainability performance and future Environmental Social Governance goals. This report underscores PortsToronto's commitment to integrating sustainability into its operations and aligning its purpose, values, and strategic priorities with its vision for the future. The strategy focuses on five key strategic priorities for 2024-2028: fostering greener, quieter, and innovative transportation; accelerating economic and business success; creating and leading a one waterfront community, excelling at operational performance, and strengthening people and relationships. PortsToronto is committed to consider environmental, social, and governance priorities for new developments. The environmental, social and governance priorities ensure that new undertakings align with environmental stewardship, community engagement, and governance excellence.

3. Existing Conditions

3.1 Natural Environment

3.1.1 Terrestrial Ecosystems

The following sections summarize the existing terrestrial and aquatic ecosystems conditions. For more detailed information, please refer to **Appendix B**.

3.1.1.1 Data Collection

3.1.1.1.1 Desktop Review

Natural heritage data and results from previous reports and studies completed at or near the Billy Bishop Toronto City Airport were reviewed as part of the Gap Analysis Memorandum (refer to **Appendix A**). Where data gaps were identified due to differences in study areas, changes in legislation or outdated records, AECOM conducted a desktop review in 2024 to update and document the existing terrestrial ecosystem conditions within the terrestrial study area, using available secondary sources. The limits of the terrestrial study area are shown on **Figure 3-1**. For detailed information on the sources used in the 2024 background review, refer to Section 2.1 of the Natural Heritage Effects Assessment Report (**Appendix B**).

3.1.1.1.2 Field Investigations

A site visit was completed by AECOM on August 27, 2024 to assess the current site conditions within the terrestrial study area for the Project. This site visit was limited in scope and focused mostly on confirming changes in terrestrial habitats from that documented in previous studies. **Table 3-1** summarizes the investigations that occurred during the site visit for the terrestrial study area.

Table 3-1: Summary of 2024 Terrestrial Confirmatory Field Surveys Conducted for the Study Area

Survey Type	Survey Dates
Ecological Land Classification	August 27, 2024
Plant Inventory, including rare plants and invasive and noxious plants	August 27, 2024
Incidental Wildlife Observations	August 27, 2024
Species at Risk and Significant Wildlife Habitat Screening	August 27, 2024

Additional migratory and breeding bird surveys were not completed in 2024 because sufficient information was available from previous studies as described in Gap Analysis

Memorandum (refer to **Appendix A**) and the secondary sources listed in Section 2.1 of the Natural Heritage Effects Assessment Report (**Appendix B**).

Representative photos of terrestrial habitats are provided in the Terrestrial Photolog appended to the Natural Heritage Effects Assessment Report located in **Appendix B**.

3.1.1.2 Description of Existing Environmental Conditions

3.1.1.2.1 Natural Heritage Features

Natural features and areas identified for protection in the Provincial Policy Statement 2024 and other legislation are collectively referred to as “natural heritage features”; these include, but are not limited to Significant Wetlands, Significant Woodlands, Environmentally Significant Areas, and Areas of Natural and Scientific Interest, and can be identified by different planning authorities (i.e., province, municipality, conservation authority).

The natural heritage features found in and within the vicinity of the terrestrial study area, as identified through the background review, are illustrated on **Figure 3-1**.

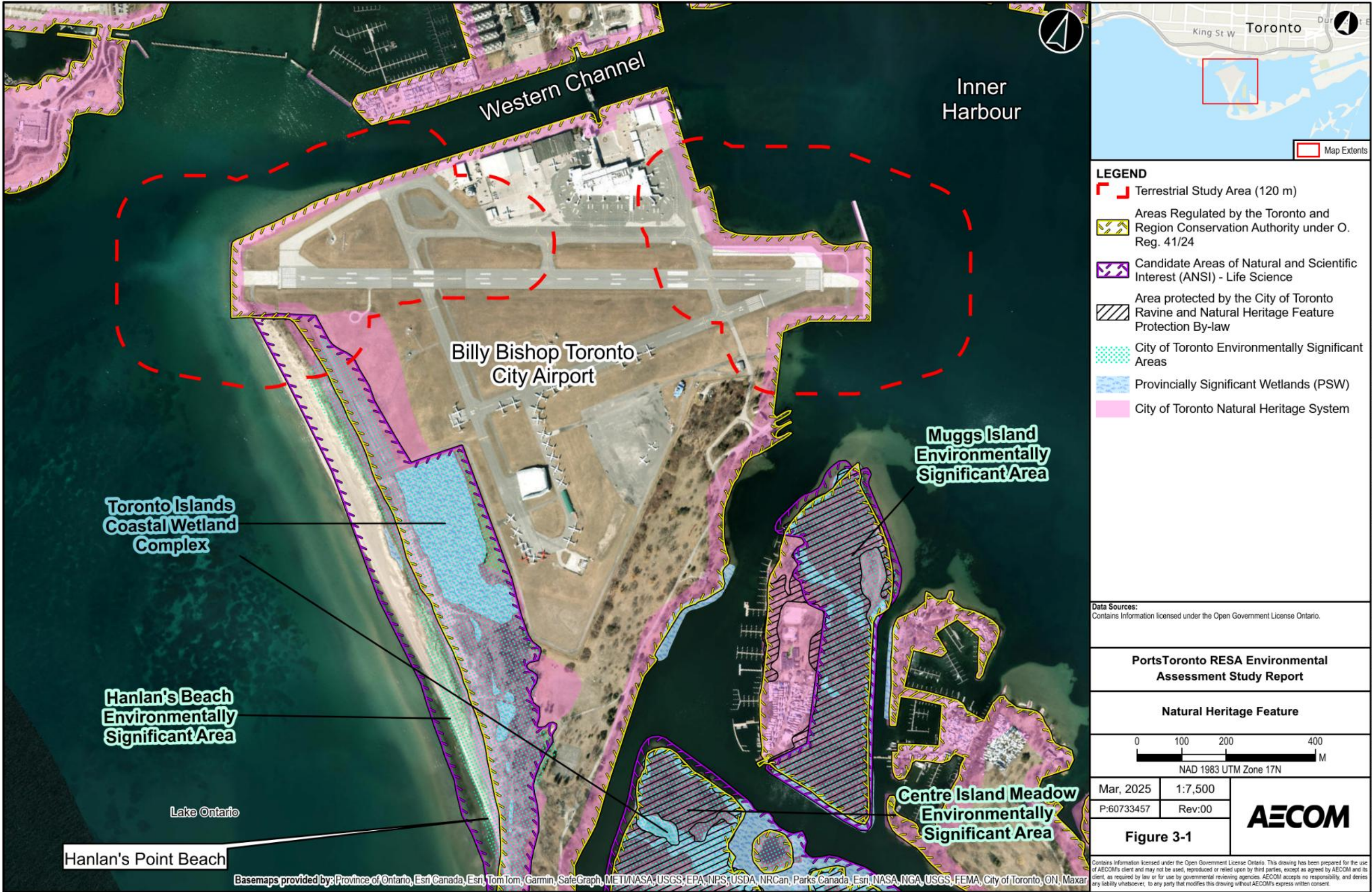
Portions of the terrestrial study area fall within the Hanlan’s Beach Environmentally Significant Area designated by the City of Toronto, and within the candidate Toronto Islands Life Science Area of Natural and Scientific Interest. The candidate Area of Natural and Scientific Interest includes Hanlan’s Beach, Mugg’s Island, and other portions of the Toronto Islands.

No Provincially Significant Wetlands overlap with the terrestrial study area, but the Toronto Islands Coastal Wetland Complex Provincially Significant Wetland is located approximately 370 metres to the south of the terrestrial study area within the Hanlan’s Beach Environmentally Significant Areas. No Provincially Significant Woodlands or Significant Valleylands were identified within the terrestrial study area.

3.1.1.2.2 Policy Areas

Both the terrestrial and aquatic study areas are located within the Toronto Waterfront Screening Area and projects within this area are exempt from the Toronto and Region Conservation Authority’s regulatory approval process. As such, a permit under Ontario Regulation 41/24 is not required. However, in the absence of the formal permitting process, the proponent may voluntarily request the Toronto and Region Conservation Authority to review and comment on detailed design activities with Project construction, maintenance or emergency activities within these areas along the shoreline.

Figure 3-1: Natural Heritage Features



The terrestrial and aquatic study areas contain portions of the City of Toronto's Natural Heritage System, which include significant physical features (sand dunes), terrestrial habitats (including beaches), significant aquatic features and functions (Lake Ontario), vegetation communities and species of concern, the candidate Toronto Islands Life Science Area of Natural and Scientific Interest and the Hanlan's Beach Environmentally Significant Area.

Both the terrestrial and aquatic study areas fall outside of the City of Toronto Ravine and Natural Feature Protection By-Law.

3.1.1.2.3 Vegetation Communities and Plants

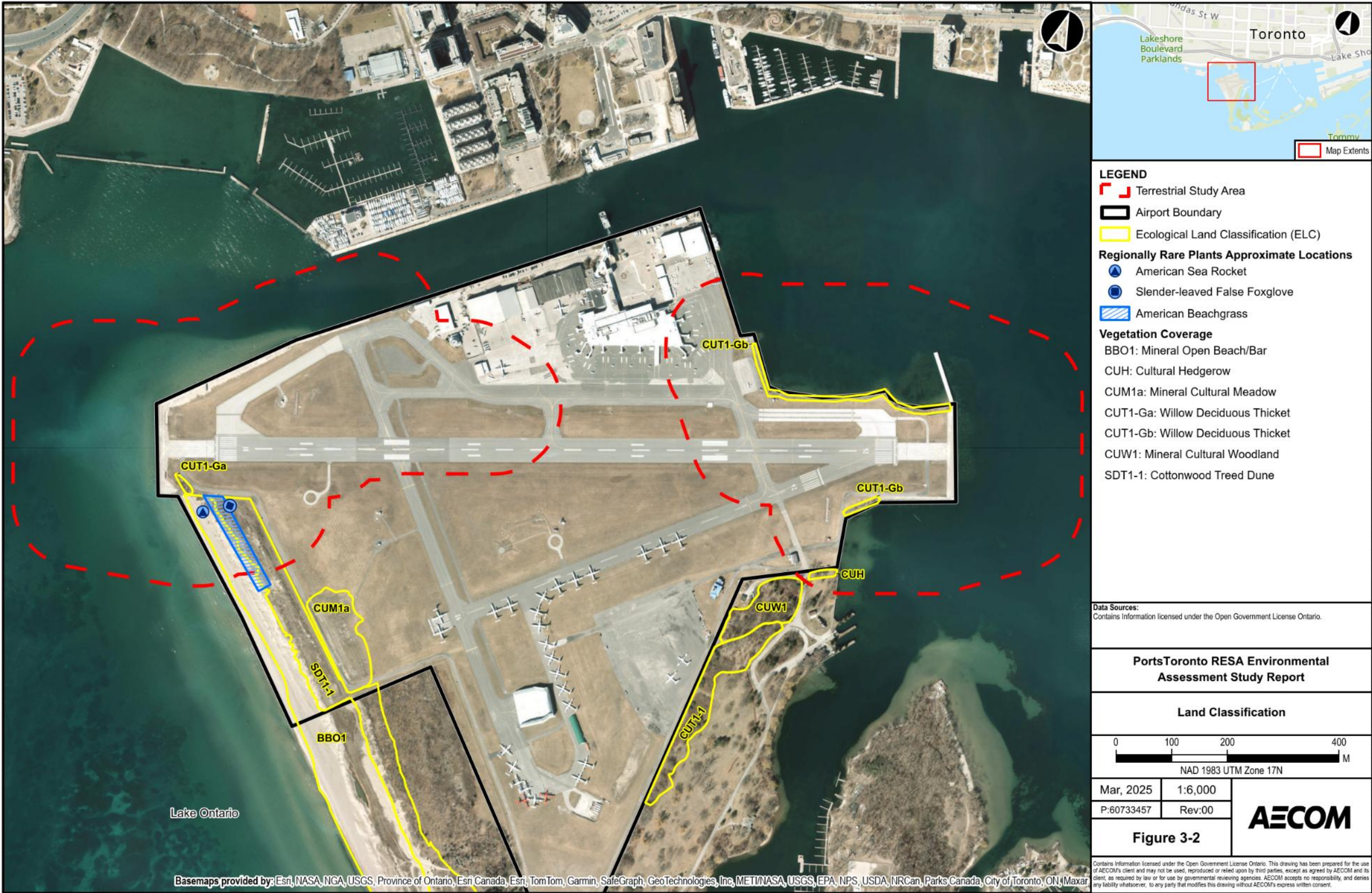
On August 27, 2024, AECOM ecologists conducted an ecological land classification survey and plant inventory to assess vegetation communities in the terrestrial study area, including updates to vegetation classification and boundaries. The following ecological land classification vegetation communities were identified in the terrestrial study area (**Figure 3-2**):

- BBO1: Mineral Open Beach/Bar.
- CUH: Cultural Hedgerow.
- CUM1a: Mineral Cultural Meadow.
- CUT1-Ga: Willow Deciduous Thicket.
- CUT1-Gb: Willow Deciduous Thicket.
- CUW1: Mineral Cultural Woodland.
- SDT1-1: Cottonwood Treed Dune.

The Cottonwood Treed Dune is a provincially rare vegetation community (ranked S1 – Critically Imperiled). This provincially rare Cottonwood Treed Dune had succeeded from the provincially rare Little Bluestem Switchgrass Beachgrass Open Dune community (ranked S2 – Imperiled) previously identified by AECOM, (2017). Additionally, both the Mineral Open Beach Bar and Cottonwood Treed Dune are regionally unique communities in the City of Toronto and host provincially and locally rare grasses and sedges (City of Toronto Parks and Recreation, 2020).

A total of 75 vascular plant species were recorded in the terrestrial study area. Of these, 32 were native species, comprising only 42 percent of the total vegetation presence. Additionally, 19 invasive species were identified in the terrestrial study area.

Figure 3-2: Ecological Land Classification



Two Toronto and Region Conservation Authority Regional Species of Conservation Concern were observed within the Cottonwood Treed Dune community. These species included American Beachgrass (*Calamagrostis breviligulata* ssp. *breviligulata*) and Slender-leaved False Foxglove (*Agalinis tenuifolia*) (TRCA, 2023b).

Additionally, two Toronto and Region Conservation Authority Regional Species of Conservation Concern were observed within the Mineral Open Beach/Bar community. These species included American Sea Rocket (*Cakile edentula*) and American Beachgrass (TRCA, 2023b).

For the full list of provincially and regionally rare plants records within the terrestrial study area, refer to Table 3-3 of the Natural Heritage Effects Assessment Report (**Appendix B**).

3.1.1.2.4 Wildlife and Wildlife Habitat

The Toronto Islands provide crucial habitats for a range of species, particularly migratory birds along the Atlantic Flyway, with over 350 species stopping over during migration. The islands also support Arctic-nesting ducks in winter and hosts a Colonial Waterbird Nesting Area. The islands are a key stop-over location for Monarch (*Danaus plexippus*) butterflies during their fall migration to Mexico and have been known to form overnight roosts on trees along the lakeshore, most notably on Hanlan's Point Beach (City of Toronto, 2011). Surrounding waters and wetlands offer vital habitats for fish and amphibians, making the islands an important ecological hub for diverse species.

Full lists of species previously recorded at the Billy Bishop Toronto City Airport are found in the previous reports applicable to the Project, as listed in Section 2.1 of the Natural Heritage Effects Assessment Report (**Appendix B**). Previous targeted avian surveys by AECOM (2017) identified numerous bird species foraging over the airport grounds and waterfowl utilizing the open waters within 500 metres of the existing runways. The most abundant waterfowl species recorded consistently across surveys included Double-crested Cormorant (*Nannopterum auritum*), Long-tailed Duck (*Clangula hyemalis*), Ring-billed Gull (*Larus delawarensis*), Red-breasted Merganser (*Mergus serrator*), and Canada Goose (*Branta canadensis*).

Billy Bishop Toronto City Airport employs dedicated wildlife officers and works with Falcon Environmental Services to implement a comprehensive Wildlife Management Program dedicated to keeping birds out of aircraft flight paths and ensuring runways are free of birds and other wildlife (PortsToronto, 2023). Wildlife officers deter birds and other wildlife by using natural deterrence movements and behaviour, maintaining proper grass levels and landscaping, using falcon kites and installing physical barriers to ensure runways are clear and safe (PortsToronto, 2023). Falcon Environmental Services keeps detailed records of species identified at the Billy Bishop Toronto City Airport including records of several mammal species such as American Mink (*Neovison*

vision), Eastern Coyote (*Canis latrans*), Common Raccoon (*Procyon lotor*), White-tailed Deer (*Odocoileus virginianus*), and Red Fox (*Vulpes vulpes*).

As noted in the 2017 AECOM Report, Falcon Environmental Services had no records of amphibians or reptiles on the Billy Bishop Toronto City Airport grounds, however, it was noted this did not preclude their presence as most of the herpetofauna species are small and may go undetected by Wildlife Control Officers.

During the site visit on August 27, 2024, the birds incidentally observed were common and tolerant of urban disturbances, and three of the species observed receive protection under the Migratory Birds Convention Act including: Eastern Kingbird (*Tyrannus tyrannus*), Mallard (*Anas platyrhynchos*), and Northern Cardinal (*Cardinalis cardinalis*). Additionally, a Monarch butterfly, a Species of Conservation Concern, was observed in the terrestrial study area, with its food source, Common Milkweed (*Asclepias syriaca*), found growing in nearby areas.

All incidental wildlife observations documented on August 27, 2024 are listed in Table 3-5 of the Natural Heritage Effects Assessment Report (**Appendix B**) and are considered as supplemental to the wildlife documented in previous studies and available secondary sources.

3.1.1.2.5 Significant Wildlife Habitat

The Significant Wildlife Habitat Criteria Schedule for Ecoregion 7E was reviewed to identify potential significant wildlife habitats within the terrestrial study area. This assessment, based on background research and field investigations, revealed both confirmed and candidate significant wildlife habitats in the terrestrial study area, including the following:

■ Seasonal Concentration Areas

- Confirmed:
 - **Waterfowl Stopover and Staging Areas (Aquatic)** – The open water of Lake Ontario surrounding the terrestrial study area functions all year round as a waterfowl stopover and staging area (aquatic) for large concentrations of a diversity of waterfowl species (City of Toronto, 2022a). Targeted avian surveys by AECOM (2017) in 2014-2015 confirmed the presence of this Significant Wildlife Habitat.
 - **Migratory Butterfly Stopover Area** – The Toronto Islands are a known Migratory Stopover Area for the Monarch (City of Toronto, 2022a), and confirmed habitat is present within Cottonwood Treed Dune and Dry-Moist Old Field Meadow identified within the terrestrial study area. Additionally, Monarchs, a migratory butterfly, have been observed on multiple occasions within the terrestrial study area.

- Candidate:
 - **Shorebird Migratory Stopover Area** may be present in the terrestrial study area as the Toronto Islands act as a main stopover location for migratory birds and the Great Lakes shorelines provide some of the best habitats for migrating shorebirds (City of Toronto, 2018). Migratory shorebirds may temporarily use the Cottonwood Treed Dune and Mineral Open Beach Bar in the terrestrial study area during migration stopover. The habitat is candidate only, as targeted surveys were not completed to determine if the terrestrial study area supports the requisite number of shorebird use days. As the Billy Bishop Toronto City Airport actively conducts bird deterrence, it is unlikely the terrestrial study area meets the number of shorebird use days.

■ Rare Vegetation Communities

- Confirmed:
 - One provincially rare (S1) vegetation community, Cottonwood Treed Dune was identified in the terrestrial study area. Mineral Open Beach Bar, a regionally rare vegetation community in the City of Toronto, was also identified in the terrestrial study area.

■ Habitats of Species of Conservation Concern considered Significant Wildlife Habitat:

- Confirmed
 - **Habitat for Monarch Butterfly** - A Monarch butterfly was observed flying over Cottonwood Treed Dune community during the August 2024 site visit. The Monarch is a Species of Conservation Concern, therefore the associated habitat in which it was observed is considered confirmed significant wildlife habitat for this species.
 - **Special Concern and Rare Wildlife Species** - Records for a total of 42 Species of Conservation Concern were identified within the terrestrial study area as part of the background review. The following Species of Conservation Concern were previously recorded by AECOM (2017) using the open waters and/or shoreline in the vicinity of the existing runways: Long-tailed Duck, Redhead (*Aythya americana*), Canvasback (*Aythya valisineria*), Caspian Tern (*Hydroprogne caspia*) and Semipalmated Sandpiper (*Calidris pusilla*).
- Candidate:
 - Snapping Turtle (*Chelydra serpentina*) habitat may be present off the east side of the Billy Bishop Toronto City Airport where the

water was relatively shallow and had aquatic vegetation cover; however, this species was not observed in 2024 or in any previous studies.

Observations of the five bird Species of Conservation Concern were of foraging and staging behaviour. The terrestrial study area provides limited nesting opportunities for these species.

For a detailed list of the 42 Species of Conservation Concern records identified within or in the vicinity of the terrestrial study area, refer to Table 3-5 of the Natural Heritage Effects Assessment Report (**Appendix B**).

3.1.1.2.6 Species at Risk

The background review identified 21 terrestrial Species at Risk records within or near the terrestrial study area.

A detailed Species at Risk habitat assessment and screening exercise revealed that of the 21 terrestrial Species at Risk records identified, two terrestrial species have a medium potential to occur in the terrestrial study area: Piping Plover and Bank Swallow. However, suitable habitat is present for only Piping Plover, which have a history of nesting on Hanlan's Point Beach, with suitable habitat present in the Mineral Open Beach Bar community. While Bank Swallows have been observed foraging over the Billy Bishop Toronto City Airport, they lack suitable nesting habitats within the terrestrial study area itself but may nest in construction sites in created stockpiled materials of suitable substrates. For more information, refer to Section 3.7.2 of the Natural Heritage Effects Assessment Report, **Appendix B**.

No Species of Conservation Concern or Species at Risk plants were identified within the terrestrial study area.

3.1.2 Fish and Fish Habitat

3.1.2.1 Data Collection

3.1.2.1.1 Desktop Review

Natural heritage data and results from previous reports and studies completed at or near the Billy Bishop Toronto City Airport were reviewed as part of the Gap Analysis Memorandum (refer to **Appendix A**). Where data gaps were identified due to differences in study areas, changes in legislation or outdated records, AECOM conducted a desktop review in 2024 to update and document the existing aquatic ecosystem conditions within the aquatic study area (**Figure 3-3**). For detailed information on the sources used in the 2024 background review, refer to Section 2.1 of

the Natural Heritage Effects Assessment Report (**Appendix B**). Based on the results of the Gap Analysis for Fish and Fish Habitat, the most significant gap identified was a need for updated field data for the aquatic study area. Refer to **Section 3.1.1.1**, Desktop Review.

3.1.2.1.2 Field Investigation Methodology

Toronto and Region Conservation Authority conducted fish community and aquatic habitat surveys in late July, early September, and late October 2024 to characterize the aquatic features and functions of the lakebed within the aquatic study area. The investigation included fish community sampling and the collection of aquatic habitat data using sonar scans to measure bathymetry, water depth, substrate density, and aquatic vegetation abundance. Sediment grab samples were analyzed to determine substrate composition.

3.1.2.2 Description of Existing Environmental Conditions

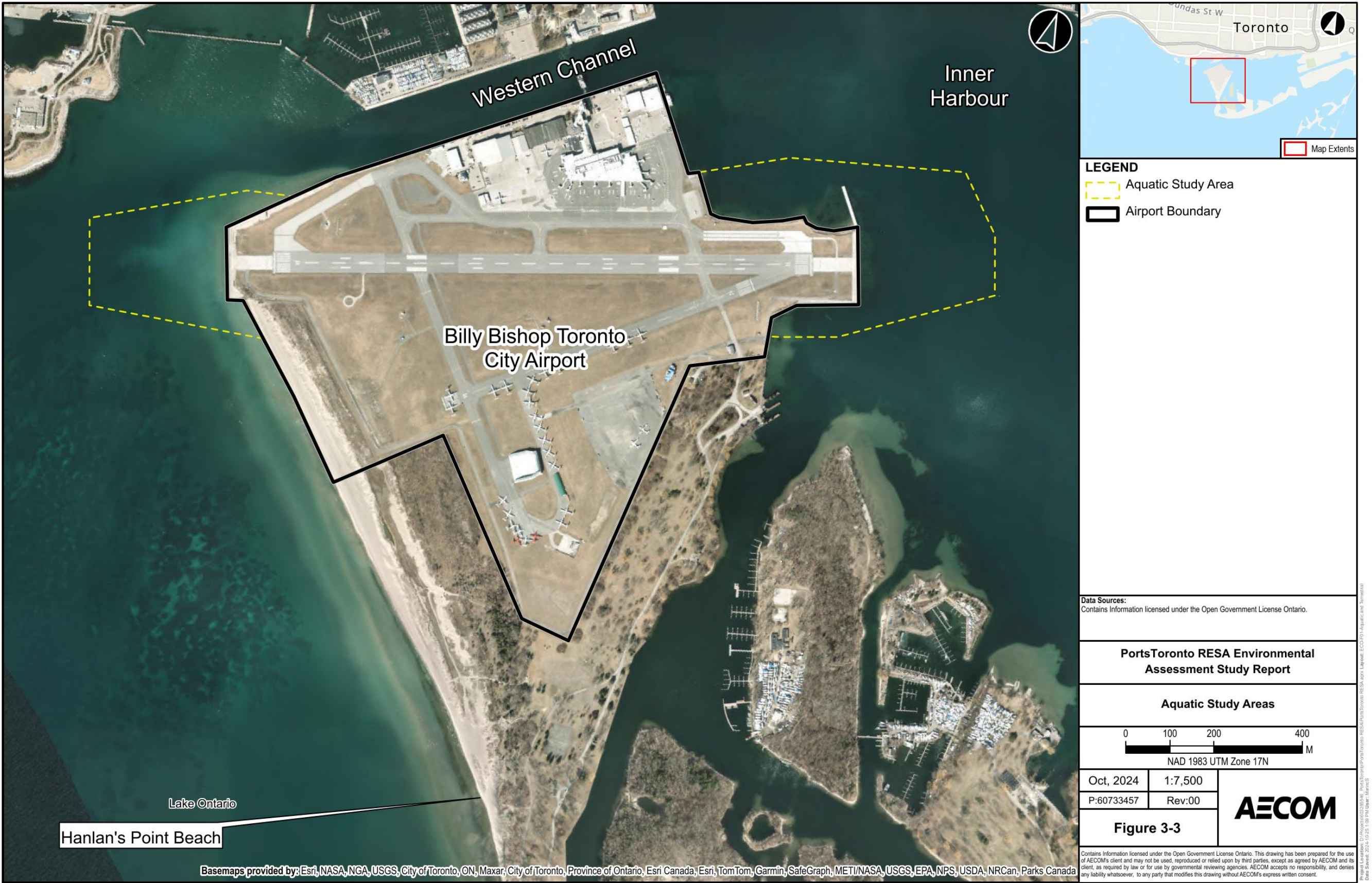
3.1.2.2.1 Aquatic Habitat

Aquatic surveys were completed within the aquatic study area to assess fish community and characterize the fish habitat. Specialized field equipment was used to quantify the substrate characteristics and abundance of submerged aquatic vegetation within the anticipated Project footprint. Generally, off the west end of the runway, the aquatic study area was relatively shallow with the lakebed characterized by hard, sandy substrate with very little aquatic vegetation throughout. Fish habitat off the west end of the runway was considered non-limiting, but less diverse compared to the east end of the runway based on the limited cover and predominately sand substrate. Off the east end of the runway, the aquatic study area was relatively shallow, but with softer or more mixed substrate consisting predominately of silt with lesser amounts of sand, and a higher abundance of submerged aquatic vegetation. Fish habitat off the east end of the runway was considered non-limiting, general use habitat (e.g., feeding, refuge, travel) based on availability and diversity of cover and potential food sources provided by aquatic vegetation. Overall, the aquatic study area likely provides moderate potential habitat value (i.e., suitable habitat for multiple general life processes and functions) based on the habitat characteristics and fish community assessed.

3.1.2.2.2 Policy Areas

Refer to Section 3.1.1.2.2 for policy areas that apply to both terrestrial and aquatic study areas.

Figure 3-3: Aquatic Study Area



3.1.2.2.3 Fish Species

The aquatic study area is classified as having a cold-water thermal regime, supporting a diverse community of migratory and resident fish species (Land Information Ontario, 2024b; Morrison Hershfield, 2024). A comprehensive list of 66 fish species potentially occurring in the area was compiled from background data sources. Most of these species are listed as "Not at Risk" under both the Endangered Species Act and the Species at Risk Act. Please refer to **Section 3.1.2.2.4** for information on aquatic Species at Risk.

Fish community sampling conducted in late July 2024 within the aquatic study area along the shoreline on the east end of the runway captured one Threespine Stickleback (*Gasterosteus aculeatus*) (TRCA, email communication, July 29, 2024). During fish community sampling conducted in late October 2024 within the same area, 21 Threespine Stickleback, seven Brown Bullhead (*Ameiurus nebulosus*), six Alewife (*Alosa pseudoharengus*), five Brook Silverside (*Labidesthes sicculus*), two Northern Pike (*Esox Lucius*), and one Rainbow Smelt (*Osmerus mordax*) were captured (B. Coey, personal communication, October 28, 2024).

Fish community sampling along the shoreline on the west end of the runway in late July 2024 captured two Alewife and one Emerald Shiner (*Notropis atherinoides*; B. Coey, personal communication, July 29, 2024). During fish community sampling conducted in late October 2024 within the same area, four Threespine Stickleback, three Alewife, and one Rainbow Smelt were captured (B. Coey, personal communication, October 28, 2024).

Although previous studies did not conduct fish community sampling within the aquatic study area, these studies did note that the availability and diversity of cover for refuge, and potential food sources provided by aquatic vegetation within the aquatic study area on the east end of the runway likely provides non-limiting, general use habitat (e.g., feeding, travel, refuge) for fish species known to occur within Toronto Harbour (AECOM, 2017; Morrison Hershfield, 2024). These studies also suggested that the offshore area on the west end of the runway, with its limited cover and predominately sandy substrate may provide non-limiting fish habitat (AECOM, 2017; Morrison Hershfield, 2024).

3.1.2.2.4 Aquatic Vegetation Species

Previous studies identified four aquatic vegetation species on the east end of the runway, including two invasive species: Eurasian Water-milfoil (*Myriophyllum spicatum*) and Fanwort (*Cabomba caroliniana*). The other two species observed, which are not considered invasive in Ontario, were Canada Waterweed (*Elodea Canadensis*) and Coontail (*Ceratophyllum demersum*) (AECOM, 2017; Morrison Hershfield, 2024).

3.1.2.2.5 Aquatic Species at Risk

Records of two aquatic Species at Risk, one designated as Endangered provincially and one designated as Endangered both provincially and federally, were identified through background review as having the potential to occur within the aquatic study area (Table 3-2).

Table 3-2: Aquatic Species at Risk Records Within the Vicinity of the Aquatic Study Area

Common Name	Scientific Name	ESA Status ¹	Species at Risk Act Status ²	Source
American Eel	<i>Anguilla rostrata</i>	Endangered	Not on Schedule 1	Natural Heritage Information Centre (2024b), Toronto and Region Conservation Authority, Land Information Ontario
Shortnose Cisco	<i>Coregonus reighardi</i>	Endangered	Endangered	Fisheries and Oceans Canada

A Species at Risk habitat assessment and screening exercise determined that of the Species at Risk records identified, only one species has a medium potential (as defined in Section 2.4 of the Natural Heritage Effects Assessment Report) to occur in the aquatic study area: American Eel. Based on the aquatic habitat assessed during the 2024 field surveys and considering the generalist nature and wide habitat usage of American Eel, suitable habitat off the east end of the runway is present for this species. Although recent records for the Toronto Islands indicate the presence of American Eel in the vicinity of the aquatic study area, the results of the aquatic habitat assessment do not indicate American Eel use of the area, nor do the results indicate the quality of the habitat present. For due diligence purposes, it is assumed that American Eel could occur within the aquatic study area and therefore may be impacted by the RESA project. For more information, refer to Section 3.7.2 of the Natural Heritage Effects Assessment Report (Appendix B).

3.1.3 Marine Physical Environment

The following sections summarize the existing marine physical conditions. For more detailed information, please refer to Marine Physical Effects Assessment Report (Appendix C).

3.1.3.1 Data Collection

A desktop review of available environmental data for the marine physical study area was conducted by AECOM as part of a Gap Analysis (2024). This review focused on the marine physical environment, identifying relevant studies and documents. Aerial imagery from 2015 to 2022 was also collected to assess local shoreline conditions within the marine physical study area.

3.1.3.2 Description of Existing Environmental Conditions

3.1.3.2.1 Shoreline Morphology

The shoreline of the Toronto Islands is influenced by both natural processes and human development. The islands are formed from clay till and sand deposits from glacial Lake Iroquois, with bedrock consisting of shale, limestone, and siltstone (Dillon, 2012). The area near the runway consists mainly of silt, with some limestone riprap at the shore. The islands were shaped by sediment deposition and erosion, with significant changes due to storms and the construction of the Leslie Street Spit (Toronto and Region Conservation Authority, 2018).

Much of the Inner Harbour shoreline, including the north, east, and west shores of the Toronto Islands, is reinforced with engineering structures such as seawalls and revetments (Baird & Associates, 2012). The south shoreline, shaped by sediment transport and erosion, has created Gibraltar Point and Hanlan's Point Beach (Toronto and Region Conservation Authority, 2018).

Recent shoreline changes in the marine physical study area include the recently completed (Fall of 2024) re-construction of the Don River Mouth. The river mouth was widened from 40 metres to 120 metres, but a 2012 study by Baird and Associates found no significant impacts on sediment processes in the Toronto Harbour.

Additionally, the Gibraltar Point Erosion Control Project, completed in 2021, includes an underwater nearshore reef and groyne to reduce erosion and sand loss at Manitou Beach. A sand management program for Gibraltar Point and Hanlan's Point Beach is under monitoring until 2025 to refine the plan (Baird & Associates, 2018; Shoreplan, 2024).

3.1.3.2.2 Sediment

The sediment sources within the marine physical study area are limited due to heavily engineered shorelines, regular dredging of the Keating Channel by PortsToronto, and restricted sediment transport through the Eastern and Western Channels, except near Hanlan's Point Beach and the western extension area. PortsToronto dredges the Keating Channel to maintain the channel's depth, which is essential for managing water flow and reducing flooding in the Don River.

The shorelands are composed of Lake Iroquois deposits, primarily sand and silty sand. The Leslie Street Spit, constructed in the 1950s, blocks littoral transport from the east, creating an area of sediment deposition. Aerial imagery analysis from 1950 to 2015 and subsequent studies show that sediment eroding from Hanlan's Point Beach and Gibraltar Point is transported northward along the western shoreline, particularly during southwesterly and easterly storm events.

Modelling for the Gibraltar Point Erosion Control Project suggests that Hanlan's Point Beach will continue to grow along the airport structure for about 25 years, after which time sediment will bypass into the Western Channel, slowing the beach's growth.

3.1.3.2.3 Currents

Maximum current velocities in the Western Channel were recorded at 0.52 metres per second (AECOM, 2017, App C-6). On a seasonal basis, net circulation flows from the Western Beaches through the Western Channel into the Inner Harbour and out the Eastern Channel.

3.1.3.2.4 Waves

Wave conditions in the marine physical study area are dominated by wind generated waves, over marine vessel-generated waves (AviaNG 2024). The west end of the marine physical study area has a greater 100-year return period design wave height, at 3.5 metres, as opposed to the east end of the marine physical study area, at 1.2 metres. The elevated wave height is attributed to a strong south-southwesterly wind off Lake Ontario. These strong southwesterly waves transport sediment northward toward the airport.

3.1.3.2.5 Water Levels

Baird & Associates (2019b) completed the most recent assessment of water levels at Toronto Island and recommended that 76.2 metre International Great Lakes Datum 1985 be the 100-year instantaneous water level used for design. This recommendation has been informally adopted by Toronto and Region Conservation Authority, who is the approving agency for shoreline works along most of Toronto's waterfront. While Toronto and Region Conservation Authority does not have jurisdiction on this Project⁴, using a design water level of 76.2 metres is consistent with other work recently completed in this area.

4. While Toronto and Region Conservation Authority does not have jurisdiction on this Project, Toronto and Region Conservation Authority & PortsToronto have a stewardship partnership and work collaboratively on projects along Toronto's waterfront which is continuing for planning and construction of the RESA project.

3.1.4 Water Circulation and Quality

The following sections summarize the existing water circulation and quality conditions. For more detailed information, please refer to Water Quality Effects Assessment Memorandum (**Appendix D**).

3.1.4.1 Data Collection

An overview of the previous studies on water quality in the Toronto Harbour was conducted. A current and comprehensive bathymetric data set of the Inner Harbour was among these data review. These data set served as the base of subsequent modelling of water circulation in the harbour. The most current and relevant water circulation modelling was performed by AECOM in 2018. It explicitly reviewed potential changes in water circulation caused by various Billy Bishop Toronto City Airport runway encroachments in the harbour under review at that time.

3.1.4.2 Description of Existing Environmental Conditions

The Toronto Harbour faces pollution challenges mainly from combined sewer overflows (Combined Sewer Overflows) during heavy rain and storm sewer discharges of sediment and pollutants, particularly from the Don River. These sources have resulted in high levels of nutrients and fecal coliform bacteria, exceeding Provincial Water Quality Objectives. To address these issues, the City of Toronto is implementing several initiatives, including, the Don River and Central Waterfront program to manage Combined Sewer Overflows, the Wet Weather Flow Master Plan to reduce stormwater runoff, and the Don Mouth Naturalization and Port Lands Flood Project to improve water quality through naturalization efforts, all of which contribute to the Toronto and Region Area of Concern through the Remedial Action Plan. These ongoing efforts are expected to significantly reduce pollutant levels, improving water quality in the Inner Harbour. Further details are provided in the Water Quality Effects Assessment (**Appendix D**).

3.1.4.2.1 Existing Processes Regulating Water Quality in the Toronto Harbour

The primary mechanism regulating water quality in Toronto Harbour is the ‘flushing’ process, where cleaner lake currents displace polluted harbour water. This process is crucial for maintaining water quality, especially after rainfall events when pollutant loadings in the Inner Harbour increase due to surface runoff and Combined Sewer Overflows.

Key aspects of the water regulation process include:

- Water circulation: Lake Ontario water enters through the Western Channel and exits through the Eastern Channel, displacing polluted harbour water.

- Hydraulic residence time: Shorter residence times indicate improved water quality in the harbour.
- Circulation patterns and water volume ratios between circulated lake water and harbour water influence the effectiveness of the flushing process.

3.1.4.2.2 Water Dynamics in the Toronto Harbour

Toronto Harbour's water dynamics have been shaped by various factors that influence water quality and circulation patterns. Key insights into these dynamics are described below.

The primary water currents enter through the Western Channel and exit through the Eastern Channel. This circulation helps maintain water quality by flushing out polluted water. In particular, the Don River plume flows along the shoreline and towards the Eastern Channel outlet, influencing the direction and strength of currents (Baird, 2010).

The City of Toronto's Inner Harbour Water Quality Modelling Report study (2012) showed that the Don River plume initially discharges west towards the Inner Harbour's centre before mixing and flowing towards the Eastern Channel (City of Toronto, 2012). The AECOM 2018 study showed through 3D harbour current simulations that the Don River plume rapidly turns south and flows along the shoreline towards the Eastern Channel outlet.

Baird's 2010 study focused on potential improvements to water quality, suggesting that relocating the Don River outlet would have a positive effect. It also confirmed the primary current patterns entering through the Western Channel and exiting through the Eastern Channel, which are key to the harbour's overall circulation.

3.1.5 Groundwater

3.1.5.1 Data Collection

The Geotechnical Investigation Report (GIR) conducted by GEMTEC (2023) presents data from nine test pits advanced across the southwestern and eastern perimeter of the Billy Bishop Toronto City Airport airside property, providing an understanding of local hydrogeological conditions. In 2024, a follow-up investigation conducted by Envision involved drilling 11 offshore boreholes below water at the west and east ends of Runway 08/26. Refer to the Borehole Drilling Report for more details (**Appendix E**).

3.1.5.2 Description of Existing Environmental Conditions

3.1.5.2.1 Groundwater Levels

The local groundwater in the Project Study Area was observed between 0.9 metres to 1.5 metres below ground surface, with elevations ranging from 74.6 metres to 74.9 metres above sea level. On specific measurement dates in 2023 (February 1st, April 1st, and April 26th), groundwater elevations were recorded to be approximately 200 mm to 800 mm higher than the level of Lake Ontario, as reported by the International Lake Ontario-St. Lawrence River Board. The groundwater flow is expected to flow outward from the Billy Bishop Toronto City Airport property towards the Lake Ontario shoreline.

3.1.5.2.2 Source Water Protection

The Source Protection Information Atlas of Ontario (Ministry of the Environment, Conservation and Parks, 2024b) and the Credit Valley – Toronto and Region – Central Lake Ontario Source Protection Region Committee (2024) indicate that the Project Study Area is located within Toronto Source Protection Area. According to the Source Protection Information Atlas of Ontario (2024), the Project Study Area is not within an Intake Protection Zone but is located near Intake Protection Zone 2, an area where measures are in place to protect the quality of water for municipal drinking water intakes. The Project Study Area is located on a Highly Vulnerable Aquifer, according to the Source Protection Information Atlas of Ontario (Ministry of the Environment, Conservation and Parks, 2024b).

3.1.6 Stormwater and Drainage

3.1.6.1 Data Collection

In Fall 2024, Avia NG Inc. conducted a topographical survey within the Project Study Area to inform the preliminary design concepts including confirmations of existing drainage infrastructure (e.g., catch basins, maintenance holes, pipe inverts, culverts, etc.). The survey also confirmed grading, ditching, and catchment areas for stormwater management preliminary design efforts for the implementation of RESA which will account for impacts of existing surfaces (i.e., paved vs. turf) and moderate changes from impervious to pervious and vice versa.

3.1.6.2 Description of Existing Environmental Conditions

Billy Bishop Toronto City Airport has generally flat topography with limited elevation above the average Lake Ontario water levels. This results in a high groundwater table across the site. Consequently, Billy Bishop Toronto City Airport stormwater and drainage management consists of sloped and graded surfaces, catchments from built-up and impervious areas, which are all directed to low lying areas. This promotes

infiltration into the underlying groundwater regime or to drainage structures, ultimately draining into the lake. There are large turf areas where infiltration occurs, as well as evapotranspiration. Engineered airside drainage systems that facilitate stormwater transfer to final discharge points include culverts, French drains, catch basins, and manholes.

There is potential for contaminant runoff from paved surfaces on the airfield, including debris/sediment, fuel residue, and de-icing or anti-icing chemicals. Aircraft de-icing fluids are managed on the main apron through a collection system that captures, controls and directs these fluids to the City of Toronto sanitary sewer system. Furthermore, urea as a pavement de-icer/anti-icer is not used in favour of more biodegradable and less corrosive potassium acetate and sodium formate. The main apron typically presents the highest existing risk for these contaminants.

3.1.7 Soil and Sediments

3.1.7.1 Data Collection

The geotechnical investigation completed by EnVision Consultants Ltd. (September 2024) included drilling 11 offshore and 14 onshore boreholes, with rock coring done at two offshore locations where drilling reached bedrock at about 12.2 metres to 12.3 metres deep. To gather more data, 11 Cone Penetration Tests were done offshore near the boreholes. Rock coring data, such as recovery rates and rock quality, were recorded following standard guidelines, and soil and rock samples were collected for laboratory testing. The Borehole Drilling Report is included in **Appendix E**. Surface sediment and soil samples collected from each borehole (except one on the east end, where bedrock was encountered at the lakebed) were submitted for laboratory analysis of various parameters and potential contaminants of concern, based on the area's general historical industrial use.

3.1.7.2 Description of Existing Environmental Conditions

3.1.7.2.1 Onshore

The onshore subsurface conditions typically included a surface layer of concrete, asphalt pavement, or topsoil underlain by fill materials such as sand and gravel, clayey silt, and sand with ballast. In some boreholes, native sand was found below the fill.

3.1.7.2.2 Offshore

The offshore investigation identified lakebed elevations ranging from 63.6 metres to 71.8 metres, with water depths of 2.9 metres to 11.1 metres. Fill materials, including sand, silty sand, gravelly silty sand, and clayey silt, were present at the lakebed,

extending to depths of 8.7 metres to 13.8 metres. Fill conditions ranged from very loose to compact, with water content varying widely (10% to 73%).

Underlying the fill, native materials such as sand, silty sand, and sandy silt were encountered, varying in thickness and condition (very loose to compact). Below these strata, bedrock of the Georgian Bay Formation was contacted, consisting of weak shale interbedded with limestone and siltstone. The shale showed signs of weathering and deterioration when exposed.

3.1.7.2.3 Sediment Quality

The results of the analyses identified the following:

- Sediment quality was found to meet all the Sediment Standards (Canada Council of Ministers of the Environment, Table 1 Sediment 'Site Condition Standards' and 'Provincial Sediment Quality Guidelines' Lowest Effect Level) with the exception of the following at the east end of the Project Study Area:
 - Various metals and mercury were found at BH24-OFF-08, BH24-OFF-09, BH24-OFF-10, and BH24-OFF-11.
 - Various Polycyclic Aromatic Hydrocarbons were found at BH24-OFF-08.
 - Dioxins and furans were found at BH24-OFF-06, BH24-OFF-08, BH24-OFF-09, BH24-OFF-10, and BH24-OFF-11.
- Sediment results were also found to exceed Table 3.1 Industrial / Commercial / Community (ICC) Excess Soil Quality Standards at BH24-OFF-08, BH24-OFF-09, BH24-OFF-10 and BH24-OFF-11.

Refer to **Appendix E** for the location of the above noted boreholes.

3.2 Socio-Economic Environment

3.2.1 Air Quality

The following sections summarize the existing air quality conditions. For more detailed information, please refer to Air Quality Assessment Report (**Appendix F**).

3.2.1.1 Data Collection

The background air quality concentrations within the air quality study area were determined using publicly available historical data from ambient air quality monitoring stations in Ontario. Five years of air monitoring data from Environment and Climate Change Canada (2022) under the National Air Pollution Surveillance network were selected. Stations closest to the air quality study area, particularly those in the vicinity of

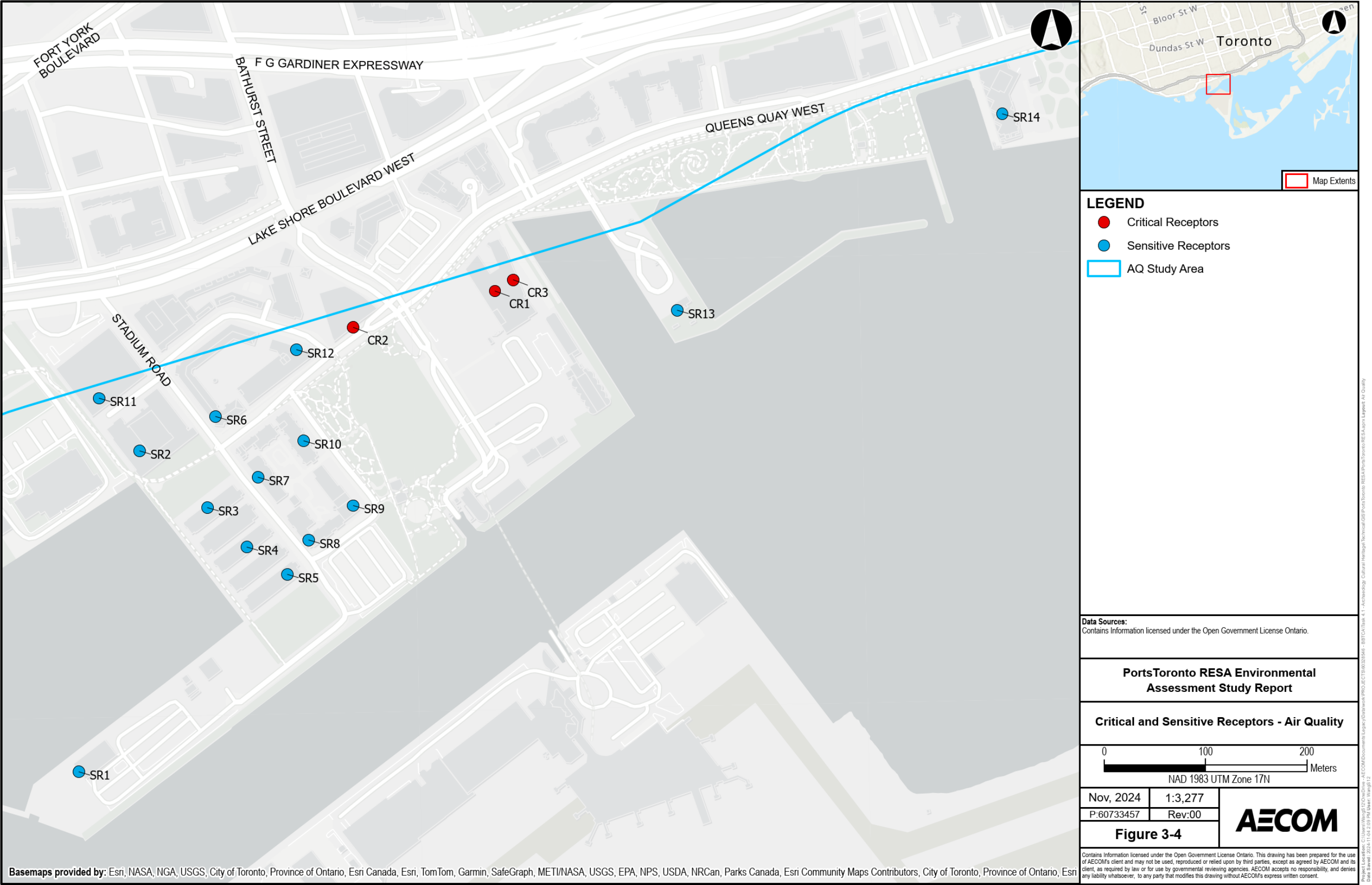
the airport, were identified as the most representative for each contaminant of concern to accurately represent the background air quality. As such, Toronto Downtown, Toronto West, and Etobicoke South monitoring stations (all located approximately 1 kilometre to 14 kilometres from the air quality study area) were used. The closest monitoring station is located at Toronto Downtown, approximately 1 kilometres from the air quality study area.

3.2.1.2 Description of Existing Environmental Conditions

The air quality study area includes a 500-m buffer around the Project Study Area, encompassing fourteen sensitive receptors (residential dwellings) and three critical receptors (retirement homes, hospitals, childcare centres, and/or schools). Refer to **Figure 3-4** below, and Table 2-1 in the Air Quality Assessment Report (**Appendix F**) for the location of the sensitive and critical receptors.

Analysis of the ambient air quality revealed that most contaminant levels remained below the provincial Ambient Air Quality Criteria and federal Canadian Ambient Air Quality Standards. However, nitrogen dioxide concentrations exceeded the federal Canadian Ambient Air Quality Criteria in the existing background levels. Specifically, the 98th percentile 1-hour nitrogen dioxide concentrations reached 108.5 µg/m³, which is 130% above the Ambient Air Quality Criteria limit of 83.2 µg/m³. Full background data concentrations are included from Table 3-2 to Table 3-5 of the Air Quality Assessment Report.

Figure 3-4: Critical and Sensitive Receptors – Air Quality



3.2.2 Noise

The following sections summarize the existing noise conditions. For more detailed information, please refer to Noise Impact Assessment Report (**Appendix G**).

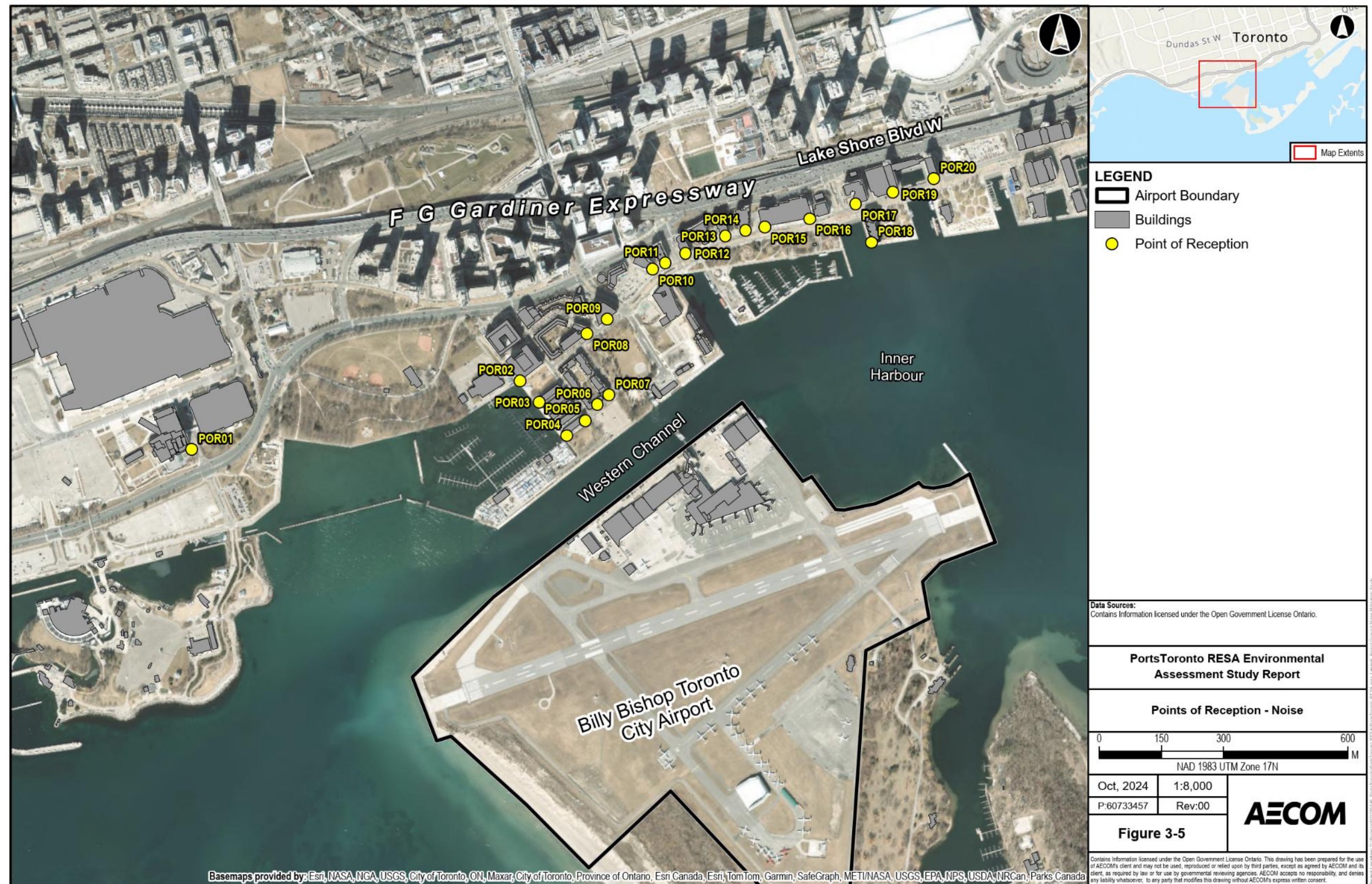
3.2.2.1 Data Collection

Background noise levels used for comparison with predicted construction noise levels were conservatively estimated for the nearby noise-sensitive receptors based on the historic baseline levels considering only road and light rail transit sources available for nearby point of reception locations. Refer to **Figure 3-5** below, and Table 1 in the Noise Impact Assessment Report (**Appendix G**) for the locations of the assessed points of reception.

3.2.2.2 Description of Existing Environmental Conditions

The primary source of noise from ground operations at the airport is from the aircraft run up area located on the eastern edge of the airport dock wall south of the Stolport hangar and east of gates 10 & 11. RWDI previously completed a Noise Assessment Report for Billy Bishop Toronto City Airport (AECOM 2017), outlining that the primary source of noise from ground operations at the airport is the aircraft ground run up maintenance testing area, which is located in the south field next to the fuel farm, however this assessment was prior to construction of the ground run up enclosure. Additionally, sound sources associated with Billy Bishop Toronto City Airport include airborne aircraft, aircraft on the ground (i.e., taxiing, idling, engine run up, engine-braking upon landing), airport ground support equipment, and the Marilyn Bell Ferry (AECOM 2017). Sources of ambient noise within or adjacent to the noise study area include nearby road traffic and light rail transit (AECOM 2017). Pertinent to ground-based noise levels, a noise wall currently exists at the west end of Runway 08/26. The estimated existing nighttime background sound levels used for assessing construction noise impacts range from 52 to 62 dBA $L_{eq,23:00-07:00}$ (equivalent average sound levels between 11:00 pm and 7:00 am) at the nearest noise sensitive points of reception. These levels are typical of those found in urban communities.

Figure 3-5: Points of Reception – Noise



3.2.3 Socio-Economic Assessment

The following sections summarize the existing social environment conditions. For more detailed information, please refer to Socio-Economic Assessment Report (**Appendix H**).

3.2.3.1 Data Collection

As part of AECOM's 2017 Environmental Assessment, a data collection, analysis and assessment of socio-economic conditions was compiled in a draft Socio-Economic Memo in 2017 (AECOM, 2017). As part of this analysis, primary data collection was undertaken through two surveys: an intercept survey and a telephone survey. The intercept surveys were conducted with recreational users (i.e., boaters, runners, cyclists, walkers, and bird watchers) on random days to gain an understanding of the local environment, current Billy Bishop Toronto City Airport operations, and the effects on recreational opportunities and use. In addition, individuals from the study area and the wider City of Toronto participated in phone and intercept surveys, where they were asked to list the top three things they value most about Toronto's waterfront. Due to changes in population dynamics along the Toronto Waterfront since 2017, existing condition descriptions were further validated through desktop research, key stakeholder interviews and input from public consultation sessions. Desktop data gathering included research to validate and update descriptions and detailed inventories for each of the social values identified in AECOM's 2017 Environmental Assessment. Specifically, recent studies and reports in relation to social values were reviewed, including detailed assessments of the airport's economic and tourism impact on the local area, as well as publications on property values and real estate trends in the waterfront region.

Findings from the Project's studies on Noise Impact, Air Quality Impact, Marine Physical Environment Impact, Traffic, and other relevant assessments were reviewed to understand how changes in these environmental components could affect residential, recreational, economic, and other uses of the area. Primary data collection consisted of input compiled through public consultations and targeted interviews undertaken in 2024 to further refine the existing conditions of each social value.

Due to the small nature of the community and the limited number of interviews, AECOM has not attributed specific comments or perspectives to individual interviewees. For more details on the interview methods, including an interview guide and summary of interview activities, please reference the Socio-Economic Assessment Report in **Appendix H**.

3.2.3.2 Description of Existing Environmental Conditions

The following “Use” and Non-Use” social values were identified during AECOM’s 2017 Environmental Assessment. The Gap Analysis conducted by AECOM (2024) confirmed that previously identified Non-Use social values persist (Refer to **Appendix A**).

Use Values are values derived from using the area for activities including residential, recreational, public facilities and services and institutions, and economic and tourism uses. Non-Use Values are derived from the existence, preservation, and potential future use(s) of the waterfront, even if people do not directly interact with it today.

A high-level summary of each social value existing conditions is described below. For a comprehensive and detailed description of the existing conditions for each of the identified social values, and associated references, please refer to the Socio-Economic Assessment Report in **Appendix H**.

Residential Uses: The socio-economic study area is characterized by a high population density, which has been steadily increasing. According to Statistics Canada, the total resident population for the Spadina—Fort York Electoral District was around 136,000 in 2021, which represents an approximately 18% increase since 2016 (Statistics Canada, 2016 & 2021). The area is a mix of residential and commercial (office) properties with residential uses that include low and mid-rise non-profit and assisted housing complexes, high-rise market-rate condominiums on the mainland side, detached family homes on the Toronto Islands, and some houseboats harboured in the Central Waterfront area (either docked at the mainland or at the Toronto Islands) (N. Barry Lyon Consultants, 2013).

Future development in the socio-economic study area reflects the continued appeal of waterfront living, with ongoing projects emphasizing sustainability, affordability, and enhanced connectivity. The Central Waterfront Secondary Plan will continue to guide growth by integrating green spaces and ensuring that 25% of new housing remains affordable (City of Toronto, 2023a). The Development Pipeline indicates rapid expansion, with the socio-economic study area’s residential projects increasing in size and scale, further contributing to population density and economic activity (City of Toronto, 2023a). Future growth will be particularly evident in large-scale projects such as the Ookwemin Minising Precinct Plan, which will introduce 9,000 residential units, including up to 2,700 affordable homes (City of Toronto, 2024f). Similarly, the East Harbour Transit Oriented Community will create a community with 4,000 residential units (Infrastructure Ontario, 2025; Cadillac Fairview, 2025; City of Toronto, 2024g).

Recreational Uses: Recreational land uses and facilities in the socio-economic study area include parks, natural areas, beaches, trails and sport facilities. The network of parks and open spaces that line the Toronto Waterfront and Toronto Islands is

extensive, and both the Toronto Island Master Plan and Waterfront Toronto's Next Phase of Waterfront Revitalization indicating plans to enhance and expand the recreational attractions in the area. Current examples of active recreational space include sports fields, skating rinks, marinas, and outdoor theatres (for concerts/plays), while examples of recreational space include natural or undeveloped park space for passive enjoyment, as well as picnic sites, playgrounds, hiking trails, and areas for wildlife viewing and bird watching. Some of the common recreational activities in the socio-economic study area include boating, cycling, bird watching, picnicking and use and enjoyment of the Toronto Island beaches, including Hanlan's Point Beach, which holds historical and cultural importance for the 2SLGBTQIA+ community in Toronto.

Public Facilities, Services and Institutional Uses: There are a wide variety of public facilities, services and institutions used and accessed by those who live, work or seek out such services in the socio-economic study area. In the 2017 survey (AECOM), 7% of study area respondents indicated they chose to live in the socio-economic study area because of the proximity to services (includes shopping, medical facilities, schools, etc.). These include educational institutions such as schools or child-care services; clinics and service providers, including those that are medical, dental, and skin related; places of worship; and emergency and social service and welfare organizations.

Toronto Island residents typically connect to services and institutions on the mainland via the municipal ferry services and private water-taxi operators. Current measures are in place to connect the Toronto Island residents and businesses with services through the PortsToronto runway crossing reservation system (STOLport Billy Bishop, 2024). This system enables crossing of the Billy Bishop Toronto City Airport runway by City of Toronto vehicles, utility contractors, non-city service providers and other entities such as the Toronto and Region Conservation Authority. Additionally, the Toronto Island school bus crosses the airport lands when the ferry is not operational in the winter.

Billy Bishop Toronto City Airport is a public facility itself, providing both recreational, commercial, and emergency air services for both visitors to the city and to residents of Greater Toronto Area region. In 2023, Ornge conducted over 2,500 medevac flights from its base at Billy Bishop Toronto City Airport. These flights are part of Ornge's air ambulance operations, which provide urgent patient care and medical transportation across Ontario. The use of Billy Bishop Toronto City Airport allows Ornge to efficiently access the downtown Toronto area, making it a critical location for their operations (Airports International, 2024).

Economy and Tourism Uses: Recent studies related to the economic contribution of Billy Bishop Toronto City Airport have indicated that it contributes to the growth and prosperity of the City of Toronto and the regional economy (InterVISTAS (2017); York

Aviation, 2021; Richard Florida, 2023). Common findings across these studies show the Billy Bishop Toronto City Airport:

- Fosters economic growth and development.
- Enhances travel convenience for many City residents and businesses.
- Sustains direct and indirect employment.

To further validate and contextualize the above quantitative studies, interviews conducted in 2017 and 2024 with individual business (located along Queens Quay) and selected business organizations (i.e., the Waterfront Business Improvement Area (BIA)) provided testimonials to the importance of Billy Bishop Toronto City Airport to the success and sustainability of area businesses. These interviews also identified that activity along the waterfront has not returned to pre-pandemic levels, highlighting the importance of Billy Bishop Toronto City Airport in continuing to attract tourists and other visitors to the area and support the economic vibrancy of the area. Finally, Richard Florida and Creative Class Group (2023) paint a compelling argument for managed coexistence of Billy Bishop Toronto City Airport and the city's downtown core to sustain a positive work-life balance and foster growth of the city's burgeoning knowledge-based economy.

With respect to the current and future economic and tourism uses within the socio-economic study area, some people believe alternative uses for key locations, such as the airport and former Ontario Place, should be considered, while others support the current vision for the waterfront's redevelopment to balance both economic development and expansion of public space (City of Toronto, 2024e).

Some stakeholders advocate for repurposing the airport lands as green space for public use (Parks Not Planes, 2024), however, recent public engagements conducted as part of Waterfront Toronto's Next Phase of Waterfront Revitalization suggest that there is still support for maintaining industry use. There is a general recognition and acceptance of the importance of Toronto's port to the concrete, aggregate and related industries. There is also interest in attracting new industry (e.g., film, creative industries like art galleries, and health care services) as well as development of new attractions to increase tourism activity in the socio-economic study area (City of Toronto, 2022b).

New investment in tourism uses of the area is planned as the Ontario government has announced that the revitalized Ontario Place will include a relocated Ontario Science Centre and expanded development including a spa and indoor waterpark in addition to green space and beaches. Although the timelines and complete plans for the Ontario Place Revitalization Plan are not yet finalized, they will result in increased tourism use of the Toronto waterfront once it is operational. Waterfront Toronto is also currently leading a major transformation of the downtown waterfront as part of the Next Phase of Waterfront Revitalization, with investments in natural wildlife habitats, affordable housing, public art, and spaces for work and recreation. This revitalization is expected to boost tourism in the area (Waterfront Toronto, 2024).

Non-Use Values: Many people in the City of Toronto or surrounding Greater Toronto Area may not have visited or plan to visit the waterfront, but they may nonetheless derive value from it in the form of:

- Maintaining options for future generations to develop and use the waterfront as they wish.
- Preserving aspects of the natural environment, including the water-area of the Inner Harbour, for future use and enjoyment.
- Representing or contributing to the “brand” of Toronto as a major “waterfront” city with a certain “quality of life” that is attractive.

Furthermore, passive enjoyment of the waterfront, the lake and the Toronto Islands for its scenery and naturalized environment alongside the densely built up and urbanized landscape is highly valued by those living and visiting the socio-economic study area.

The 2017 phone survey also found that City of Toronto residents who have never visited the socio-economic study area (13.6%) value the waterfront despite never having utilized the area (AECOM, 2017). These “non-users” cited scenery and view (22%) and the water and proximity to the lake (17%) as the top reasons why they attribute value the waterfront. The results from the intercept survey generated similar responses that indicate value associated with passive-use of the area, particularly focused on the presence of the lake and activities along the shore, referencing the natural setting, the opportunities for recreation that the open land and water provides, the uniqueness of the area in comparison to other recreational or open spaces in the City of Toronto, as well as the identity it creates for the City of Toronto as a “waterfront” city.

Recent public consultation feedback and comments from key interviews for the Project have re-confirmed that there continues to be interest and value associated with maintaining or creating new “non-use” space around the Toronto Waterfront. Indigenous engagement for the Next Phase of Waterfront Revitalization indicated similar interest in identifying areas to be left alone for potential future uses (City of Toronto, 2023b) while the Parks not Planes organizations advocates for the Billy Bishop Toronto City Airport to be converted into public, naturalized open space (Parks not Planes, 2024).

Finally, some additional “non-use” examples suggested by interviewees for this RESA Environmental Assessment included recommendations to create “buffer” areas - an area of “un-used” space, often naturalized, that can provide a physical, visual, and conceptual buffer zone between two highly varied use areas, such as an airport and a clothing-optional beach. Such areas can also be considered, now or in the future, to reduce the effects of human impact on the environment and mitigate effects of climate change, such as carbon sequestration, buffer against rising water levels or storm surges, support for biodiversity by providing habitat and ecosystem resilience, moderation of local temperatures etc.

3.2.4 Public Health

A high-level public health assessment was completed to identify how the changes in air quality and noise levels from the Project could affect public health.

3.2.4.1 Data Collection

The public health assessment was informed by the data collected during the noise and air quality studies. Refer to **Sections 3.2.1** and **3.2.2** for more details.

3.2.4.2 Description of Existing Environmental Conditions

A summary of existing conditions for the noise and air quality studies that are relevant to public health are provided below.

3.2.4.2.1 Air Quality

Ambient Air Quality Criteria are air quality standards created to protect people's health. They are based on the most sensitive health effects that could happen when people are exposed to air pollution. Most Ambient Air Quality Criteria focus on health and are meant to prevent harmful effects from breathing in polluted air, whether it is just for a short time or over many years.

Background concentrations of the following criteria air contaminants were compared to the applicable Ambient Air Quality Criteria for the time averaging periods:

- Nitrogen dioxide - assessed over 1-hour, 24-hour, and annual averaging periods.
- Carbon monoxide - assessed over 1-hour and 8-hour averaging periods.
- Sulphur dioxide - assessed over 10-minute, 1-hour, and annual averaging periods.
- Suspended particulate matter - assessed over 24-hour and annual averaging periods).
- Particulate matter (<10 microns) - assessed over 24-hour period).
- Particulate matter (<2.5 microns) - assessed over 24-hour and annual averaging periods).

Analysis of the ambient air quality revealed that most contaminant levels remained below the provincial Ambient Air Quality Criteria and federal Canadian Ambient Air Quality Standards. However, nitrogen dioxide concentrations in existing background levels exceeded the federal Canadian Ambient Air Quality Standard. Specifically, the 98th percentile 1-hour NO₂ concentrations reached 108.5 µg/m³, which is 130% above the Ambient Air Quality Standard limit of 83.2 µg/m³.

3.2.4.2.2 Noise

Various measures are used to understand how noise impacts human health. For example, outdoor noise levels of 45 dBA L_{eq} (average sound level) and 60 dBA L_{max} (maximum sound level) may disturb sleep, assuming a 15 dB reduction for outdoor to indoor noise⁵.

Health Canada recommends using the percentage of a population highly annoyed as a key indicator of noise-induced health effects from long-term construction or operational noise exposure. The percentage of highly annoyed population is calculated with an equation that uses the day-night average sound level (L_{dn}), which adds a 10 dB penalty to nighttime noise. Noise mitigation is recommended to be considered where a predicted change in percentage of population highly annoyed exceeds 6.5%.

The average nighttime (23:00 to 07:00) sound levels exceed 45 dBA L_{eq} and maximum noise levels exceed 60 dBA L_{max} , under existing conditions.

3.2.5 Marine Navigation

The following sections summarize the existing marine navigation conditions. For more detailed information, please refer to Marine Navigation Effects Assessment Report (Appendix I).

3.2.5.1 Data Collection

A desktop review was conducted using existing data from WSP (2015), AECOM (2017), and other relevant secondary resources to identify the current conditions.

3.2.5.2 Description of Existing Environmental Conditions

The existing conditions include the type of vessels that typically are in the marine navigation study area, the shoreline characteristics, waves, currents, sedimentation trends that affect marine navigation, and boat user visibility.

3.2.5.2.1 Type of Vessels and Shoreline Characteristics

The type of vessels that typically frequent the marine navigation study area are recreational vessels including motorboats, sailing vessels and paddleboaters. Passenger ferries and tour boats also frequent the area at the Hanlan's Point Beach ferry.

5. 15 dB reduction from outdoor to indoor noise is an assumption based on typical building construction, considering a partially open window. For example, if the outdoor noise is 45 dBA, the indoor noise would be approximately 30 dBA (45 dBA - 15 dB = 30 dBA).

Physical shoreline characteristics range from concrete, timber or steel vertical seawalls to beaches, marshes and stone revetment slopes.

3.2.5.2.2 Waves and Currents

The wave climate at the west end of Runway 08/26 can be greater than at the east end as the most severe winds tend to blow from the west to southwest (WSP, 2015) over the longer fetch of Lake Ontario.

Flow circulation through the Inner Harbour is from the Western Gap to the Eastern Gap, and maximum current velocities in the Western Gap were recorded at 0.52 metres per second (AECOM, 2017).

3.2.6 Built Form and Land Use

3.2.6.1 Data Collection

A comprehensive desktop review was conducted to assess existing land use, future planning initiatives, and active developments within the area. This included an analysis of relevant land use policy frameworks, such as the City of Toronto Official Plan 2024, and Site and Area Specific Policies. Additionally, a review of current and ongoing developments in the vicinity was undertaken to provide further context and insights into the area's land use dynamics.

3.2.6.2 Description of Existing Environmental Conditions

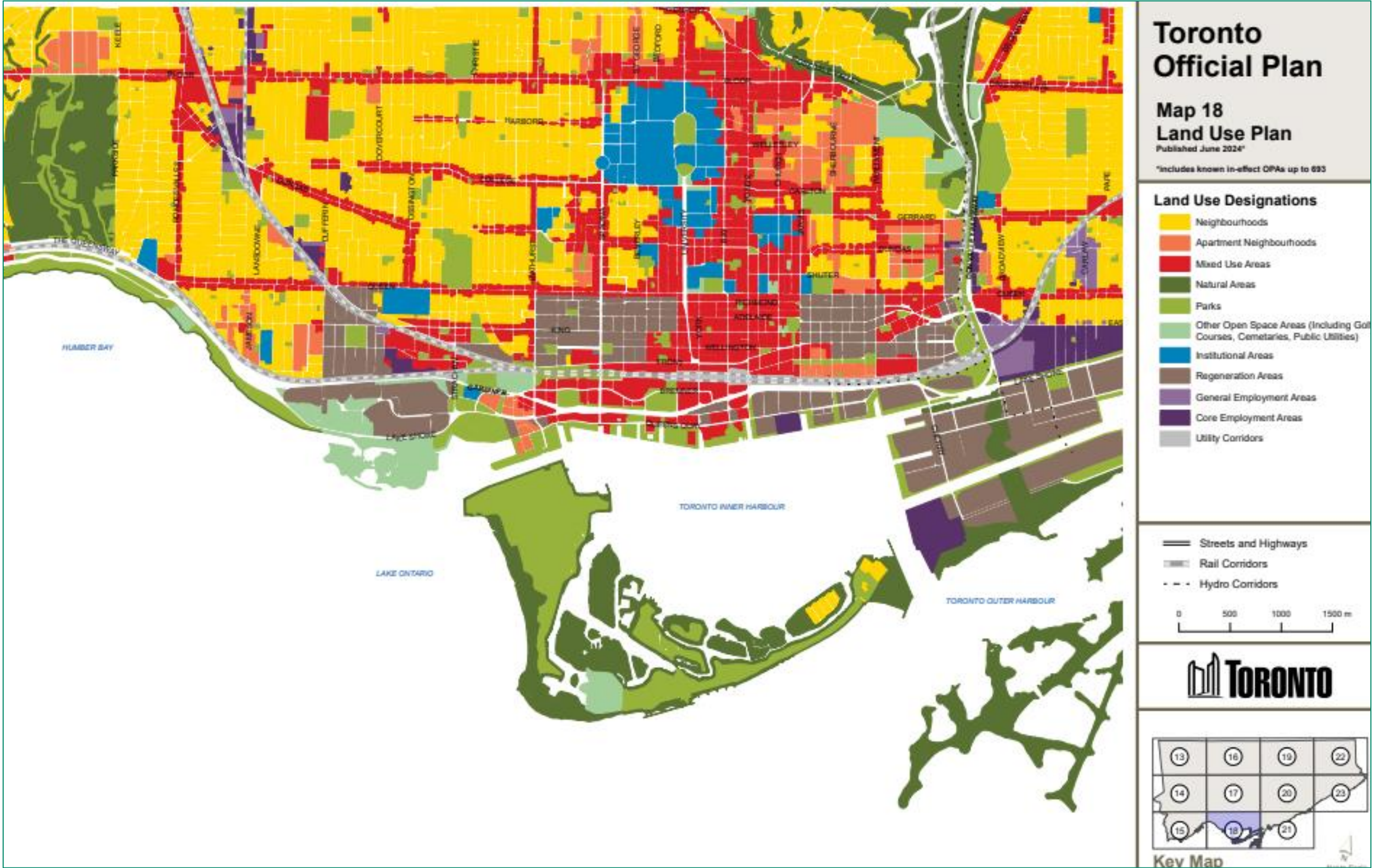
3.2.6.3 Existing Land Uses

3.2.6.3.1 Current Land Use Designation of Billy Bishop Toronto City Airport

Billy Bishop Toronto City Airport lands are designated as Parks and Natural Areas, as demonstrated in Map 18 of the City of Toronto Official Plan (2024c) (**Figure 3-6**). Development is generally prohibited in Parks, with exceptions made for recreational and cultural facilities, conservation projects, cemeteries, public transit, and essential public infrastructure and utilities, provided they are backed by appropriate assessments (Policy 4.3.2 of the City of Toronto Official Plan).

Parks and Natural Areas are intended mainly for preservation in their natural state. However, conservation projects, public transit, public works, and utilities may be permitted if no reasonable alternatives exist, with the stipulation that these projects are planned to minimize environmental impact and prioritize the restoration and enhancement of vegetation and other natural heritage features (Policy 4.3.3 of the City of Toronto Official Plan).

Figure 3-6: City of Toronto Land Use Plan



Source: Map 18 - Land Use Plan, Toronto Official Plan, 2024

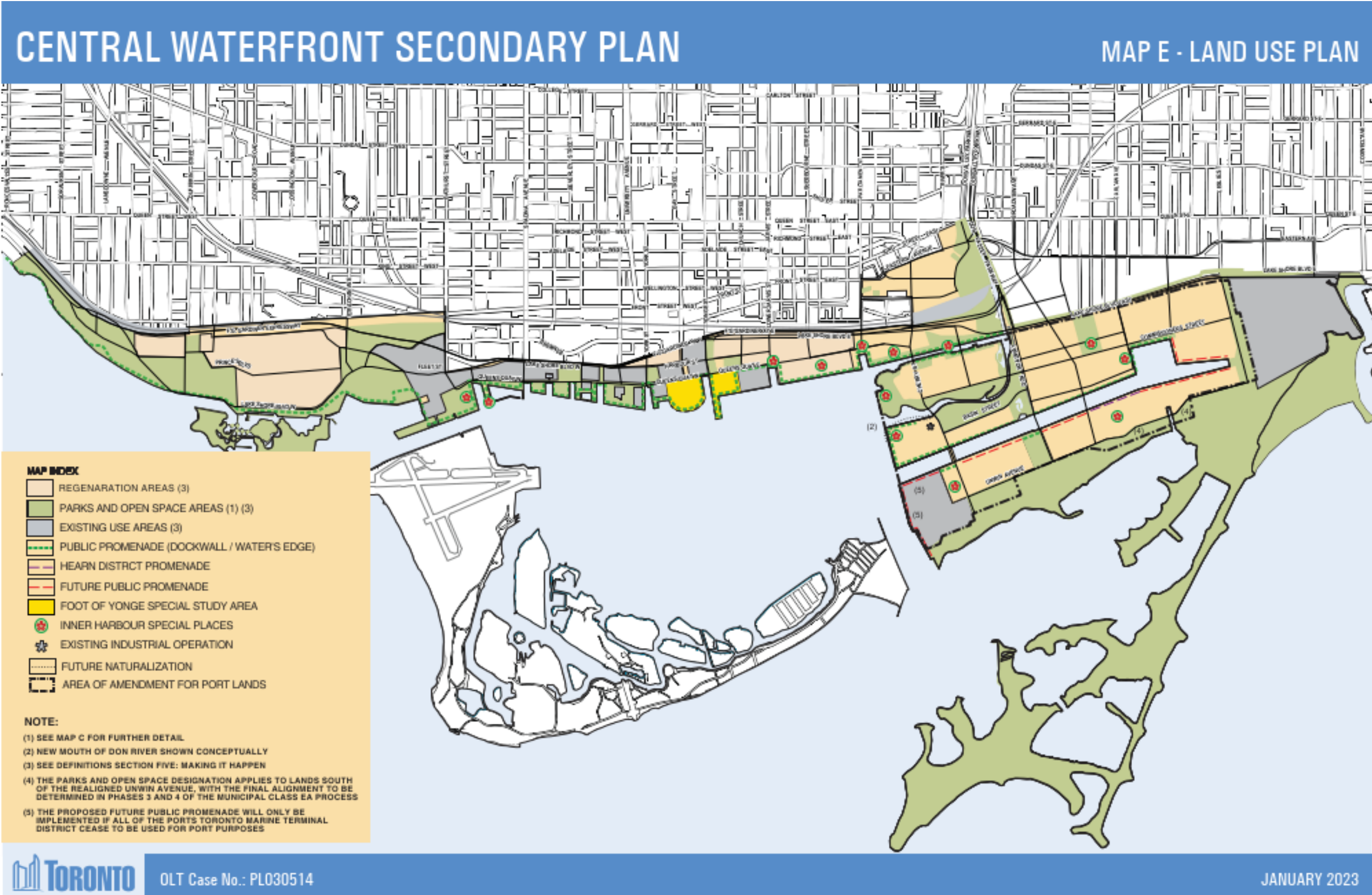
3.2.6.3.2 Adjacent Land Uses

Billy Bishop Toronto City Airport is located adjacent to the Central Waterfront Secondary Plan Area. The Central Waterfront Area is defined by Lake Shore Boulevard West to the north, Dan Leckie Way to the west, Yonge Street to the east, and the waterfront edge to the south, and features a mix of Parks and Mixed-Use Area designations as per the City's Official Plan (**Figure 3-7**). The land use is regulated by the Central Waterfront Secondary Plan which designates the lands as Parks and Open Space Areas, and Existing Use Areas. The Central Waterfront Area has evolved into a diverse community with parks, public amenities, retail and commercial uses, cultural venues, recreational spaces, and residential buildings, all connected by a continuous waterfront promenade. The built form in the area consists of mid-rise buildings immediately north and west of the Billy Bishop Toronto City Airport lands, and predominantly high-rise beyond Lake Shore Boulevard West to the north and to the east towards the Don Valley Parkway.

One of the core principles of the Central Waterfront Secondary Plan is aimed at achieving a high level of environmental health in the Central Waterfront to promote a clean and green environment. A wide variety of environmental strategies will be employed to create sustainable waterfront communities. Priority for sustainable modes of transportation is one of the "Big Moves" for this principle showcasing the City's commitment to a clean and green waterfront that is safe and healthy and contributes to a better environment for the city as a whole. A sustainable transportation system that gives priority to transit, cycling, walking and water transport and reduces the need for car use will form the basis for transportation planning in the Central Waterfront. Future travel demand will be mainly met by non-auto means. PortsToronto and Billy Bishop Toronto City Airport has been tracking and reporting on its sustainability initiatives through its annual Environmental, Social and Governance reports over the past 10 years. Environmental strategies employed by PortsToronto along the central waterfront include: converting the Airport ferry - the Marilyn Bell – from diesel to bio-diesel and then electric in December 2021 which resulted in a 10-15% reduction in greenhouse gases; launching the Trash Trapping Program in 2019 removing hundreds of thousands of pieces of plastic debris from the Toronto Harbour; promoting non-vehicle use to and from the airport has resulted in more than half (on average 55 per cent) of passengers choosing to walk, bike, take public transit or the complimentary shuttle bus from the airport, to name a few.

The Canada Malting Silos, located at the base of Bathurst Street on Eireann Quay, are a key heritage landmark on Toronto's Central Waterfront, situated near Billy Bishop Toronto City Airport. As part of the Bathurst Quay Revitalization Plan, the silos are undergoing a major transformation. The City of Toronto plans to retain and enhance the structure, seeking innovative proposals for a blend of public and private activities to transform the silos into a unique special place on the Toronto Waterfront.

Figure 3-7: Central Waterfront Secondary Plan



Source: Central Waterfront Secondary Plan Map E - Land Use Plan, Toronto Official Plan, 2024

The Ontario Place is a prominent Lake Ontario waterfront destination, located across the Exhibition Place, south of Lakeshore Boulevard West. The Ontario Place is currently undergoing a major redevelopment into a world-class waterfront destination for all ages, with new public parks, spaces for festival and markets, expanded trail systems, fully accessible public realm among other existing and proposed buildings at Ontario Place will remain predominantly low-rise.

3.2.6.4 Future Planned or Approved Developments

Areas adjacent to Billy Bishop Toronto City Airport have been experiencing substantial regeneration and new development. As of November 2024, there were five active development applications and two planned developments within the built form and land use study area. Of the seven developments, three are proposed for public uses such as parks, three are proposed for mixed-use of residential, retail or commercial in high-rise built form, and one is proposed for Billy Bishop Toronto City Airport auxiliary facility improvements. The summary of each of these developments is provided in the **Table 3-3**.

Table 3-3: Future Planned or Approved Developments

Address	Proposed Uses	Status	Planning Area
5 Eireann Quay	Airport taxi pick-up and drop-off area	Under Review	Bathurst Quay Neighbourhood
539 Queens Quay W (Spadina Pier Revitalization)	Public space / park	Pre-Planning Phase	Bathurst Quay Neighbourhood
545 Lake Shore Blvd W	High-rise residential tower with retail and commercial podium	Zoning By-law Amendment Approved Site Plan Approval Under Review	Bathurst Quay Neighbourhood
955 Lake Shore Blvd W (Ontario Place)	Parks, indoor and outdoor recreational spaces, and institutional uses	Under Review	Ontario Place
200 Queens Quay W	High-rise residential tower with retail podium, and a park	Zoning By-law Amendment Approved Site Plan Approval Under Review	Central Waterfront
30 Bay Street	High-rise Office Tower	Zoning By-law Amendment Approved Site Plan Approval Under Review	Central Waterfront
318 Queens Quay W (Rees Park)	Public Space / Park.	Pre-Planning Phase	Central Waterfront

3.2.7 Traffic and Transportation

3.2.7.1 Data Collection

A comprehensive transportation assessment of existing conditions was conducted in 2016 as part of the AECOM 2017 Environmental Assessment study. Although conditions have changed since this study, for example, the implementation of the passenger tunnel, and changes in use patterns of non-private autos modes, shuttle services and ride hailing services, the 2016 traffic study assumed increased passenger activity levels in its analysis. Implementing RESA will not alter operations at Billy Bishop Toronto City Airport, including no increase in movements, addition of destinations, or passenger activity. As a result, the traffic impact analysis from 2016 remains conservative. The current assessment focused on the mainland area surrounding the Billy Bishop Toronto City Airport ferry terminal, bounded by Lake Shore Boulevard West to the north, Dan Leckie Way to the east, the Western Channel to the south, and Stadium Road to the west. Since the data from the previous studies was deemed sufficient for this project, no new traffic data was collected or deemed necessary to evaluate the potential impacts of the RESA on the surrounding transportation network and road users. PortsToronto is currently completing a traffic and passenger analysis based on surveys conducted in December 2023, and August 2024. It is anticipated that a comprehensive transportation and mobility program will be undertaken as part of future works in the immediate area, including the Airport Comprehensive Plan, as well as during the detailed design stage of this Project for the purpose of assessing temporary traffic conditions during construction works.

3.2.7.2 Description of Existing Transportation Network

3.2.7.2.1 Road Network

The road network in the immediate area of the ferry terminal includes Lake Shore Boulevard West, Dan Leckie Way, Stadium Road, Eireann Quay and Queens Quay West. Eireann Quay is a collector road that runs north-and provides direct connection to the ferry terminal. Lake Shore Boulevard West is a six-lane arterial road that spans east-west. The remaining roadways listed above are two-lane, two-way collector roads with posted speeds varying between 40 kilometres per hour and 50 kilometres per hour.

3.2.7.2.2 Public Transit

Public transit access to and from the Billy Bishop Toronto City Airport terminal on the mainland is provided by two Toronto Transit Commission streetcar routes and a complimentary airport shuttle service. The 509 streetcar route provides a connection between the Exhibition Loop and the Union Station. This service is provided seven days a week with headways of between five and ten minutes. The 511 Bathurst streetcar

route provides a connection between the Exhibition Loop and the Bathurst subway station. Billy Bishop Toronto City Airport also provides a complimentary airport shuttle bus service between the Union Station and the Billy Bishop Toronto City Airport ferry terminal. The shuttle bus service currently has the following schedule:

- Monday to Friday 5:00 am to 12:15 am (every 15 minutes).
- Saturday 5:00 am to 10:30 pm (every 15 minutes).
- Sunday 5:15 am to 12:15 am (every 15 minutes).

3.2.7.2.3 Active Transportation

The Martin Goodman Trail forms part of the multi-use Waterfront Trail that runs along the shore of Lake Ontario. The trail transitions to an on-street bicycle lane on Queens Quay. A pedestrian tunnel connecting the ferry terminal with Billy Bishop Toronto City Airport is also available for Billy Bishop Toronto City Airport passengers and employees. It is estimated that it takes six minutes to walk the tunnel from the mainland to the airport.

3.2.7.2.4 Billy Bishop Toronto City Airport Pedestrian Tunnel

The tunnel provides direct connections for staff, deliveries, the public and airport passengers barrier-free access to the airport via elevators and moving escalators. The tunnel connects to the City's pedestrian & trail network, public transit & free Airport Shuttle service, as well as bike rentals as modes of transportation.

3.2.7.2.5 Billy Bishop Toronto City Airport Marilyn Bell Ferry

The fully electric ferry provides road network connectivity all-year round, for airport deliveries, as well as City of Toronto Island service vehicles and trucks, which includes priority service for emergency vehicles.

3.3 Cultural Environment

3.3.1 Marine Archaeology

The following sections summarize the data collection and existing marine archaeological assessment. For more detailed information, please refer to the Marine Archaeology Assessment Report (**Appendix J**).

3.3.1.1 Data Collection

The assessment involved side scan sonar, magnetometer surveys, and ground truthing of potential cultural targets in marine archaeology study area at the west and east ends of Runway 08/26. Background research was conducted to identify cultural resources.

3.3.1.2 Description of Existing Environmental Conditions

Background research suggests that some of the artificial land created for the airport may extend into the marine archaeology study area. However, any material found in this overlap is expected to consist of construction debris (referred to as ‘spoil’) rather than artifacts or features of cultural or historical significance.

With the exception of the one noted shipwreck on the 1833 map, there are no known shipwrecks in the marine archaeology study area.

The potential for Indigenous artifacts or sites on the lake bottom is low. Borehole data, collected post-clearance, was reviewed to try and identify a blue clay layer potentially indicating precontact activity, which typically occurs at a much deeper level than the lake level and in areas of blue clay at depths of at least 10 metres. Eleven cores taken from the marine archaeology study area did not report any blue clay layers.

The surveys identified 28 targets, including 10 non-cultural buoy markers and 15 buried or flat objects detected only by magnetometer. No significant objects were found standing above the lakebed. Magnetometer hits at both ends of the airport likely indicate debris from aeroplanes or construction of the man-made base. None of the targets were deemed of historical significance based on the area’s development history. One target presents as a series of linear dots on the bottom. These occur near the breakwater and associated pilings, connected to the breakwater construction. The vintage of the breakwater is post-1930 and is not considered historically significant.

Another notable target presents as a possible marine railway, located at the northwest corner of the east half of the marine archaeology study area. It aligns with an existing concrete (in poor repair) boat ramp. It post-dates the construction of the airport-made lands and is not considered historically significant.

There were no pre-contact artifacts or historically significant artifacts located during the marine archaeological assessment using side scan sonar and magnetometer. Targets were primarily non-cultural (buoy markers), or metal, marine railway and pilings associated with the development of the airport lands or debris from aeroplanes. None of the artifacts from the magnetometer survey were considered significant hits.

3.3.2 Terrestrial Archaeology

In 2015, AECOM completed a Stage 1 Archaeological Assessment for the proposed extension of the landmass at each end of the Runway 08/26. The Stage 1 Archaeological Assessment determined that the areas which may be physically affected by the proposed runway extension did not retain archaeological potential and no further assessment was recommended (AECOM 2017). Due to the configuration of the RESA 3 footprint, an additional Stage 1 Archaeological Assessment was completed in 2024 for the Project.

The following sections summarize the existing terrestrial archaeology conditions. For more detailed information, please refer to Stage 1 Archaeological Assessment Report (**Appendix K**).

3.3.2.1 Data Collection

This Stage 1 Archaeological Assessment was conducted to meet the requirements of the Ministry of Citizenship and Multiculturalism's Standards and Guidelines for Consultant Archaeologists (MCM, 2011). The results of the Stage 1 Archaeological Assessment presented in this Report are drawn in part from:

- The Ministry of Citizenship and Multiculturalism's Archaeological Sites Database for a listing of registered archaeological sites within a 1 kilometre radius of the terrestrial archaeology study area.
- Reports of previous archaeological assessments within 50 metres of the terrestrial archaeology study area.
- Recent and historical maps of the terrestrial archaeology study area.
- Archaeological management plans or other archaeological potential mapping where available.
- Municipal registers of listed heritage properties and properties designated under the Ontario Heritage Act (Ontario Government 1990b), commemorative plaques, and monuments identified in or near the terrestrial archaeology study area.

3.3.2.2 Description of Existing Environmental Conditions

The majority of the terrestrial archaeology study area was previously assessed by AECOM in 2015 and does not require further assessment (see **Appendix K**- Figure 11). The current Stage 1 Archaeological Assessment was completed for the additional lands to meet the requirements of the Ministry of Citizenship and Multiculturalism's Standards and Guidelines for Consultant Archaeologists (Ministry of Citizenship and Multiculturalism, 2011). The background study for the additional lands has determined that the potential for the recovery of pre- and post-contact Indigenous and 19th century settler archaeological resources within the terrestrial archaeology study area has been removed due to natural areas being subject to extensive and intensive deep land alterations, as well as the remaining land consisting of a manufactured landmass. Based on these findings, it was determined that the terrestrial archaeology study area does not retain any archaeological potential.

3.3.3 Built Heritage Resources and Cultural Heritage Landscapes

The findings of AECOM's 2024 Gap Analysis required the completion of further heritage reporting in the form of a Cultural Heritage Assessment Report: Existing Conditions and Preliminary Impact Assessment (Cultural Heritage Assessment Report), in order to assess the potential impacts of the Project on previously identified cultural heritage resources within or adjacent to the cultural heritage study area.

The following sections summarize the existing built heritage resources and cultural heritage landscapes. For more detailed information, please refer to Cultural Heritage Report **Appendix L**.

3.3.3.1 Data Collection

Data collection involved background research to establish existing environmental conditions and a historical context for the cultural heritage study area and its surrounding environment. Primary sources used to inform the cultural heritage study included the City of Toronto's Heritage Register for properties that contain heritage significance, as well as the Ministry of Citizenship and Multiculturalism Criteria Checklist for built heritage resources and cultural heritage landscapes using a variety of online searchable databases. Secondary sources included previous heritage reporting conducted on or near to Billy Bishop Toronto City Airport lands, as well as using historical maps encompassing the cultural heritage study area. Additionally, a field review conducted by AECOM in September 2024, supplemented by stakeholder consultation.

3.3.3.2 Description of Existing Environmental Conditions

A total of 11 cultural heritage resources were documented within or adjacent to the cultural heritage study area on Toronto Island. One potential cultural heritage landscape, known as the Hanlan's Point Beach, was identified as partially within the cultural heritage study area. In addition, five commemorative landscape features and four potential built heritage resources were identified adjacent to the cultural heritage study area, in the vicinity of Hanlan's Point Beach. Lastly, one built heritage resource is located at the boundary of Billy Bishop Toronto City Airport, directly adjacent to the cultural heritage study area. **Table 3-4** provides a summary of built heritage resource and/or cultural heritage landscapes adjacent to the cultural heritage study area. A detailed description of the cultural heritage resources located within and adjacent to the cultural heritage study area are provided in Cultural Heritage Report (**Appendix L**).

Table 3-4: Summary of Built Heritage Resource and/or Cultural Heritage Landscapes Adjacent to the Cultural Heritage Study Area

Feature ID	Location	Resource Type	Heritage Recognition
1	1 Island Airport - Billy Bishop Toronto City Airport	■ Airport Terminal Building ■ Built heritage resource	■ Listed on the Municipal Heritage Register ■ Federally Designated: Toronto Island Airport Terminal Building National Historic Site of Canada
2	800 Lakeshore Avenue- at Hanlan's Point Ferry Dock	■ Tugboat ■ Commemorative landscape feature	■ None (Potential)
3	760 Lakeshore Avenue- at Hanlan's Point at the Ferry Dock	■ Memorial ■ Commemorative landscape feature	■ Listed on the Municipal Heritage Register
4	760 Lakeshore Avenue- at Hanlan's Point at the Ferry Dock	■ Picnic Pavilion & Bathing Station ■ Built heritage resource	■ None (Potential)
5	740 Lakeshore Avenue- at Hanlan's Point	■ Picnic Pavilion & Bathing Station ■ Built heritage resource	■ None (Potential)
6	800 Lakeshore Avenue- at Hanlan's Point at the Ferry Dock	■ Storyboard ■ Commemorative landscape feature	■ None (Potential)
7	800 Lakeshore Avenue- at Hanlan's Point at the Ferry Dock	■ Storyboards ■ Commemorative landscape features	■ None (Potential)
8	750 Lakeshore Avenue- at Hanlan's Point at the Ferry Dock	■ Plaque ■ Commemorative landscape feature	■ None (Potential)
9	800 Lakeshore Avenue- at Hanlan's Point	■ Viewshed	■ None (Potential)
10	800 Lakeshore Avenue- Ferry Dock at Hanlan's Point	■ Ferry Dock ■ Built heritage resource	■ None (Potential)
11	Lakeshore Avenue - Hanlan's Point Beach on west coast of Toronto Island	■ Public Beach ■ Cultural heritage landscape	■ None (Potential)

3.4 Technical and Engineering

3.4.1 Airport Operations and Safety

Runway 08/26 is, and will remain, certified to TP312 3rd Edition, Code 2C, non-precision instrument standards as documented in the Transport Canada approved Airport Operations Manual. Runway 08/26 is protected by a series of imaginary surfaces that project along its centreline and off the runway ends. These surfaces are designed to ensure safety by providing clear space around the runway, free of obstructions, and are used to define areas that require special consideration for the protection of aircraft operations. These imaginary surfaces protect the airspace for the safe operation of aircraft during takeoff, landing and emergency operations. These surfaces are described by Transport Canada as Obstacle Limitation Surfaces, Clearways or Obstacle Protection Surfaces.

Presently, for parties to be transported from the mainland facing side of the island to the remainder of the Toronto islands, there is a need for vehicle crossing of Runway 08/26 and communications with the airport control tower. These crossings currently support airport operations and Toronto Islands services, including vehicles owned/operated by the City of Toronto, utility services (e.g., Toronto Water, hydro, Bell, Rogers, garbage / recycling trucks), vehicles for the Toronto and Region Conservation Authority (e.g., supporting projects like Gibraltar Point Erosion Control), public service vehicles (e.g., mobile library units), food service vehicles, and event-related traffic (e.g., for sporting or cultural events). Safe crossing is reliant on airport communications, which ensures that no active aeroplanes are traversing or approaching the runway at the time of crossing.

3.4.2 Utilities and Servicing Infrastructure

Billy Bishop Toronto City Airport has a comprehensive infrastructure system to support its operations while minimizing environmental impact. Key components include:

- **Transportation and Infrastructure:** The airport features a pedestrian tunnel, completed in 2015 and the airports fleet of shuttle buses, operated by Nieuport Aviation.
- Billy Bishop Toronto City Airport's lands are serviced by various utilities, including power, gas, communication lines, storm and sanitary sewers, water mains, force mains, and some abandoned lines. During the preliminary design phase, utility locates were conducted to map the utilities within the Project Study Area. These investigations confirmed the presence of power, communication lines, storm sewers, water mains, and abandoned lines within the area.

- **Electrical Infrastructure:** The airport has made significant strides in electrification. This includes electrification of the Marilyn Bell ferry and the use of biofuel in the backup vessel, David Hornell.
- **Water Infrastructure:** A 2400 mm transmission watermain is buried in a rock tunnel approximately 9 metres below the bedrock and 14 metres below the lakebed surface. The watermain is owned and operated by Toronto Water. It passes underneath the proposed breakwater footprint at the east RESA. The Enwave Deep Water Cooling tunnel, situated directly east of the City of Toronto Treated Water tunnel, lies within the bedrock at a depth of approximately 32 to 40 metres below it. Both of these water tunnels operate as a system and there is an Energy Transfer Agreement between the City of Toronto and Enwave that formalizes this relationship.

3.4.3 Ice Formation

The Canadian Highway Bridge Design Code (CAN/CSA S6-06) outlines four primary ice forces affecting structures:

- Dynamic forces from wind or current-driven ice sheets or floes.
- Static forces due to thermal expansion of stationary ice sheets.
- Lateral thrust from ice dams or jams.
- Vertical forces caused by water level fluctuations or colliding ice floes.

The impact of ice loads on shoreline structures correlates directly with ice thickness and strength. While piled structures like steel sheet pile walls require design load considerations, sloped revetments typically do not. Ice riding up sloped structures usually bends and breaks without exerting significant loads, though this can lead to ice inundation.

Ice inundation occurs through shoving, jamming, pile-up, and ride-up, often in combination. Assessing a site's vulnerability to ice inundation is challenging, as no specific calculations exist. Site-specific observations remain the most reliable method for evaluation.

At Billy Bishop Toronto City Airport, ice buildups of 1 to 2 metres have been observed at the steel sheet pile wall on the west end of Runway 08/26. Interestingly, the runway's east end has not had any reported ice inundation. Freezing spray poses an operational challenge, particularly on the exposed western shore, where it can form ice up to 0.3 metres thick on pre-threshold pavement. The freezing spray is a recurring annual phenomenon.

4. Evaluation of Alternatives

This section outlines the process of identifying and evaluating RESA alternatives. It provides a comprehensive review of the long-listed alternatives, the screening process used to determine technically feasible and operationally viable options, and the short-listed alternatives that underwent a detailed assessment. The section also presents the evaluation criteria applied, detailed evaluation matrix and concludes with the selection of the preferred alternative based on its ability to meet the Project objectives while minimizing potential impacts.

4.1 Alternatives to the RESA

4.1.1 Alternatives To RESA

No alternatives to the RESA were considered because implementation of RESA at Runway 08/26 at Billy Bishop Toronto City Airport is a mandatory safety requirement established by Transport Canada. As a critical measure to minimize runway overrun or undershoot risks, RESA compliance is essential to align with federal safety standards.

4.1.2 Do Nothing Alternative

The **Do-Nothing Alternative** assumes Runway 08/26 would continue operating under its current conditions without the mandated 150 metres RESAs at both ends of the runway. While this alternative would have no immediate environmental effects, it fails to address the primary safety objectives of the Project. Therefore, it was removed from further consideration in the evaluation process.

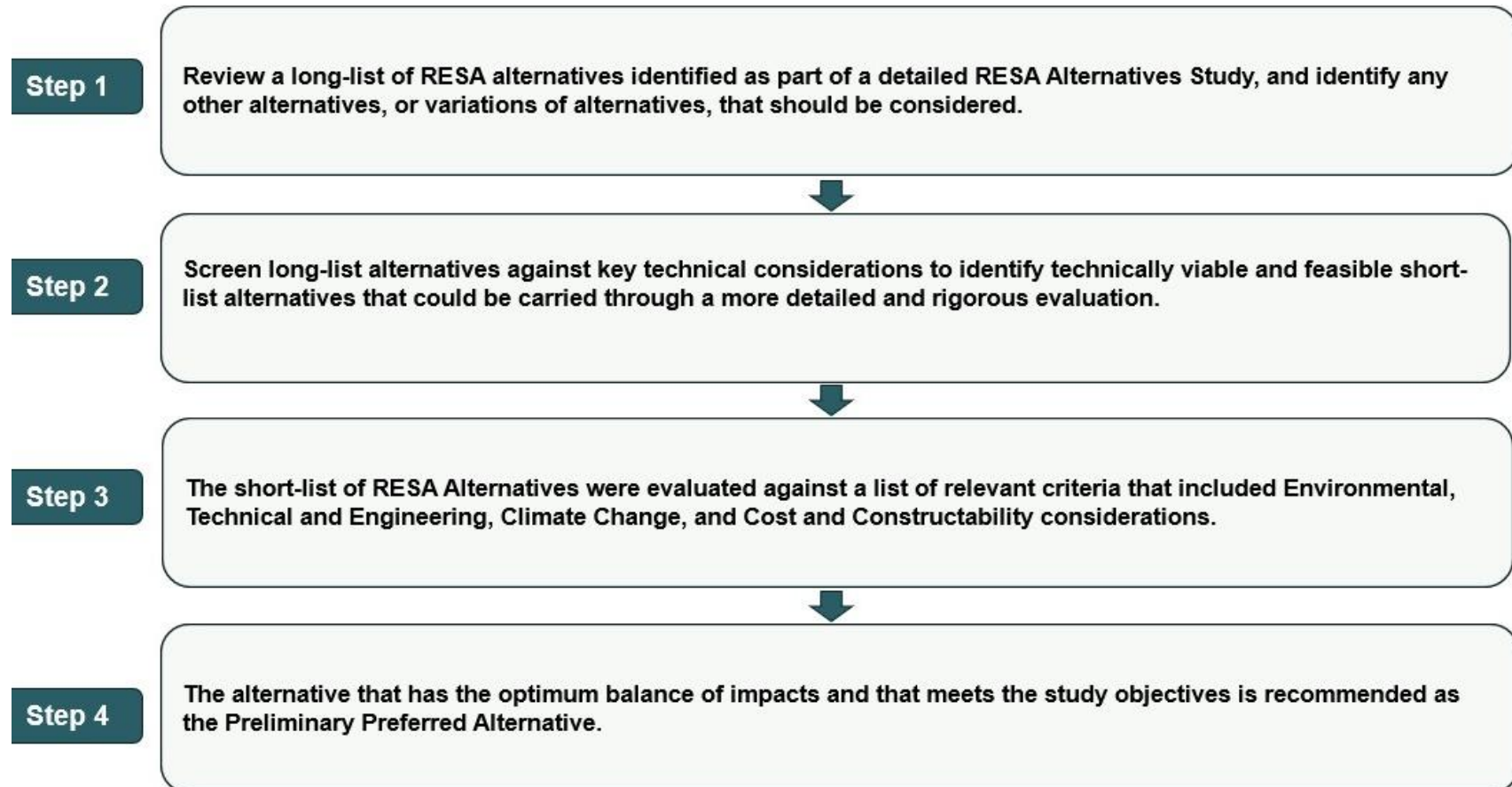
4.2 RESA Alternatives

To identify the preferred RESA alternative, the Project Team evaluated several alternatives using the four-step process outlined in **Figure 4-1**.

4.2.1 Step 1: Long Listed RESA Alternatives

Step 1 in the evaluation process involved reviewing the long-list of RESA alternatives identified in the detailed RESA Alternatives Study completed by Avia NG in Fall 2024, and considering any other alternatives, or variations of alternatives that should be explored. The RESA alternatives examined several solutions including a non-physical approach to compliance, optimization of existing landmass at both runway ends, and new landmass and breakwater expansions to accommodate the physical space needed to comply with the RESA requirements. This approach provided a broad range of solutions, with varying levels of complexity, impacts on the environment and community, costs, and construction and implementation schedule (Avia NG, 2024).

Figure 4-1: RESA Alternatives Evaluation Process



The RESA alternatives that were analyzed as part of the Avia NG 2024 Alternatives Study did not consider runway extensions nor were they intended to have any effect on present runway operations, runway capacity, or aircraft types using the runway.

The long-list of RESA alternatives is described below⁶.

4.2.1.1 Alternative 1: Reduction in Usable Runway Length

This alternative does not involve any physical construction or modifications to existing runway infrastructure. Transport Canada's RESA design standards allow sections of the existing runway and adjacent graded areas at the runway ends to be designated as part of a RESA. This approach, often called a virtual RESA, would adjust the published declared⁷ runway lengths, to accommodate the RESA requirements. In order to meet the 150 metres RESA requirement, this alternative proposes reducing Runway 08/26 by 77 metres on the east end and 90 metres on the west end. The additional reduction on the west end accounts for historical winter ice accretion propagation. This alternative would reduce the officially published declared runway length used for regulatory flight planning purposes (Avia NG, 2024). **Figure 4-2** shows the key features of this alternative.

4.2.1.2 Alternative 2: Reconfigured Thresholds/Pre-Threshold Areas

This alternative considered physical modifications to incorporate RESA at both runway ends by using the 108 metres of available open space between the existing seawalls and the existing runway ends. This alternative identified the potential to gain 13 metres of additional takeoff length for Runway 26. The objective of this alternative was to mitigate any expansion of landmass into the lake through reconfiguration of pavements or a combination of reconfigured pavements, open space, and the use of the virtual RESA from Alternative 1 (Avia NG, 2024). **Figure 4-3** shows the key features of this alternative.

6. The alternative titles have been refined from those in the Avia NG 2024 Alternatives Study to better capture and more clearly convey the characteristics of each alternative. These changes aid in better understanding the distinctions between the alternatives.

7. The term, "Declared Distance" is an aviation term which describes available runway lengths for the purpose of flight planning and aircraft operational performance calculations.

Figure 4-2: Alternative 1: Reduction in Usable Runway Length

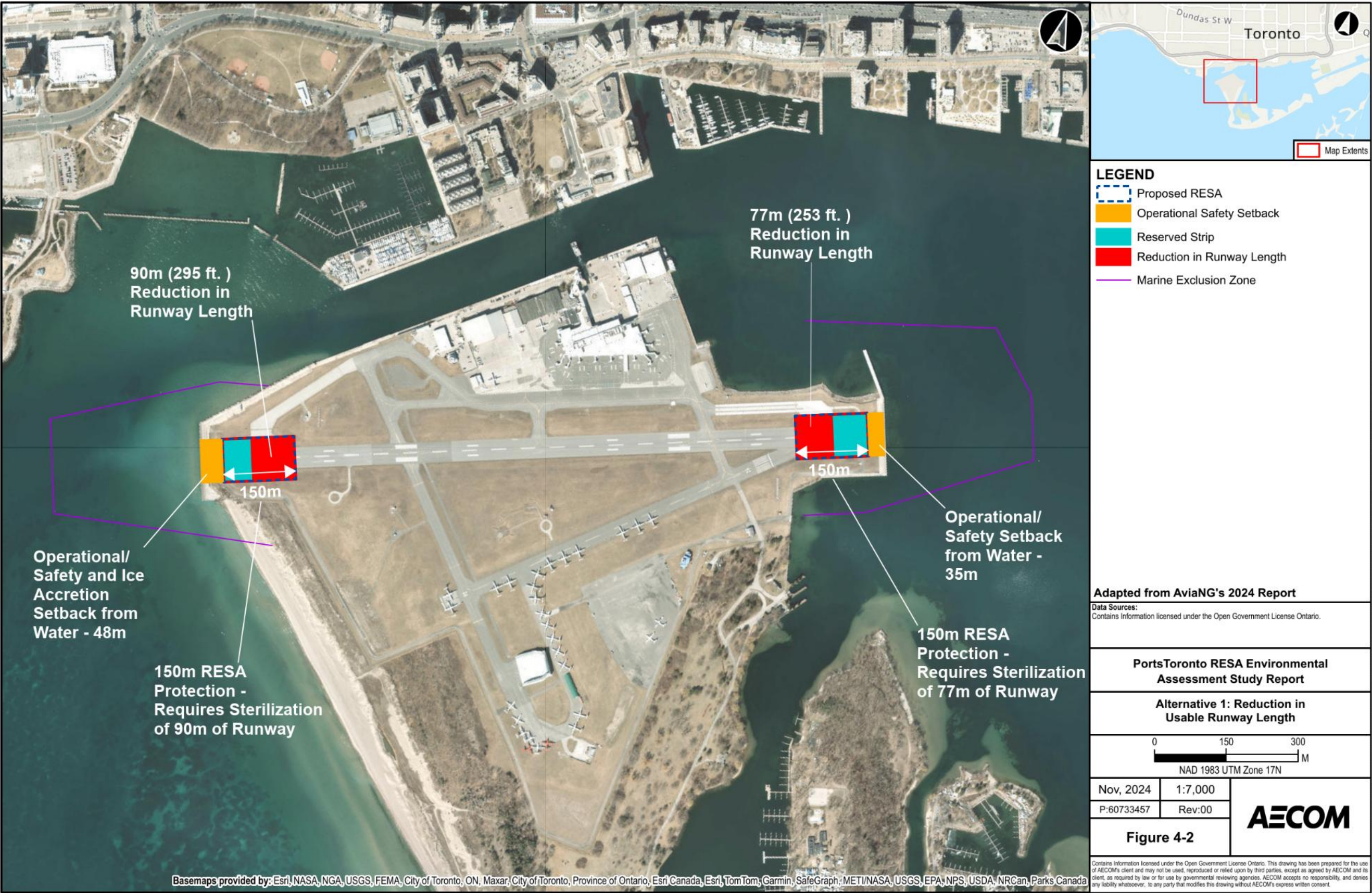
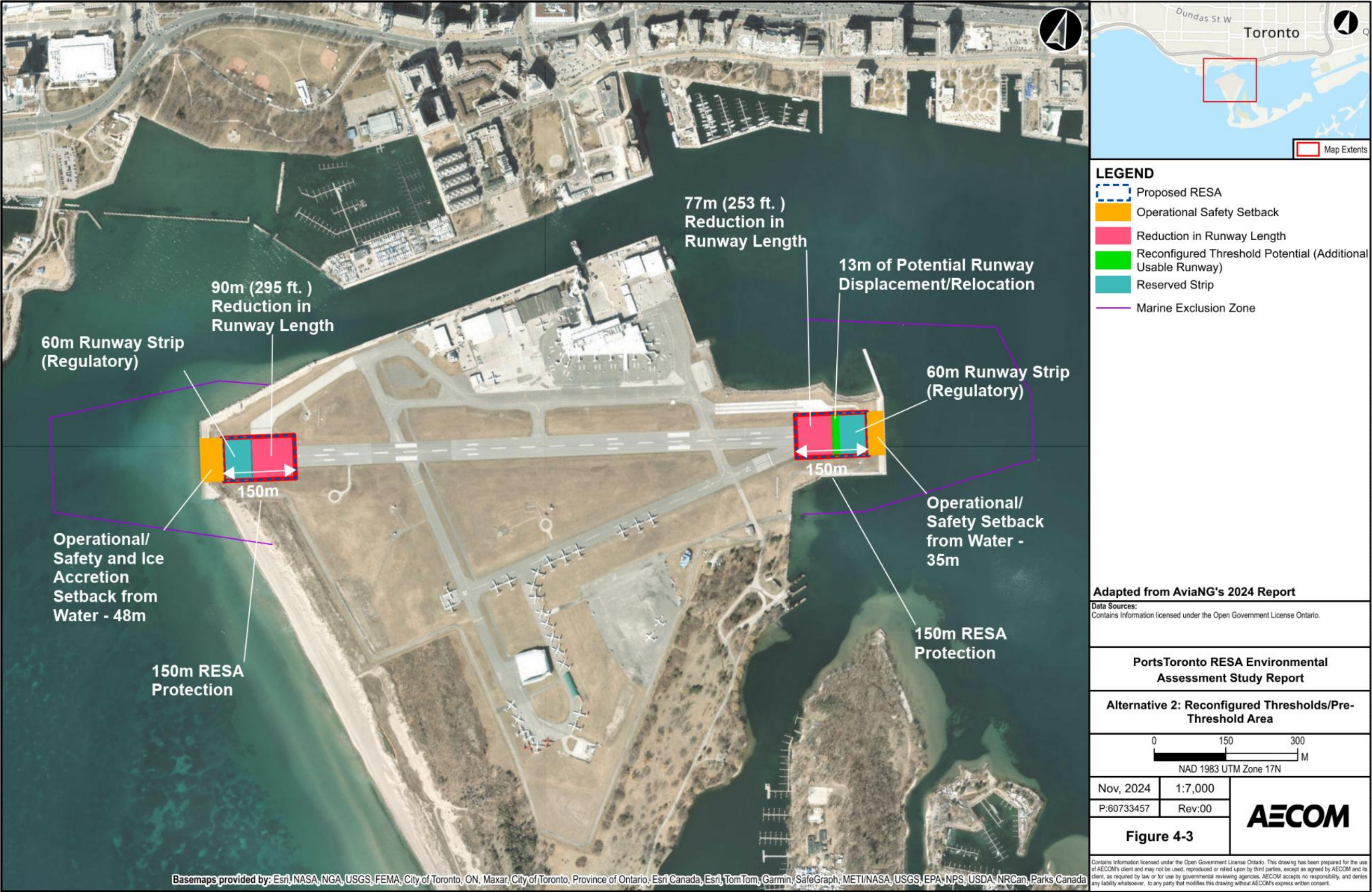


Figure 4-3: Alternative 2: Reconfigured Thresholds/Pre-Threshold Area



4.2.1.3 Alternative 3: Engineered Materials Arresting System

Alternative 3 explores the use of an Engineered Materials Arresting System, a manufactured material that absorbs the kinetic energy of runway excursion aircraft in less space and time than traditional turf or paved safety areas. The material used in Engineered Materials Arresting Systems crushes under the weight of the excursion aircraft, slowing it down considerably faster than open space. A typical Engineered Materials Arresting Systems will bring a runway's critical aircraft to a complete stop when it enters the Engineered Materials Arresting Systems at a speed of 70 knots or less. Transport Canada design standards permit the use of Engineered Materials Arresting Systems where an airport may lack adequate space for traditional open space safety areas (Avia NG, 2024). **Figure 4-4** shows the key features of the Engineered Materials Arresting Systems alternative. The Engineered Materials Arresting Systems and associated perimeter emergency access roads can be accommodated within the existing 108 metres of pre-threshold areas off both runway ends. However, the emergency perimeter roads do not clear Obstacle Limitation Surface, and require control tower approval to access across the runway.

On the west end, additional landmass (14 metres from seawall/1,750 square metres) is required in combination with a breakwater structure to control wave overtopping and water spray to reduce ice encroachment onto the Engineered Materials Arresting Systems.

4.2.1.4 Alternative 4: RESA 1 – Minimum Landmass

Alternative 4 proposes the minimum landmass expansion to meet RESA requirements, extending 54 metres from the seawall on the west end (7,850 square metres), and 52 metres on the east end (6,100 square metres). On the west end, the breakwater structure would be raised to 81 metres above sea level, about 4.5 metres above threshold⁸ at Runway 08/26, to prevent wave overtopping and water spray. The breakwater at the east end (Inner Harbour) will be raised to 77 metres above sea levels, about 1 to 1.5 metres above the threshold, since there is no need to control any waves or water spray.

The proposed layout includes perimeter airfield roads around the RESA ends, providing restricted access across the runway, similar to current access conditions. The road will be managed by the control tower to avoid conflicts with aircraft landing or taking off, as this landmass configuration does not provide sufficient airspace clearance (does not meet Obstacle Limitation Surface requirement) for unrestricted vehicle passage.

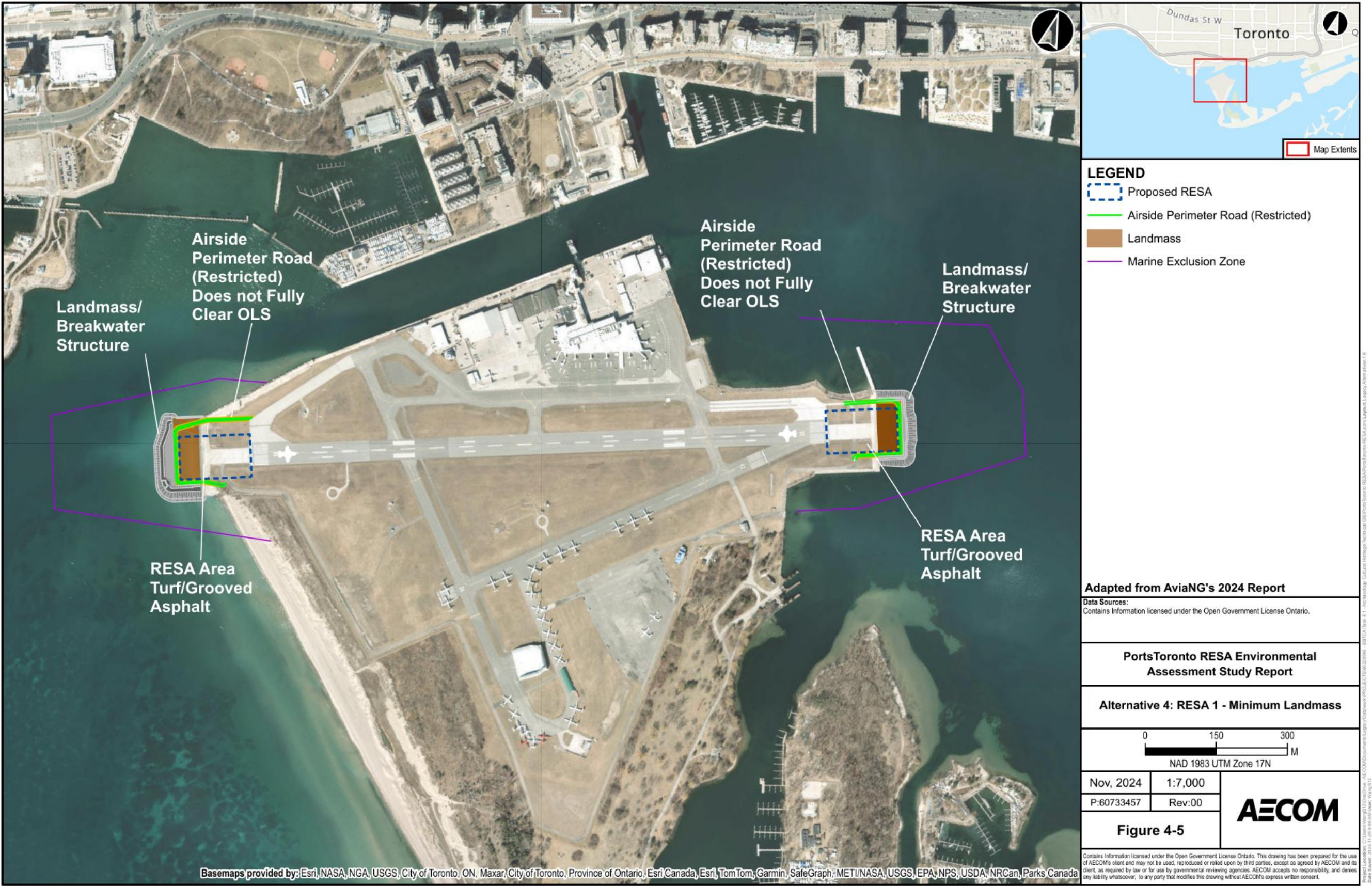
Figure 4-5 shows the key features of the RESA 1 Alternative.

8. The threshold of a runway is the beginning of the portion of the runway that is available for landing. It is marked by white lines across the width of the runway.

Figure 4-4: Alternative 3: Engineered Materials Arresting Systems



Figure 4-5: Alternative 4: RESA 1- Minimum Landmass



4.2.1.5 Alternative 5: RESA 2 – Taxiway Improvements

This alternative builds on RESA 1 – Minimum Landmass by incorporating additional airfield improvements in conjunction with the RESA work at both runway ends. Specifically, it proposes upgrades to Taxiway B at the west end and Taxiway D at the east end to enhance operational efficiency and safety at the airport.

For Taxiway B, the relocation of the localizer 26 antenna to the new western RESA slightly increases the landmass expansion to the west, reaching 82 square metres from the seawall (11,800 square metres). The relocation of Taxiway D requires additional landmass to the northeast, bringing the total landmass on the east end to 11,300 square metres. This relocation enables the airport to upgrade its visual approach guidance system for aircraft landing on Runway 26, improving aviation safety with a more precise system.

All other features from RESA 1- Minimum Landmass remain the same in this alternative. **Figure 4-6** shows the key features of this alternative.

4.2.1.6 Alternative 6: Refined RESA 3 – Noise Wall and East Utility Conduit

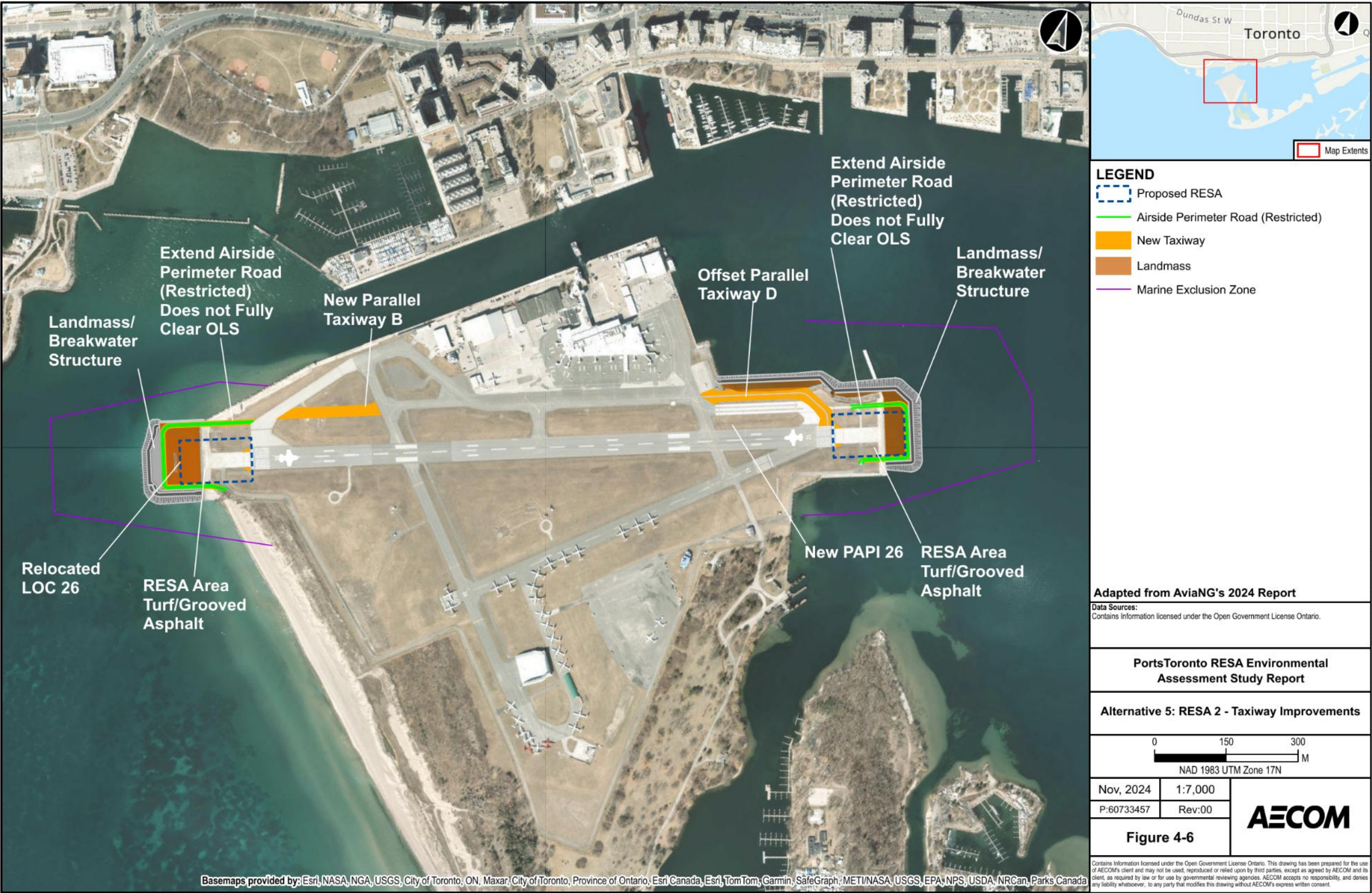
This alternative builds on RESA 2 – Taxiway Improvements by adding further elements to improve operational safety and reduce air and noise emissions. Initially, it proposed three major elements including 1) unrestricted⁹ airfield perimeter roads connecting the north and south sides of the airport, 2) a noise wall at the east end, and 3) landmass expansion at the east end to accommodate a future community access road/ pedestrian sidewalk. These new components required a landmass expansion of 66 metres from the seawall (29,980 square metres) on the east end and 82 metres from the seawall (12,600 square metres) on the west end to accommodate these new features and to achieve aeronautical airspace clearances over the new roads, security fence and noise wall. All other features of this alternative were retained from RESA 2.

Following public and stakeholder feedback during and after the public meeting on July 17, 2024, Alternative 6 was refined into two configurations to address concerns about landmass footprint, access road location, and potential for additional access to Hanlan's Point Beach:

- Alternatives 6: RESA 3 – Noise Wall and East Utility Conduit.
- Alternative 6B: West Public Road/Pathway, Sound Barrier and Underground Utility Conduit (described in the following section).

9. Unrestricted means the road can be used without requiring coordination with the Billy Bishop Toronto City Airport Control Tower.

Figure 4-6: Alternative 5: RESA 2 - Taxiway Improvements



These refinements aimed to optimize the design, reduce impacts, and improve efficiency while maintaining technical viability.

Key adjustments to RESA 3 include a 2,800 square metre landmass reduction achieved through design optimization, an extension of the noise wall on the west end in addition to the east, relocation of Precision Approach Path Indicator 08 to a standard configuration, and introduction of a reserved utility conduit for future services to Toronto Islands community. The potential future pedestrian sidewalk option was also removed. All other main features remain consistent with the original design.

Figure 4-7 shows the key features of this refined alternative.

4.2.1.7 Alternative 6B: RESA 3B – West Public Road/Pathway, Sound Barrier and Underground Utility Conduit

As noted in the previous section, RESA 3B is a refined configuration of RESA 3, developed in response to public and stakeholders' feedback. The feedback suggested that an access road and utility connection on the west end of the airport could be more effective than those on the east and would likely require less landmass.

Similar to Alternative RESA 3, Alternative 3B proposes improvements to enhance airport safety and provide community benefits. This updated version of RESA 3 incorporates a comprehensive design for a west end perimeter road, providing unrestricted access between the north and south sides of the airport. This eliminates the need for runway crossings that currently support both airport operations and Toronto Islands residents, including vehicles owned/operated by the City of Toronto, utility services (e.g., Toronto Water, hydro, Bell, Rogers, garbage/recycling trucks), vehicles for the Toronto and Region Conservation Authority (e.g., supporting projects like Gibraltar Point Erosion Control) public service vehicles (e.g., mobile library units), food service vehicles, and event-related traffic (e.g., for sporting or cultural events).

For utility access, the design includes a reserve conduit within the landside road right-of-way on both the east and west ends, improving infrastructure serviceability. The proposed refinement shifts landmass requirements, reducing the expansion on the east end (63 metres / 20,380 square metres), and increasing it on the west end (96 metres / 16,330 square metres).

Other features of RESA 3B are similar to RESA 3. **Figure 4-8** shows the key features of the RESA 3B.

Figure 4-7: Alternative 6: RESA 3 - Noise Wall and East Utility Conduit

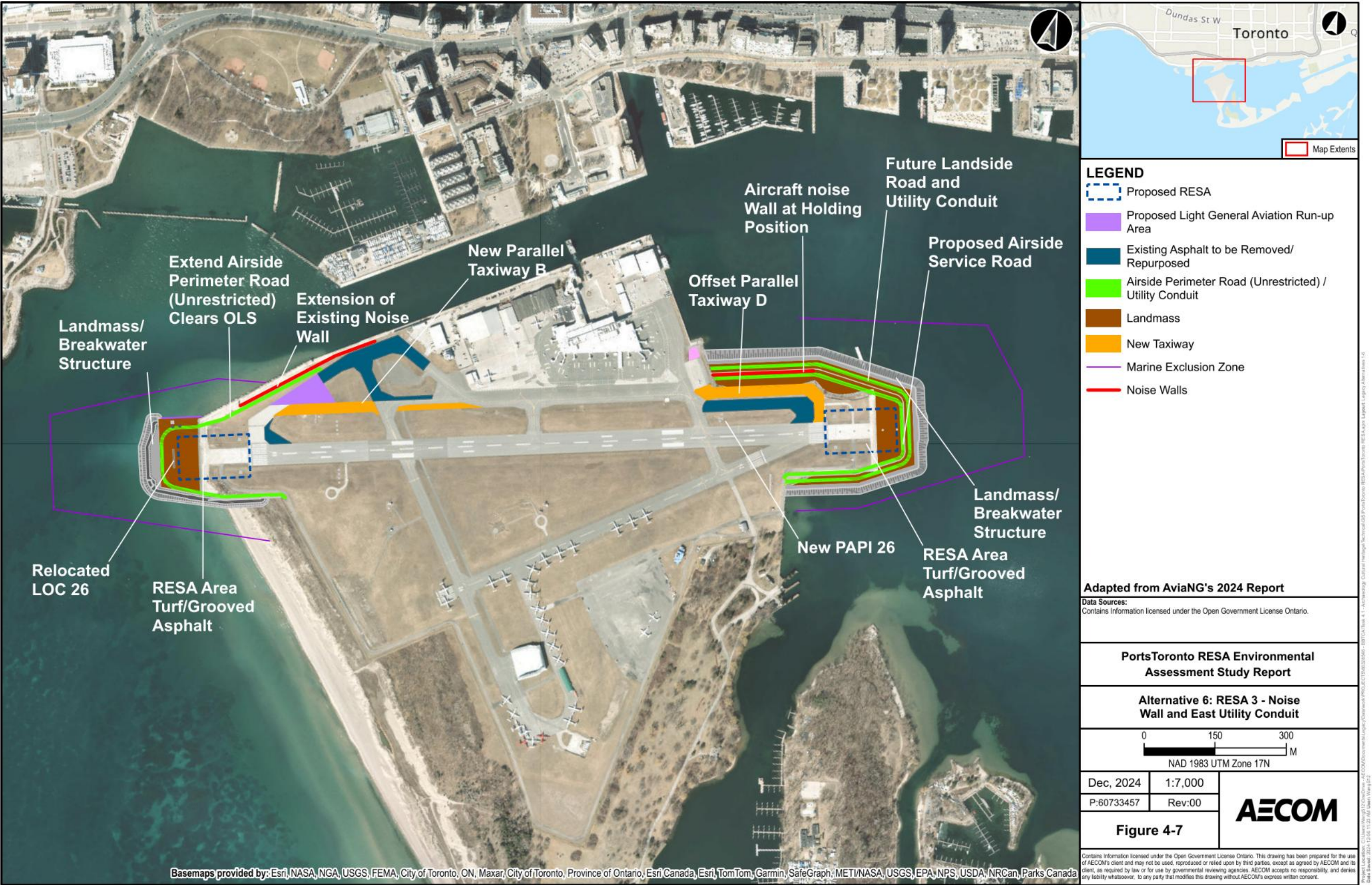
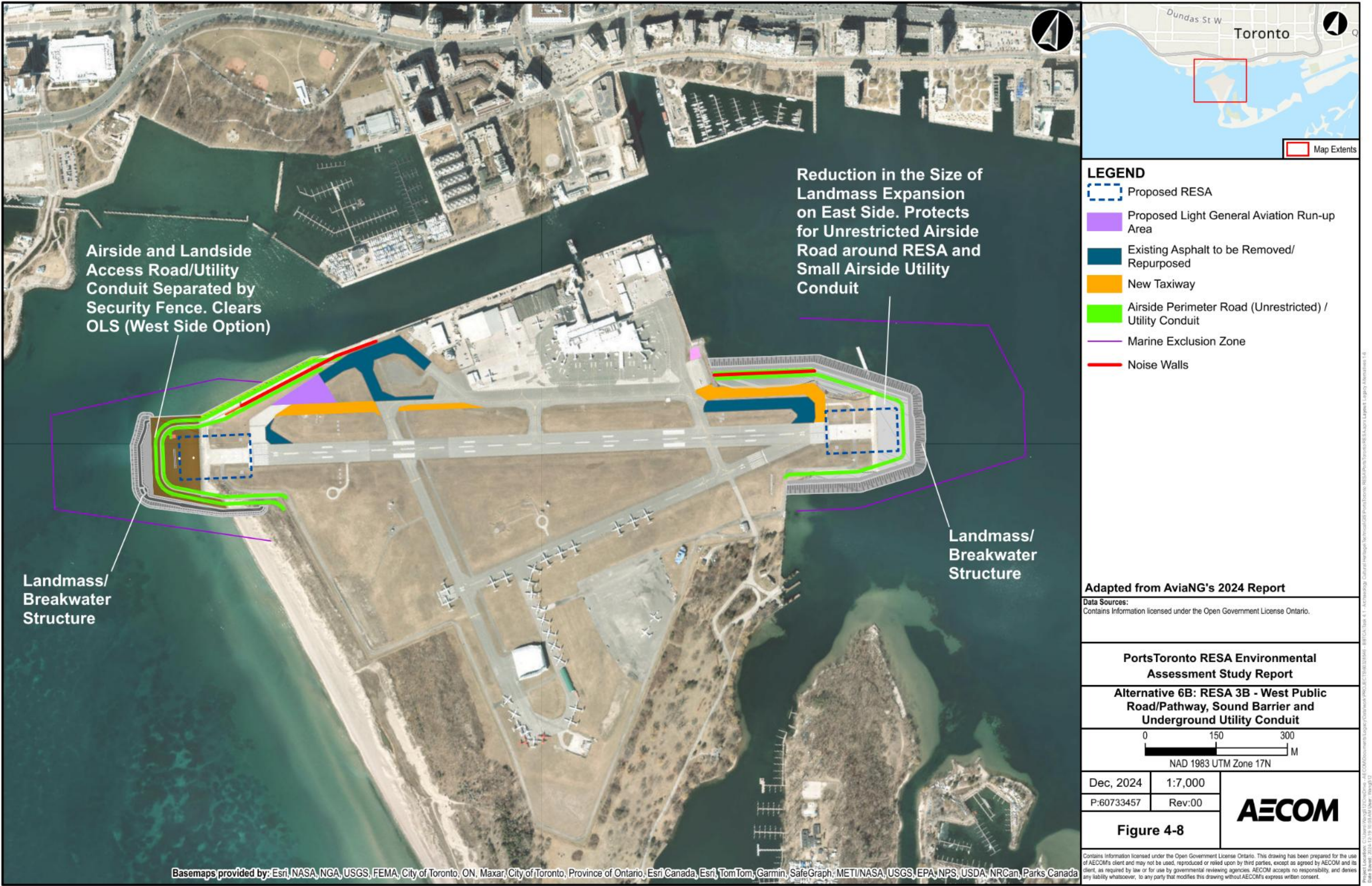


Figure 4-8: Alternative 6B: RESA 3B – West Public Road/Pathway, Sound Barrier and Underground Utility Conduit



4.2.1.8 Consideration of Other RESA Alternatives

4.2.1.8.1 Deck on Piers Alternative

The deck on piers alternative was initially considered as it could potentially reduce the in-water footprint. The design suggested a structure built on piles secured into bedrock, supporting a concrete deck. However, it was eliminated from further consideration due to several critical technical constraints, as described below.

Firstly, a deck on piers would require a complex structural design to withstand the wave forces and dynamic and static ice loads, particularly on the west end of the runway where wave energy is intense during storms. Regular flooding from wave overtopping would be a recurring issue, compromising the structure's stability and safety. To counteract ice forces, an ice prevention system would be necessary, but this system would significantly increase ongoing operational costs.

Additionally, RESA design standards impose strict elevation requirements, allowing only a level surface or a downward slope up to 5% from the threshold. A deck on piers will not be structurally stable enough to support this profile under environmental stresses.

Furthermore, construction would be complex and costly, as it would require specialized equipment to drive piles into bedrock and extensive maintenance to ensure structural integrity over time. These factors combined make the deck-on-piers option impractical, and it was therefore eliminated from further consideration.

4.2.2 Step 2: Screening of Long Listed RESA Alternatives

Avia NG assessed the long-list of RESA alternatives, screening them against key regulatory, technical and safety considerations to identify those that were feasible and viable for a detailed environmental evaluation (Avia NG, 2024). For an alternative to proceed to the next stage, each of the following criteria must be fully met:

■ Regulatory Compliance:

- Alternatives must comply with Transport Canada TP 312¹⁰ standards, adhering to all design requirements for new infrastructure, including RESAs and taxiways, while respecting relevant grandfathering provisions for Runway 08/26.
- Alternatives must be feasible in terms of regulatory approval and compliance.

10. Transport Canada, TP 312 5th Edition, Amendment 1, "Aerodrome Standards and Recommended Practices, January 15, 2020 outlines the requirements for the planning, design, operation, and maintenance of aerodromes in Canada.

■ **Protection of Marine Exclusion Zones:**

- Marine Exclusion Zones have been established off the Runway 08/26 into Lake Ontario and the Inner Harbour to protect arriving and departing aircraft at the airport from marine vessels that would otherwise present an unacceptable hazard or risk of collision with aircraft. The proposed RESA alternatives and all associated new infrastructure must maintain existing Marine Exclusion Zones boundaries and protection levels without any changes.

■ **Preservation of existing Runway 08/26 operations:**

- Alternatives must avoid changes that could disrupt the current functionality of the runway, including:
 - Declared runway distances.
 - Runway length.
 - Level of service.
 - Instrument approaches.
 - Visual or navigational aids.

■ **Long-term operational viability and feasibility:**

- Alternatives must be evaluated for their ability to function effectively over the long term, considering ongoing maintenance requirements, lifecycle costs, and operational disruptions. This includes the potential for frequent repairs or shutdowns that could impact airport operations and the ability to meet service level expectations.
- Alternatives must be capable of withstanding environmental conditions specific to the airport's location, including wave spray, ice accumulation, and fluctuating water levels, to ensure long-term durability and minimize the need for extensive maintenance or reconstruction.

RESA alternatives which could not meet any of the above noted criteria were removed from the detailed evaluation process.

4.2.2.1 Screened Alternatives

As detailed in **Section 4.2.1**, the alternatives examined include:

- Alternatives 1 and 2: These two alternatives involve adjusting the runway length or modifying surrounding open spaces to create a virtual RESA.
- Alternative 3: This alternative incorporates an Engineered Materials Arresting Systems as a RESA solution, which leverages energy-absorbing materials to safely decelerate overrunning aircraft, suitable for airports with limited space.

- Alternatives 4, 5, 6, and 6B: These alternatives focus on extending the runway by adding landmass at each end, maintaining its original length while meeting RESA requirements. Alternatives 5, 6 and 6B also enhance operational safety and address some environmental considerations.

Based on Avia NG's alternatives study, all alternatives comply with Transport Canada's TP 312 standards and have no impact on Marine Exclusion Zones. However, Alternatives 1, 2, 3 and 6B do not meet one or more of the screening criteria and are therefore excluded from further evaluation. The detailed rationale for screening out these alternatives is provided in the following sections.

4.2.2.1.1 Alternative 1: Reduction in Usable Runway Length

This alternative proposes a reduction in the main length of Runway 08/26 by 77 metres to 90 metres, which would decrease the officially published declared runway takeoff and landing lengths. Such reductions may adversely affect the operations of existing passenger carriers due to minimum runway restrictions contained in their air operator certificate or standard operating procedures. This constraint could lead to operational limitations, potentially preventing certain carriers from utilizing the runway.

Therefore, this alternative does not meet the screening criteria for preserving Runway 08/26 operations and has been removed from consideration in the detailed evaluation process.

4.2.2.1.2 Alternative 2: Reconfigured Thresholds/ Pre-Threshold Areas

This alternative suggests utilizing 108 metres of available space between the existing seawalls and runway ends to incorporate RESAs at both ends. It could provide an additional 13 metres of takeoff length for Runway 26 through modifications to the threshold and pre-threshold areas. However, despite these modifications, the effective takeoff distance would still decrease by 77 metres. Such reductions may adversely affect the operations of existing passenger carriers due to minimum runway restrictions contained in their air operator certificate or standard operating procedures. This constraint could lead to operational limitations, potentially preventing certain carriers from utilizing the runway.

Therefore, this alternative does not meet screening criteria for preserving Runway 08/26 operations and has been removed from consideration in the detailed evaluation process.

4.2.2.1.3 Alternative 3: Engineered Materials Arresting Systems

Alternative 3 proposes using Engineered Materials Arresting Systems, which absorbs the energy of an aircraft overrun in less space and time than traditional turf or paved

safety areas. This alternative presents several significant drawbacks in several screening criteria:

■ **Regulatory Compliance:**

- Increased regulatory risk: While this alternative meets Transport Canada's RESA requirements, as the first Engineered Materials Arresting Systems installation in Canada, it would require Transport Canada to acknowledge acceptance of Federal Aviation Administration's AC 150/5220-22 *Engineered Materials Arresting Systems for Aircraft Overruns*, including the Federal Aviation Administration 45-day return-to-service requirement and no runway closure due to damaged Engineered Materials Arresting Systems. Furthermore, Transport Canada's Advisory Circular AC 300-007 defers to an external government aviation authority, i.e., the United States Federal Aviation Administration, for Engineered Materials Arresting Systems planning, design, installation, and maintenance standards. While this offers clear direction at this time, it introduces future unknown risks due to changes in those standards and regulations which would be beyond the control of Transport Canada.

■ **Preservation of existing runway operations:**

- Increased potential for runway closure, impacting airport operations: One of the critical constraints of Engineered Materials Arresting Systems based on screening criteria is the increased potential for runway closure, which directly affects the preservation of existing runway operations. Since PortsToronto only has one runway (Runway 08/26) serving all scheduled air carriers, any operational disruptions related to Engineered Materials Arresting Systems, such as maintenance or damage from unusual events, would require the runway to be closed to commercial air services. This would temporarily halt runway operations, which directly impacts the ability to maintain the current level of service.

■ **Long-term operational viability and feasibility:**

- Shorter lifespan, requiring rehabilitation and reconstruction: Engineered Materials Arresting Systems has a limited lifespan (up to 20 years), requiring more frequent maintenance, rehabilitation, and possible reconstruction. These ongoing repairs and replacements add both operational costs and disruptions. Engineered Materials Arresting Systems would also require special equipment and procedures for routine inspections and maintenance, including snow management and

general upkeep which will add to its maintenance cost. These additional operational costs would place further burden on airport operations and increase the likelihood of temporary disruptions as maintenance is conducted. Given the availability of other more sustainable RESA options with longer lifespans and lower long-term maintenance costs, Engineered Materials Arresting Systems would create unnecessary risks to operational continuity.

- Insufficient protection from wave spray and ice accumulation compared to other RESA options: Given the unique marine environment of Billy Bishop Toronto City Airport, Engineered Materials Arresting Systems would be insufficient in providing adequate protection against wave action, ice accumulation, and fluctuating water levels. These environmental conditions are common at Billy Bishop Toronto City Airport and could lead to flooding and ice buildup, requiring more frequent repairs and maintenance. Such disruptions would impact airport operations.

In response to public feedback from the first open house, Engineered Materials Arresting Systems was reconsidered and reviewed again. However, the above noted constraints represent unacceptable operational, feasibility and regulatory risks considering that other more practical, longer-lasting, and sustainable alternatives are available. Therefore, Alternative 3 – Engineered Materials Arresting Systems has been ruled out.

4.2.2.1.4 Alternative 6B: RESA 3B - West Public Road/ Pathway, Sound Barrier and Underground Utility Conduit

RESA 3B is a new configuration of RESA 3 which incorporates a west-end perimeter road that provides unrestricted access between the north and south sides of the airport. To accommodate the west access road, this alternative requires expansion of the seawall along the northwestern limits of the airport within the Western Channel, extending beyond the current boundary of the Marine Exclusion Zone.

While RESA 3B offers landmass reduction on the east end, it is subject to significant safety and operational constraints that make this alternative non-feasible:

■ Regulatory Compliance:

- Impacts on Marine Exclusion Zone and navigation through the Western Channel: Construction activities for RESA 3B would extend beyond the Marine Exclusion Zone on the west end of Runway 08/26, impacting the width of the Western Channel. This creates additional regulatory challenges and complicates the regulatory compliance, particularly concerning the Marine Exclusion Zone.

■ Preservation of existing runway operations:

- Aeronautical Constraints: A review of aeronautical considerations identified a major constraint related to a ground-based electronic navigation aid critical to instrument approaches on Runway 08/26. The proposed seawall expansion to accommodate the west access road conflicts with the protection of the Glidepath 08 antenna, which is a vital component of the Instrument Landing System for Runway 08/26. This system provides vertical guidance for aircraft during instrument approaches, especially under low-visibility conditions. The Glidepath 08 antenna requires electronic signal protection on the west side of the island to ensure accurate and reliable transmission of guidance signals to approaching aircraft. Introduction of unrestricted public access on the west end of Runway 08/26, create a high risk of signal interference, which would undermine the functionality of the antenna and compromise aeronautical safety. An alternate glidepath antenna system that would not require as much land area to protect and ensure signal integrity was discussed with NAV CANADA. Such a system does not meet the electronic signal stability requirements that would be needed, given Toronto's climate conditions.

RESA 3B introduces regulatory challenges. It fails to meet the requirement of preserving existing runway operations as the navigational aids are integral to maintaining the current level of service which is key to Runway 08/26 operations. The higher capital costs in comparison with other RESA alternatives, estimated at \$198-205 million, further add to its infeasibility. These factors collectively make RESA 3B technically and operationally unfeasible.

4.2.3 Step 3: Short-listed RESA Alternatives

The screening process established a technically feasible and viable shortlist of RESA alternatives, setting the stage for a detailed evaluation of their technical, operational, and environmental effects. The following short-list of RESA alternatives (4, 5 and 6) were evaluated against a list of relevant criteria that included environmental, technical and engineering, climate change, and cost and constructability considerations.

For ease of review and presentation to the public, the numbering of alternatives has been removed from the titles of alternatives carried forward to the shortlist:

- **RESA 1: Minimum Landmass.**
- **RESA 2: Taxiway Improvements.**
- **RESA 3: Noise Wall and East Utility Conduit.**

Table 4-1 provides a summary of the RESA alternatives “short-list” that are subject to detailed environmental evaluation.

Table 4-1: Summary of RESA Alternatives Subject to Evaluation

Alternative Title	Features	Landmass / Breakwater Expansion (Approximate and for Comparison Purposes)	Estimated Capital Costs (2024 CDN\$)
RESA 1 – Minimum Landmass	- No impact on Marine Exclusion Zone. - Breakwater to control water spray / waves and ice accretion on east and west RESAs. - Airside road extension on both ends is restricted and requires control tower approval to cross runway. - Similar level of maintenance to existing conditions off runway ends. - Anticipated implementation schedule: 18 months.	West End: 7,850 square metres / 54 metres from Seawall 160,000 to 170,000 tonnes East End: 6,100 square metres / 52 metres from Seawall 157,000 to 162,000 tonnes	\$61 Millions
RESA 2 – Taxiway Improvements	- No impact on Marine Exclusion Zone. - Breakwater to control water spray / waves and ice accretion on east and west RESAs. - Airside road extension on both ends is restricted and requires control tower approval to cross runway. - Relocation of localizer 26 (navigational aid) enables a new parallel Taxiway B which shortens taxi distance. - Relocation of Taxiway D enables new Precision Approach Path Indicator 26 (visual approach guidance system) which improves Runway 26 approach safety. It also provides a proper separation from the runway. - Flood protection improvements enabled for Taxiway D. - Similar level of maintenance to existing conditions off runway ends. - Anticipated implementation schedule: 21 months.	West End: 11,800 square metres / 82 metres from Seawall 250,000 to 255,000 tonnes East End: 11,300 square metres / 52 metres from Seawall 190,000 to 195,000 tonnes	\$95 Millions
RESA 3 – Noise Wall and East Utility Conduit	- No impact on Marine Exclusion Zone. - Breakwater to control water spray / waves and ice accretion on east and west RESAs. - Airside road extension on both ends clears Obstacle Limitation Surface and does not require control tower approval to cross runway. - Relocation of localizer 26 (navigational aid) enables a new parallel Taxiway B which shortens taxi distance. - Relocation of Taxiway D enables new Precision Approach Path Indicator 26 (visual approach guidance system) which improves Runway 26 approach safety. It also provides a proper separation from the runway. - Allows for a landside utility conduit (east end). - Noise walls along the northwest limits of the site, and the northeast airside. - Flood protection improvements enabled for Taxiway D. - Additional maintenance related to increased airside infrastructure. - Anticipated implementation schedule: 24 months.	West End: 12,600 square metres / 82 metres from Seawall 275,000 to 280,000 tonnes East End: 29,980 square metres / 73 metres from Seawall 580,000 to 585,000 tonnes	\$172 Millions

Source: From Avia NG Alternatives Study, 2024.

4.2.4 Evaluation Framework and Criteria

An evaluation framework was developed to ensure a comprehensive and systematic assessment of the short-listed RESA alternatives. This framework was structured into six major categories: Technical and Engineering; Natural, Socio-Economic, and Cultural Environment; Climate Change; and Cost and Constructability.

Each category was further divided into factors and criteria:

- **Factors** represent key components within each category, identified based on the study setting, background studies and regulatory requirements.
- **Criteria** are the specific measures used to evaluate how each alternative addresses the identified factors.

A total of **44 criteria** across **31 factors** were used to evaluate the potential effects of the RESA alternatives, addressing both technical and environmental considerations. This comprehensive approach ensured alignment with regulatory requirements and accounted for Project-specific conditions.

For each alternative, potential impacts were identified based on these criteria. Subsequently, mitigation measures, conceptual compensation requirements, and enhancement opportunities were considered to address the identified impacts. The remaining net effects—those anticipated after mitigation—were used to compare the level of effect across each alternative.

Table 4-2 provides a detailed list of categories, factors and criteria used in the evaluation.

The evaluation methodology is described in the following section.

Table 4-2: Factors and Criteria for Evaluation of Short-Listed RESA Alternatives

Factor	Criteria
A. Technical and Engineering	
A1. Airport operations and safety	■ Potential to impact airport operational efficiency [in context of aircraft movements] considering changes to aeroplane movement at ground level, instrument approaches, visual and navigational aid.
	■ Potential for safety improvements and operational benefits for airfield access to lands external (i.e., community) on the island to the airport and internal to the airfield, without restrictions requiring control tower approval (i.e., reduction in potential runway incursions).
	■ Potential to make the runway approach safer and more precise, which will add to safety improvements at the airport.
A2. Utilities and servicing infrastructure	■ Potential opportunities for utility infrastructure co-ordination (City and Airport).
	■ Potential known utility conflicts [external utilities only, non-airport utilities].
A3. Ice formation	■ Potential ability to manage freezing spray from wind and wave.
B. Natural Environment	
B1. Effect on vegetation	■ Potential impact on vegetation communities including provincially and regionally rare vegetation and species of concern.
B2. Effect on wildlife, including significant wildlife habitat	■ Potential impact on terrestrial species, including migratory birds, protected breeding birds and significant wildlife habitat.
B3. Effect on terrestrial Species at Risk	■ Potential temporary and/or long-term effects on terrestrial Species at Risk and associated habitats.
B4. Natural heritage features and associated policies (Natural Heritage System, Provincially Significant Wetlands; Areas of Natural and Scientific Interest, Environmentally Significant Areas)	■ Potential impact on natural heritage features and their functions.
B5. Effect on aquatic habitat	■ Potential impact on aquatic habitat including areas that could potentially support key life cycle stages such as spawning areas, or those potentially supporting sensitive species.
B6. Effect on aquatic Species at Risk	■ Potential temporary and/or long-term effects on aquatic Species at Risk and associated habitats.
B7. Sediment transport and accumulation	■ Potential impact on sediment deposition or accumulation (Western Channel and vicinity of RESAs).
B8. Changes to water circulation and quality	■ Potential impact on water circulation within the Inner Harbour.
	■ Potential temporary impact associated with sedimentation and erosion during construction.
B9. Groundwater resources	■ Potential impact to groundwater resources (highly vulnerable aquifer, intake protection zone, source protection area, etc.).
B10. Stormwater and drainage	■ Potential impact on flooding and potential to reduce risk of flooding.
	■ Potential impact to stormwater quantity and quality.
B11. Excess soil and sediments	■ Potential to encounter contaminated soil and sediment and need for offshore sediment dredging and disposal.
C. Socio-Economic Environment	
C1. Use and enjoyment of residential properties	■ Potential consequences for residents' use and enjoyment of their property (indicators considered are airport operational levels and potential benefits to residents as a result of design elements).
C2. Use and enjoyment of recreational spaces	■ Potential consequences for recreational uses on the Toronto Islands and within the Harbour (considers permanent change or disruption to use and enjoyment of current recreational spaces on mainland, Island, and in harbour) and benefits to recreational users as a result of design elements.
C3. Use of public facilities, services and institutions	■ Potential consequences for use and access to public facilities, emergency services and institutions (indicators considered are any permanent change to use of public facilities, services, and institutions).
C4. Impacts on air quality	■ Potential impacts on air quality due to physical or operational changes.
C5. Anticipated noise levels	■ Changes to the noise levels due to potential physical and operational changes.
	■ Potential changes to the anticipated noise levels from the aircraft on the ground (relocation of taxiways and installation of noise barriers).
	■ Overall anticipated noise levels from construction.
C6. Public health	■ Impact of changes in noise levels on public health.

Factor	Criteria
C7. Maneuverability of vessels and navigation safety	■ Potential changes of waves, current and water depth (sedimentation in navigation area) along Western Channel, entrance to Western Channel, and east RESA.
	■ Changes to ability of boats to navigate the Western Channel and Inner Harbour during construction.
C8. Planning policies	■ Conformity to City of Toronto planning policies.
	■ Conformity with the current Airport Master Plan, Airport’s Environmental Social Governance Priorities, and Airport Strategic Plans.
C9. Existing and planned land uses	■ Potential impacts to current land use and potential future developments as per currently permitted uses.
C10. Traffic on the mainland	■ Potential impact on traffic movement during operations.
	■ Potential impact on traffic movement during construction.
D. Climate Change	
D1. Carbon footprint	■ Expected change in greenhouse gas emissions (carbon dioxide, nitrous oxide, methane).
D2. Adaptability to climate change (stresses, increase in temperatures/heat waves and shocks, extreme weather events e.g., July 16/2024 storm)	■ Level of preparedness including ability to respond to emergency situations (e.g., localized flooding).
E. Cultural Environment	
E1. Marine archaeology	■ Potential for impact to marine archaeological resources related to lakefill.
E2. Terrestrial archaeology	■ Potential for impact to terrestrial archaeological resources.
E3. Cultural heritage resources	■ Number and extent of cultural heritage resources, including structures and cultural heritage landscapes affected by construction and operations of RESA.
	■ Extent of impacts to cultural heritage resources.
F. Cost and Constructability	
F1. Operation and maintenance costs	■ Projected operations and maintenance costs.
F2. Complexities including agencies approvals	■ Extent of co-ordination with NAV CANADA airspace/marine radar land use approval program.
	■ Complexity associated with environmental permitting.
	■ Construction complexity.

4.2.5 Evaluation of Short-listed RESA Alternatives

The alternatives were evaluated based on their ability to meet the Project's needs and purpose, including compliance with Canadian Aviation Regulations requirements, enhancing airport safety, and operational efficiency while supporting the surrounding community, including Island and Waterfront residents and users, and minimizing impacts on natural, social, economic, and cultural environments. A Reasoned-Argument (trade-off) evaluation method was used to rank the alternatives and identify the Preferred RESA alternative. Each alternative was evaluated for technical efficiency, safety, environmental impacts, climate change considerations, cost, and constructability. For each alternative, potential impacts were identified using defined evaluation criteria. The reasoned argument method is a transparent, qualitative approach used to evaluate alternatives by identifying the impacts and benefits to the natural, social, economic, and cultural environments, Project infrastructure, and cost. It takes into account the Project context, incorporates stakeholder input, and defensible reasoning to support informed and balanced decision-making. It involves a structured discussion that balances trade-offs and explains why one option is preferred over others. The method considers how mitigation measures, compensation measures and enhancement opportunities influence the overall evaluation. Residual effects—the impacts that remain after these measures are applied—are a key part of the assessment and help inform the defensible decision.

Rankings ranged from "Most Preferred" (full black circle) to "Least Preferred" (empty black circle), illustrating the strengths and trade-offs of each option to inform decision-making. The alternative that its net effect best met the criteria and would result in the most favourable outcomes was selected as the preferred alternative.

A detailed Evaluation Matrix is provided in **Appendix M**.

4.2.6 Summary of Evaluation

The following sections provide an evaluation summary of the short-listed alternatives in each major category. Each section compares and ranks the three RESA alternatives, reviewing their advantages and drawbacks. At the end of each section, a Summary Ranking and Preferred Alternative is provided explaining why the preferred alternative is chosen over the others in each category.

4.2.6.1 Summary of Technical and Engineering Evaluation

From a Technical and Engineering perspective:

■ Airport Operational Efficiency and Ground Safety Improvements

- RESA 3 is most preferred alternative due to the inclusion of an unrestricted airside road located outside the runway area, which provides an access route for service vehicles for both airport operations and Toronto Island residents. It also provides priority access from Bathurst Street / Eireann Quay to the Toronto Islands for City and Emergency vehicles travelling to the Island on the Airport ferry. By eliminating the need for service vehicles to cross the active runway and contact the control tower, RESA 3 reduces the risk of runway incursions and enhances airport operational efficiency. This improvement addresses a critical safety issue from Transportation Safety Board of Canada's Watchlist, making it the preferred alternative in terms of operational safety and efficiency. Additionally, RESA 3 enhances operational efficiency by improving taxiways B and D. Overall, RESA 3 introduces a strong positive net effect in terms of operational efficiency and safety.
- RESA 2 is moderately preferred as it improves operational efficiency by reducing the need for service vehicles to cross the active runway. However, it does not provide a completely unrestricted airside road, meaning vehicles would still need co-ordination with the airport control tower to cross the runway. While this reduces runway incursion risk, it does not offer the same level of operational improvement as RESA 3. Additionally, RESA 2 enhances operational efficiency by improving taxiways B and D. RESA 2 results in a modest positive net effect.
- RESA 1 also improves operational efficiency by reducing the need for service vehicles to cross the active runway. However, similar to RESA 2, it does not provide an unrestricted airside road, meaning vehicles would still need co-ordination with the airport control tower to cross the runway. Additionally, RESA 1 does not include improvements to taxiways B and D, which are included in RESA 2 and RESA 3. As a result, RESA 1 does not offer the same level of operational efficiency or safety improvements as RESA 2 or RESA 3; and is considered to have no net effect.

■ Utility and Infrastructure Benefits

- RESA 3 is most preferred as it provides a dedicated utility conduit around the eastern runway end, located outside the airfield area. This

utility conduit facilitates improved co-ordination of essential public utilities including water, sewer, and electrical connections, enabling future upgrades and ensuring uninterrupted service to both the airport and the broader Toronto Islands community. Relocating of the current water, sewer and electrical utilities from running under the runways at the airport will allow ease of access for maintenance, emergency works, and utility failure which an ongoing operational concern. Any fractures/damages to the sewer force main could also damage the runways. While Toronto Water has no capital plan in place to relocate this infrastructure, Toronto Water is supportive of the proponent relocating the piped infrastructure, specifically the sanitary forcemains, crossing under the runways, eliminating the need for costly and complex tunneling, which poses a hazard to airport operations. (City of Toronto, January 2025). This relocation could be accommodated only through RESA 3 among the proposed alternatives. The utility improvements contribute to the overall positive net effect of RESA 3, particularly in supporting infrastructure resilience and long-term service delivery.

- RESA 2 and 1 are equally less preferred as they do not provide a dedicated utility conduit, which increases the complexity of managing utility services on the Toronto Islands. As such, both alternatives are considered to have no net effect in relation to utility infrastructure improvements.

■ Runway Approach Safety Improvements

- RESA 2 and RESA 3 are equally preferred due to their safety enhancements through the upgraded visual approach guidance system and additional approach centreline lighting, which provides greater approach slope precision for pilots, particularly in low-visibility conditions. These enhancements contribute to a positive net effect for both RESA 2 and RESA 3.
- RESA 1 is considered less preferred as it does not provide the same level of enhancement to runway approach safety as RESA 2 and RESA 3. RESA 1 has no net effect in this area.

4.2.6.1.1 Summary of Ranking in Technical and Engineering Category

RESA 3 (Most Preferred)

RESA 3 is identified as the most preferred due to its comprehensive improvements in safety, operational efficiency, runway approach safety, and long-term infrastructure management, including an unrestricted airside road and utility conduit. The addition of

an unrestricted airside road enhances the operational efficiency of the airport, as it avoids the current practice of service vehicles crossing the active runway, which is not standard procedure. In 2023 alone, service vehicles (including City of Toronto, Toronto and Region Conservation Authority, and other service providers) crossed the main runway over 3,700 round trips, which poses significant operational and safety risks. By introducing the new perimeter road, RESA 3 minimizes the risk of runway incursions, improving safety for airport personnel, passengers, and emergency vehicles, and essential service vehicles (including vehicles for the Toronto and Region Conservation Authority, utility services (e.g., Toronto Water, hydro, Bell, Rogers, garbage/recycling trucks), public service vehicles (e.g., mobile library units), food service vehicles, and event-related traffic (e.g., for sporting or cultural events)). This solution directly addresses a critical safety issue that is unique to this airport and is a substantial improvement over current practice. Additionally, according to PortsToronto's communication with Toronto Hydro (October 2024), the dedicated utility conduit will support future infrastructure upgrades, and provide long-term benefits to both airport operations and the broader Islands community.

RESA 2 (Moderately Preferred)

RESA 2 is moderately preferred offering some operational and safety improvements, including runway approach safety enhancements via Precision Approach Path Indicator and taxiway improvements, but lacking the fully unrestricted airside road and utility conduit proposed in RESA 3.

RESA 1 (Least Preferred)

RESA 1 is least preferred due to its reliance on existing infrastructure, limited safety improvements, lack of improvements to taxiways B and D, and no enhancement to runway approach safety compared to RESA 2 and RESA 3.

4.2.6.2 Summary of Natural Environment Evaluation

From a Natural Environment Perspective:

■ Terrestrial Ecosystem

- No Species at Risk or species of conservation concerns were present within the terrestrial study area.
- No impact to provincially significant wetlands is anticipated.
- None of the alternatives are considered to have a high impact on terrestrial Species at Risk habitat, as active deterrence measures at Billy Bishop Toronto City Airport prevent nesting by all bird species, including those listed as Species at Risk.

- RESA 1 is the most preferred alternative, as it involves the least vegetation removal (575 m²), limited to low-quality, secondary-growth Cultural Willow Deciduous Thickets located at the ends of the Runway 08/26. It also results in the smallest loss of wildlife habitat. No impacts are anticipated to the Cottonwood Treed Dune, Mineral Open Beach Bar, or the candidate Toronto Islands Area of Natural and Scientific Interest. There are also no expected effects on terrestrial Species at Risk or their habitats. With the implementation of appropriate mitigation measures and compensation plans, a negligible to no net negative effect is anticipated.
- RESA 2 is moderately preferred, as it involves the second lowest total vegetation removal (2,935 m²), limited to low-quality, secondary-growth Cultural Willow Deciduous Thickets located at the ends of the Runway 08/26. It also results in the second lowest wildlife habitat loss. The increased vegetation removal, compared to RESA 1, can be offset through compensation plantings of native vegetation, either by increasing the size or ensuring ecological equivalency. No impacts are anticipated to the Cottonwood Treed Dune, Mineral Open Beach Bar, the candidate Toronto Islands Area of Natural and Scientific Interest, and the terrestrial Species at Risk and their habitats. With the implementation of appropriate mitigation measures and compensation plans, a negligible net negative effect is anticipated.
- RESA 3 is the least preferred from a terrestrial ecology perspective, as it involves the highest amount of vegetation removal (4,480 m²), including 1,080 m² of the regionally rare Mineral Open Beach Bar and approximately 730 m² of the provincially rare Cottonwood Treed Dune, which supports regionally rare vascular plant species. While RESA 3 has the greatest impact on these sensitive communities compared to RESA 1 and RESA 2, the overall loss is minimal in the context of the remaining natural features along Hanlan's Point Beach—representing only 0.99 percent of the Mineral Open Beach Bar and 0.006 percent of the Cottonwood Treed Dune. RESA 3 also results in the highest wildlife habitat loss among the three alternatives. The removal of 1,080 m² of Mineral Open Beach Bar includes the loss of approximately 0.99 percent of potential Piping Plover (Species at Risk) habitat. In addition, the alternative affects approximately 0.16 percent of the candidate Toronto Islands Area of Natural and Scientific Interest. However, these impacts are expected to be manageable given the following considerations:
 - Increased vegetation loss can be offset through larger or ecologically equivalent compensation plantings using native species.

- Compensation or equivalent enhancement measures to beach and dune communities can ensure the vegetation removal does not result in long-term impacts to the remaining habitats and key ecological functions of these communities.
- The removal of potential Piping Plover habitat is temporary, limited to the construction period, and will be further minimized through targeted mitigation.
- Taking all of these measures into account, the overall net negative effect of RESA 3 is anticipated to be low.

■ Aquatic Ecosystem

- RESA 1 is the most preferred alternative, with the smallest in-water footprint (east end: 15,225 m²; west end: 20,770 m²), minimizing disruption to aquatic habitats including habitat of aquatic Species at Risk (American Eel).
- RESA 2 is less preferred due to its larger in-water footprint (east end: 31,860 m²; west end: 26,995 m²), which increases the potential for aquatic habitat disruption; including habitat of aquatic Species at Risk (American Eel).
- RESA 3 is the least preferred alternative, with the largest in-water footprint (east end: 57,870 m²; west end: 30,380 m²), resulting in the greatest potential for aquatic habitat impacts; including habitat of aquatic Species at Risk (American Eel).
- A moderate net negative effect on fish habitat is anticipated under all RESA alternatives due to the unavoidable removal of habitat within the aquatic study area. While construction-related impacts can largely be mitigated through the implementation of mitigation measures, and adherence to applicable timing windows, each RESA alternative will result in the loss of a substantial area of fish habitat. This conclusion is based on the extent and potential value of the affected habitat, as outlined in the Natural Heritage Assessment Report (**Appendix B**). However, the moderate net negative effect associated with fish habitat loss is expected to be offset through the implementation of aquatic habitat compensation measures, which will be developed in consultation with Fisheries and Oceans Canada and the Ministry of the Environment, Conservation and Parks.

■ Sediment Transport and Water Circulation within the Inner Harbour

- All alternatives have minimal impact on water circulation within the Inner Harbour, and are expected to have no net effects.

- Any landmass expansion at the west end of the Runway 08/26 will have a beneficial impact on sediment transport in the vicinity, reducing sedimentation in the Western Channel and potentially supporting the Gibraltar Point Sediment Management Plan, including trapping the sediment which can be further redirected towards Hanlan's Point Beach, which will help to sustain the beach.
- RESA 2 and RESA 3 are both equally preferred over RESA 1 for their greater long-term benefits for sediment transport. While RESA 1 still provides short-term benefits to sediment management, its smaller landmass expansion limits its ability to deliver the same long-term advantages as RESA 2 and RESA 3. RESA 1 has a low net positive effect, while RESA 2 and RESA 3 have a moderate net positive effect, making them more advantageous overall.

■ **Groundwater Resources, Excess Soil and Sedimentation**

- None of the alternatives are expected to impact groundwater resources, provided that regulatory requirements are followed, and appropriate avoidance and mitigation measures are implemented.
- All alternatives have potential to encounter soil and sediment contamination and/or require dredging due to the introduction of landmass and breakwaters. Provided that regulatory requirements are followed, and appropriate avoidance and mitigation measures are implemented, no net effect is anticipated.
- RESA 1 is preferred over RESA 2 and 3 due to the lower anticipated dewatering requirements, resulting from its smaller construction scope.

■ **Stormwater and Drainage**

- RESA 1 offers no flood protection to Taxiway D; therefore it has no net effect. RESA 2 and RESA 3 are the most preferred alternatives, particularly for their ability to reduce flood risk by elevating Taxiway D. They both have a moderate net positive effect.
- With implementation of appropriate grading and drainage design, alongside operational adherence to legislated airfield stormwater management requirements, no net effects on stormwater quantity and quality are anticipated for any of the alternatives.

4.2.6.2.1 Summary of Ranking in Natural Environment Category

RESA 1 (Most Preferred)

RESA 1 has the smallest footprint, making it the least disruptive to both terrestrial and aquatic ecosystems. It involves minimal vegetation removal and the lowest wildlife habitat loss, with no impacts to sensitive natural features or terrestrial Species at Risk. With the smallest in-water footprint, it minimizes disruption to aquatic habitats, including those of aquatic Species at Risk (American Eel). It requires the least dewatering. However, it offers limited long-term sediment transport benefits, which could have supported long-term stability of Hanlan's Point Beach, and it lacks additional flood protection measures for Taxiway D, leaving it more vulnerable to flood-related risks. Despite these drawbacks, the minimal ecological disturbance of RESA 1 was considered a major advantage. The trade-off in sediment transport and flood protection was deemed acceptable given the priority of preserving natural ecosystems. Therefore, RESA 1 ranked as the most preferred.

RESA 2 (Moderately Preferred)

RESA 2 is ranked moderately preferred. While it provides better flood protection and long-term benefits for sediment transport, its larger footprint results in increased disturbances to both terrestrial and aquatic ecosystems compared to RESA 1. Terrestrial impacts include vegetation removal and wildlife habitat loss, limited to low-quality Cultural Willow Deciduous Thickets at the runway ends. No impacts are expected to sensitive natural features or terrestrial Species at Risk. The larger in-water footprint also increases the potential for disruption to aquatic habitats, including those supporting aquatic Species at Risk (American Eel).

RESA 3 (Least Preferred)

RESA 3 is ranked least preferred due to its largest footprint and the greatest disruption to terrestrial and aquatic ecosystems. Its impacts involve the highest amount of vegetation removal including 1,080 m² of the regionally rare Mineral Open Beach Bar and 730 m² of the provincially rare Cottonwood Treed Dune. It also results in the greatest wildlife habitat loss, including 1,080 m² (0.99%) potential habitat of a terrestrial Species at Risk (Piping Plover). It also impacts 0.16% of the candidate Toronto Islands Areas of Natural and Scientific Interest. In the aquatic ecosystem, RESA 3 has the largest in-water footprint, resulting in the greatest potential for aquatic habitat impacts, including habitat of aquatic Species at Risk (American Eel). While it provides long-term sediment transport benefits and better flood protection, its largest footprint makes it least preferred compared to RESA 1 and RESA 2.

4.2.6.3 Summary of Socio-Economic Evaluation

From a Socio-Economic Environment Perspective:

■ Air Quality

- All three alternatives result in increased on-road greenhouse gas emissions due to longer travel distances compared to existing runway crossing. However, Project greenhouse gas contributions associated with the on-road vehicle operations are around 0.002% (for all three alternatives) of the total Ontario Transportation 2021 CO₂ eq emissions (45,000,000 tonnes), which is negligible.
- RESA 3 is the most preferred alternative during operation due to its potential to reduce taxiway emissions, and eliminate on-road idling during operation due to provision of an unrestricted airside road which will partially offset the on-road emissions, resulting in low-moderate positive effect during operation.
- RESA 2 is moderately preferred during operation, offering a positive effect associated with some air emission reductions due to shorter taxi times. However, it does not include the additional emission-reduction measures (reduced idling from the airside road) proposed in RESA 3.
- RESA 1 is the least preferred alternative during operation due to an increase in on-road vehicle emissions. Without any emission reductions from taxiway improvements, this alternative has low negative net effect during operation.
- All alternatives are expected to result in similar short-term negative impacts during construction. RESA 3 is expected to have the highest negative impact due to its longest duration (24 months), followed by RESA 2 (21 months) and RESA 1 (18 months). However, using barging to transport construction materials to the site reduces emissions from truck traffic to the airport. Additionally, the air quality impact during construction will be managed through an air quality management plan during detailed design. As a result, all alternatives will have a low net negative effect during construction.
- Overall, RESA 3 is the most preferred alternative for air quality, as it provides greater operational benefits by reducing both taxiway emissions and on-road idling. While all three alternatives result in increased on-road emissions due to longer travel distances, RESA 3 partially offsets this increase by eliminating idling.

■ Anticipated Noise Levels

- RESA 3 is the most preferred alternative during operation as it results in reduced noise levels from taxiway operations due to a new noise wall on the east end and extension of the existing noise wall on the west end. This alternative is expected to result in significant noise reductions (greater than 5 dB) at several sensitive receptors. The overall net effect is anticipated to range from negligible to positive.
- RESA 2 is less preferred during operation as it results in marginal changes in noise levels from taxiway operations. With slight reductions in noise levels at several sensitive receptors, RESA 2 is anticipated to have a negligible to marginal net effect.
- RESA 1 is least preferred during operation as its operational characteristics and noise levels during operations will not be changing (no advantages). This alternative has no net effect.
- Construction of alternatives result in similar noise emissions. While RESA 1 has the least construction noise disturbances due to its shortest construction duration (18 months), RESA 3 overall is the most preferred alternative for noise due to its highest reductions in noise level from taxiway operation during long-term operation.

■ Use and Enjoyment of Residential Properties

- None of the RESA alternatives change airport operations in terms of number of flights, frequency, times of operation, types of aircraft, and therefore no additional corresponding negative impacts (e.g., noise and air quality) are anticipated. The alternatives are ranked by potential benefits they deliver for residents for use and enjoy their properties.
- RESA 3 is the most preferred for reducing noise from taxiway operations (for some receptors) and air emissions, resulting in a net positive effect that benefits residents closest to the airport.
- RESA 2 is moderately preferred for reducing air emissions compared to RESA 1, resulting in a net positive effect.
- RESA 1 is less preferred as it does not provide any reduction in noise or air emissions, and has no net effect.

■ Recreational Uses

- All RESA alternatives have some net negative impact due to lake infill, so ranking is based strictly on the amount of lake infill required, although infill remains within the Marine Exclusion Zone in all three alternatives.

- RESA 1 is most preferred as it requires the least lake infill, minimizing the impact to public enjoyment of the water compared to the other alternatives.
- RESA 2 is less preferred as it requires more lake infill than RESA 1 but less than RESA 3.
- RESA 3 is least preferred as it requires the most lake infill.
- Some recreational users may experience net negative effects from changes in viewshed and increased landmass, with the effect increasing incrementally from RESA 1 to RESA 3.

■ **Public Services and Institutions**

- None of the RESA alternatives change the use of or access to public facilities, services, institutions given airport operations (i.e., number of flights, frequency, times of operation will remain consistent and there is no proposed change in the Marine Exclusion Zone, no change in access or use of the harbour for emergency medical services or other services such as water-taxies or ferries.
- Given the neutral impact across all alternatives, use and access to public services and institutions is not a differentiating factor, and no net effect is anticipated.

■ **Public Health (Impact of changes in air quality and noise levels on public health)**

- Limited public health effects are expected due to generally unchanged operational characteristics (flight numbers, frequency, times etc.).
- RESA 3 is the most preferred alternative during operation as it combines reduced ground level noise levels from taxiway operations (at some receptors) and fewer air emissions for overall health benefits during operation. However, its longest construction duration will result in the longest period of disturbed sleep for residents, and highest construction emissions.
- RESA 2 is moderately preferred as it offers moderate improvements during operation but lacks RESA 3's operational benefits. During construction, it has the second highest short-term negative impact due to its longer estimated duration (21 months).
- RESA 1 is neutral during operation for effects from noise, as it does not introduce operational improvements. However, it has a low negative effect in terms of air emissions due to the increased length of the access road. It is the most preferred alternative during construction as its shortest duration minimizes construction-related impacts on public health.

- Overall, overnight construction noise may disrupt the sleep of nearby residents, and all alternatives have short-term negative impacts on air emissions during construction. However, RESA 3 is the most preferred alternative due to its long-term benefits of reduced air emissions and noise levels from taxiway operations.

■ Marine Navigation

- There will be no changes to the Marine Exclusion Zone boundary, so no alterations in vessel maneuverability are expected.
- Introducing structures within the Marine Exclusion Zone may alter wave conditions outside of this area; however, the new rock breakwater could potentially reduce wave reflection, allowing for design optimizations to mitigate impacts on vessels.
- Given the neutral impact across all alternatives, marine navigation is not a differentiating factor, and it is expected to have a negligible net effect for all RESA alternatives.

■ Planning Policies and Land Use

- None of the alternatives impact any areas of planned or approved future development, and no effect is anticipated.
- All alternatives incorporate the direction of the City of Toronto Official Plan's policies on Heritage Conservation.
- The landmass expansion in all three RESA alternatives will impact the lands currently designated as Natural Heritage System along the periphery of Billy Bishop Toronto City Airport indicated on Map 9 of the Official Plan.
- RESA 1 is recognized by the City as qualifying essential public work (City of Toronto, 2024a) required to approve lakefill projects, and development in areas designated as Parks and Natural Areas. Additionally, the 2025 Amended Tripartite Agreement allows for the minimum landmass extension (RESA1) under a number of terms and conditions, meaning RESA 1 complies with the Site and Area Specific Policies 192 and 194.
- RESA 2 and RESA 3 may require Official Plan Amendment due to lakefilling in Lake Ontario, development in areas designated as Parks and Natural Areas, and alteration of the delineated boundary of the airport as designated in the Site and Area Specific Policies 192 and 194.

- RESA 2 and 3 meet the key priorities of the airport's current master plan in terms of operational efficiency, environmentally sustainable operations, infrastructure improvement and community benefits. RESA 3 provides additional operational efficiencies, infrastructure and community benefits (i.e., noise walls and utility conduit), exceeding the key priorities of the airport's current master plan, aligning with its broader strategic plans.
- Overall, considering that necessary planning tools, such as an Official Plan Amendment, will be incorporated in terms of City of Toronto policy compliance(if required), RESA 2 and RESA 3 are preferred over RESA 1 because they both better comply with the Airport Master Plan.

■ **Traffic**

- During the operation of RESA, all three alternatives are equally preferred given that traffic on the mainland is not anticipated to change as a result of operations, and no net effect is anticipated.
- During construction, all alternatives benefit from barging of the construction materials directly to the site, which helps minimize construction-related traffic congestion compared to relying solely on ferry operations.
- RESA 1 is the most preferred during construction due to its shortest duration, resulting in the least impact. RESA 2 and 3 are moderately and least preferred, respectively, due to their longer construction timelines and the associated traffic congestion. By implementing a traffic management plan during construction, net negative effects are expected to be negligible.

4.2.6.3.1 Summary of Ranking in Socio-Economic Category

RESA 3 (Most Preferred)

RESA 3 is ranked as the most preferred alternative due to its multiple benefits including a reduction in noise levels from taxiway ground operations through the addition of noise walls, which benefits some residents closest to the airport and recreational users along the waterfront, in the harbour and on the islands. While RESA 3 requires the rerouting of vehicles around the new access road, resulting in increased travel distances and higher on-road vehicle emissions compared to existing conditions, it partially offsets this increase by eliminating vehicle idling, including truck idling, at controlled runway crossings.

In terms of public health, limited effects are anticipated. Noise and air emissions during construction are temporary, but with RESA 3's longest duration, the potential short-term construction related health impacts may be slightly greater.

It incorporates the direction of the City of Toronto Official Plan's policies on Heritage Conservation and Natural Heritage Features including policies related to Green Space, Natural Heritage System, Environmentally Significant Areas, and Provincially Significant Natural Heritage Features, with implementation of mitigation, offsetting and enhancement measures. However, it may require Official Plan Amendment due to lakefilling in Lake Ontario, development in areas designated as Parks and Natural Areas, and alteration of the delineated boundary of the airport as designated in the Site and Area Specific Policies 192 and 194.

Furthermore, RESA 3 aligns with the key priorities of the Airport Master Plan in terms of operational efficiency, environmentally sustainable operations, and infrastructure improvement, ensuring that the airport's long-term growth and operational needs are met. However, this alternative does come with the downside of requiring a larger amount of permanent lake infill than RESA 1 or RESA 2. Although the extent of the Marine Exclusion Zone will not change, there is a negative impact on the passive enjoyment of the harbour and waterfront due to the reduction in visible water-area. The larger footprint and associated impact on the enjoyment of the harbour and waterfront were seen as an acceptable trade-off, given the positive impacts on the local area residents, recreational users and the airport's operations. RESA 3 also results in the highest construction-related traffic and nuisance effects because of its longest duration (24 months); however, the use of barging reduces construction-related emissions and avoids traffic congestion. The dual benefits of less emissions and noise mitigation during operation, making this alternative worthwhile despite the short-term inconveniences during construction.

RESA 2 (Moderately Preferred)

RESA 2 is moderately preferred overall, offering some positive effects during operation, particularly with air emission reductions due to shorter taxi times. However, it does not include the additional emission-reduction measures found in RESA 3, including reduced vehicle idling, including truck idling, from an unrestricted airside road.

During construction, RESA 2 has the second-highest impact on air quality, noise and traffic due to its 21-month duration, but the use of barging reduces construction-related emissions and avoids traffic congestion.

For recreational uses, RESA 2 requires more lake infill than RESA 1 but less than RESA 3, and comes with moderate effects on the quality of the waterfront experience.

Regarding public health, limited effects are anticipated. Noise and air emissions during construction are temporary, with RESA 2's longer duration potentially increasing the short-term construction related health impacts, though to a lesser extent than RESA 3.

RESA 2 may require amendments to the Official Plan due to development in areas designated as Parks and Natural Areas, lake infilling and altering the delineated boundary of the airport as designated in Site and Area Specific Policies 192 and 194. It aligns with Airport Master Plan key priorities.

RESA 1 (Least Preferred)

RESA 1 is the least preferred alternative in socio-economic category overall. It has a neutral effect on noise during operation. It has the highest air emission during operation because it does not include emission-reduction measures like the other alternatives, resulting in higher on-road emissions due to the extended access road. However, it has the shortest construction duration (18 months), making it the most preferred alternative during construction in terms of minimizing temporary impacts, including noise, traffic and air emissions.

In terms of recreational use, RESA 1 requires the least lake infill, minimizing its impact on the waterfront compared to the other alternatives, making it the most favourable alternative in this regard.

For public health, limited effects are anticipated. Its shorter construction duration reduces the duration of construction-related health impacts compared to RESA 2 and RESA 3.

In terms of planning and land use, RESA 1 complies with the City's existing policies and is recognized as a qualifying essential public work for lakefill projects. It does not require amendments to the Official Plan, which makes it simpler from a regulatory perspective compared to RESA 2 and RESA 3.

Overall, while RESA 1 minimizes construction impacts, it falls behind in operational benefits compared to the other alternatives.

4.2.6.4 Evaluation Summary of Climate Change

From a Climate Change Perspective:

The RESA alternatives were evaluated based on their preparedness and resilience to future climate events, such as localized flooding, and their ability to respond to climate emergency situations. The analysis also considered their expected impact on greenhouse gas emissions. The greenhouse gas emissions analysis completed as part of the Environmental Assessment study focused on operational impacts, including

reduced emissions from shorter taxi time and vehicle idling, including truck idling. Embodied carbon emissions from the materials required to extend the RESA were not factored into the assessment because detailed information on material quantities, sourcing, and manufacturing processes was not available at this stage of the Project.

- Breakwater structures in all three alternatives enhance the airport's adaptability to future climate conditions.
- RESA 2 provides partial benefit by offering some additional adaptability (flood protection by increasing the elevation of Taxiway D) to future climate conditions, compared to RESA 1. However, it still lacks preparedness measures of an unrestricted airside road that could be used by other stakeholders during a climate emergency situation.
- RESA 3 provides both additional adaptability (flood protection by raising the elevation of Taxiway D) and preparedness measures, including an unrestricted airside road that would allow alternative unrestricted access to/from the islands for other stakeholders in the event of a climate emergency.
- Overall, from adaptability and resilience to climate change conditions, RESA 3 is most preferred, followed by RESA 2 and RESA 1. All three alternatives are expected to result in positive net effects, with the degree of benefit incrementally increasing from RESA 1 through to RESA 3.
- All three alternatives result in increased greenhouse gas emissions due to the extended distance traveled from rerouting vehicles to the airside road. However, the project's contribution to greenhouse gas emissions is negligible compared to the total Ontario Transportation 2021 CO₂ equivalent emissions, and the overall net negative effect is considered low (See **Table 6-14** for further details on greenhouse gas emissions associated with each alternative).
- RESA 2 and RESA 3 decrease the greenhouse gas emissions (approximately 30%) compared to RESA 1 due to improvements to taxiway operation (reduced taxi time).
- RESA 3 is the most preferred alternative due its dual benefits of reduced taxi time and additional reductions in vehicle idling (including truck idling) emissions.
- RESA 2 offers similar taxiway operational improvements to RESA 3, but without the added benefit of an unrestricted airside road.
- RESA 1 is the least preferred due to its lack of operational improvements.

4.2.6.4.1 Summary of Ranking in Climate Change Category

RESA 3 (Most Preferred)

RESA 3 ranks highest due to its multifaceted approach to addressing climate change. It offers mitigation through reduced greenhouse gas emissions from shorter taxi times and eliminating the vehicle idling, including truck idling, adaptation through flood protection (breakwater structures and raised elevation of Taxiway D), and resilience through emergency access, making it the most preferred alternative in the face of future climate conditions.

RESA 2 (Moderately Preferred)

RESA 2 provides adaptation through flood protection (breakwater structures and raised elevation of Taxiway D), and mitigation by reducing greenhouse gas emissions from shorter taxi times. However, its lack of emergency access and partial emissions reduction (as it doesn't eliminate vehicle idling) make it less preferred compared to RESA 3.

RESA 1 (Least Preferred)

RESA 1 offers limited adaptation through flood protection via breakwater structures. However, it lacks additional flood protection measures (no change to the elevation of Taxiway D), mitigation for greenhouse gas emissions and resilience measures for climate emergencies, making it the least preferred alternative.

4.2.6.5 Summary of Cultural Environment Evaluation

From a Cultural Environment perspective:

- None of the RESA alternatives impact built heritage resources.
- RESA 3 will impact a portion of Hanlan's Point Beach (a potential cultural heritage landscape) during construction. This impact can be addressed during design and construction.
- The longer landmass extension in RESA 2 and RESA 3 will have a greater effect on sediment transport, creating a barrier that leads to sediment deposition and potentially impacting the long-term sustainability of Hanlan's Point Beach. RESA 1, with its shorter extension on the west end, will have less impact on sediment transport and the beach's long-term sustainability.
- RESA 1 will have no net effect on Hanlan's Point Beach potential cultural heritage landscape, with some positive effect on its sustainability.
- RESA 2 will have no net effect on Hanlan's Point Beach potential cultural heritage landscape, with moderate positive effect on its sustainability.

- RESA 3 has low net negative effect on Hanlan's Point Beach potential cultural heritage landscape, with moderate positive effect on long-term sustainability of the beach.
- Overall, RESA 2 is slightly preferred over RESA 1 and RESA 3, as it has no impact on Hanlan's Point Beach potential cultural heritage landscape, and its longer extension on the west side supports the long-term sustainability of the beach.

4.2.6.5.1 Summary of Ranking in Cultural Environment Category

RESA 1 (Moderately Preferred)

RESA 1 has no impact on the cultural heritage landscape and offers a positive effect on sustainability, but it provides less long-term support compared to RESA 2 due to its shorter extension.

RESA 2 (Most Preferred)

RESA 2 is the most preferred alternative, as it has no impact on Hanlan's Point Beach (potential cultural heritage landscape), and provides a moderate positive effect on the sustainability of the beach through its longer extension.

RESA 3 (Moderately Preferred)

While its longer extension provides a moderate positive effect on the sustainability of the beach, it is moderately preferred due to its impact on a portion of Hanlan's Point Beach, which is a potential cultural heritage landscape.

4.2.6.6 Summary of Cost and Constructability Evaluation

From a Cost and Constructability perspective:

- RESA 1 has the lowest operational and maintenance costs, reduced co-ordination efforts, and lower construction complexity compared to the other alternatives.
- RESA 2 has higher operational and maintenance costs than RESA 1. It also involves greater co-ordination with NAV CANADA due to regulatory requirements associated with the relocation of localizer 26, and greater construction complexity compared to RESA 1.
- RESA 3 has the highest complexity, along with the greatest operational and maintenance costs. It also requires more co-ordination with NAV CANADA due to regulatory requirements associated with relocation of localizer 26, and greater construction complexity compared to RESA 1 and RESA 2.

- All alternatives potentially trigger Fisheries Act authorization, accompanied by an offsetting plan, or a letter of advice depending on the direction from the Fisheries and Oceans Canada; and potentially require other agency review and approvals.

4.2.6.6.1 Summary of Ranking in Cost and Constructability Category

RESA 1 (Most Preferred)

Most preferred due to the lowest operational and maintenance costs, minimal co-ordination, and reduced construction complexity.

RESA 2 (Moderately Preferred)

Moderately preferred with higher operational and maintenance costs, more co-ordination efforts, and increased construction complexity compared to RESA 1.

RESA 3 (Least Preferred)

Least preferred due to the highest operational and maintenance costs, greatest complexity, and more co-ordination and construction efforts required.

4.2.7 Step 4: Selection of Preferred RESA Alternative

In evaluating the RESA alternatives, each alternative presents distinct benefits and trade-offs that require careful consideration based on the Project priorities and community expectations. The alternatives are assessed based on their impact on safety, operational efficiency, ecological considerations, socio-economic benefits, climate change resilience and cost. The goal is to identify the most suitable alternative that aligns with long-term operational needs while balancing environmental protection, airport safety, and community needs, ultimately providing a recommendation for the preferred alternative.

Based on the comprehensive evaluation of each RESA alternative, RESA 3 is the most preferred alternative overall. While it has the largest footprint on terrestrial and aquatic ecosystems, highest construction costs, and temporary impact on a portion of a potential cultural landscape feature (Hanlan's Point Beach), these trade-offs are offset by its long-term benefits in safety, operational efficiency, climate resilience, and socio-economic positive effects, including reduced noise and air emissions, compared to other alternatives. The justifications for offsetting ecological, cultural effects and cost implications are further explained below.

Ecological Considerations:

With respect to ecological impacts, RESA 3 introduces the largest footprint of the three alternatives and results in the highest level of vegetation removal—4,480 m² in total—including 1,080 m² of the regionally rare Mineral Open Beach Bar and approximately 730 m² of the provincially rare Cottonwood Treed Dune. These impacts are greater than those associated with RESA 1, which involves only 575 m² of removal limited to low-quality, secondary-growth vegetation, and RESA 2, which affects 2,935 m² of Cultural Willow Deciduous Thickets adjacent to the west and east runway ends. RESA 3 also affects approximately 2,285 m² of the candidate Toronto Islands Area of Natural and Scientific Interest adjacent to southwest end of the airport.

While RESA 3 has the greatest direct impact on rare vegetation communities, the overall loss is minimal in proportion to the extent of these communities along Hanlan's Point Beach—0.99 percent of the Mineral Open Beach Bar, and 0.006 percent of the Cottonwood Treed Dune. Similarly, the effect on candidate Toronto Islands Area of Natural and Scientific Interest is limited to approximately 0.16% of this feature in Toronto Islands.

The key consideration in the overall ecological assessment was that the increased vegetation and habitat loss in RESA 3 can be offset by larger or equivalent compensation plantings of native vegetation. While edge effects from the expanded footprint may temporarily impact adjacent habitat quality, these effects are expected to be short-term and can be effectively managed through restoration and enhancement measures designed to maintain the ecological function and stability of these features. Compensation or equivalent enhancement of beach and dune communities, combined with ecologically appropriate native vegetation plantings, will help offset the vegetation loss and support the long-term resilience of these features.

The assessment also shows that RESA 3 results in the temporary removal of approximately 1,080 m² of potential Species at Risk (Piping Plover) habitat. However, considering that the active wildlife deterrent programs at Billy Bishop Toronto City Airport prevent nesting by all bird species, including Species at Risk, no significant impact on terrestrial Species at Risk habitat is anticipated in general. Furthermore, the removal of Piping Plover habitat is limited to the construction period and will be further minimized through mitigation measures developed in consultation with regulatory authorities.

Given the considerations above, the impact of RESA 3 on terrestrial ecosystems was assessed as 'low', in contrast to the 'no' negligible' effects associated with RESA 1 and RESA 2.

In the aquatic environment, all three RESA alternatives are anticipated to result in a moderate net negative effect due to unavoidable fish habitat removal. RESA 3, with the largest in-water footprint (57,870 m² at the east end and 30,380 m² at the west end), presents the greatest potential for disruption to aquatic habitats, including habitat for aquatic Species at Risk (American Eel). These effects will be addressed through rigorous habitat compensation measures developed and approved in consultation with Fisheries and Oceans Canada, the Ministry of the Environment, Conservation and Parks, Toronto and Region Conservation Authority and other stakeholders (Aquatic Habitat Toronto) which ensuring that the residual impacts are effectively offset in accordance with federal and provincial requirements.

Refer to **Tables 6-1 to 6-4** for mitigation measures related to impacts on terrestrial and aquatic ecosystems, and **Table 11-1** for commitments regarding the compensation, restoration, and/or enhancement of impacted habitats. The details of the enhancement and/or restoration measures for terrestrial and aquatic ecosystems will be determined during detailed design, but will cover at least an area equal in size or impact for the selected RESA alternative.

Cultural Heritage Considerations:

In terms of effects on cultural landscapes, RESA 3 impacts a portion of Hanlan's Point Beach, a potential cultural heritage landscape, during construction. However, this impact can be addressed during design and construction. The longer landmass extension in RESA 3 will affect sediment transport, and will positively contribute to the sustainability of the beach associated with this potential cultural heritage landscape. The positive effects on the long-term sustainability of the beach justify RESA 3 as an acceptable alternative.

Cost Considerations:

In terms of cost, RESA 3 involves a higher investment, due to its more complex infrastructure and construction and future maintenance requirements. However, this cost is justified by the long-term operational and safety benefits it provides, which are unique to RESA 3. The improvements in operational efficiency will lead to cost savings and enhanced airport functionality over time.

In summary, the ecological and cost trade-offs of RESA 3 were evaluated in the context of the study's objective to achieve an optimum balance of impacts. While RESA 3 entails higher upfront costs and ecological trade-offs, the substantial long-term benefits—supported by appropriate and committed mitigation and offsetting plan—make it a well-balanced and justified investment. These benefits enhance the airport's safety, functionality, and resilience, directly supporting its ongoing operational needs and strengthening its capacity to adapt to future challenges.

5. Preferred Alternative

This section provides an overview of the key features and characteristics of the preferred RESA Alternative (RESA 3: Noise Wall and East Utility Conduit) for Runway 08/26 at Billy Bishop Toronto City Airport. Preliminary design of RESA 3 is included in **Appendix N**. The Design for RESA 3 is ongoing at the time of this reporting and, as such, all dimensions, configurations and materials noted herein are subject to refinement as design activities progress.

Neither the Marine Exclusion Zone nor airspace protection measures will change as a result of the Project.

5.1 Design Components

5.1.1 Landmass

RESA 3 includes a landmass expansion of 73 metres from the seawall by approximately 220 metres wide (29,980 square metres) on the east end, and 82 metres from the seawall by approximately 150 metres wide (12,600 square metres) on the west end. The coastal and shoreline design of the RESA 3 considered engineered requirements to address wave action, forecast water levels, and ice. Consistent with other shoreline work completed in this area, the RESA 3 shoreline was designed using a 76.2 metre water level, with an additional 0.07 metre allowance for the potential impacts associated with the most recent International Joint Commission water level regulation (International Joint Commission Plan, 2014).

5.1.2 Utility Conduit

The east end landmass expansion allows for an underground utility conduit. The proposed utility conduit supports the burial of underground conduits, pipes and other essential conduits for City and airport infrastructure. The space will allow only restricted access for installation, maintenance and inspections by both airport and City of Toronto utilities. This utility conduit will improve the co-ordination of public utilities, including water, sewer, and electrical connections, enabling future upgrades and ensuring uninterrupted service to both the airport and the broader Toronto Islands community. Relocating existing utilities currently running under the airport runways will facilitate easier access for maintenance, emergency works, and addressing utility failures, which are ongoing operational concerns for both City and Airport staff. Additionally, according to PortsToronto's communication with Toronto Hydro (October 2024), the dedicated conduit will support future infrastructure upgrades and provide long-term benefits to both airport operations and the wider Islands community.

5.1.3 Taxiway and Visual Approach Slope Guidance System Modifications

RESA 3 includes taxiway modifications along both the east and west ends of the airport. At the east end, the landmass expansion associated with RESA 3 offers an opportunity to relocate Taxiway D further away from the runway by 23 metres to a meet a standard separation distance of 93 metres from Runway 08/26 and aligned with the existing apron taxiway; improving from the current, non-standard Taxiway D offset that imposes restrictions and unusual aircraft taxi procedures and turns. Relocating Taxiway D will address congestion, delays, and emissions caused by current taxiing procedures, improve safety and familiarity for flight crews, while also enabling the ability to mitigate flood risks through design of a new breakwater and grading revisions.

At the west end, a realignment of Taxiway B will provide a full parallel (straight) taxi route to Runway 08/26 threshold, eliminating Taxiway A and many unnecessary aircraft turns. This change will reduce the taxi distance by about 75 metres, ultimately enhancing airfield efficiency and safety.

5.1.4 Noise Barriers

RESA 3 accommodates an extension of the existing noise wall (6 to 8 metres tall) installed at the western end of Runway 08/26, in addition to the introduction of a new noise wall at the east end of the runway. The landmass extension associated with RESA 3 allows these noise walls to be installed clear of runway and taxiway protection areas, while attenuating ground-based noise from aircraft on taxiways B and D. The final limits and heights of these noise barriers are subject to ongoing preliminary and final design activities.

5.1.5 Airside Operational Improvements

The proposed components of RESA 3 provide various improvements to airside operations, as outlined below.

5.1.5.1 Relocation of Navigational Aid (Localizer 26)

Localizer 26 is a navigational aid currently situated in the path of the proposed realignment of Taxiway B, adjacent to the west end of Runway 08/26. RESA 3 provides an opportunity to relocate the localizer 26 antenna onto the extended runway centreline within the proposed western RESA landmass. The localizer 26 antenna is currently 2.2 metres in height, with a similar height being considered for the relocated antenna. Based on a preliminary airspace analysis, the relocation of localizer 26 will not impact existing runway operations and will preserve the existing approach minimum descent

altitudes and visibility. Additionally, the relocation of localizer 26 also enables the proposed improvements to Taxiway B and the relocation of the existing Precision Approach Path Indicator for Runway 08/26 to the north side of the runway. Furthermore, NAV CANADA has also confirmed that the new localizer 26 position would not be impacted by the proposed noise walls.

5.1.5.2 Glidepath 08 (Navigational Aid)

The existing protection areas of the Runway 08/26 Glidepath (navigational aid), located on the west end of Runway 08/26, may be impacted by the breakwater structure required for the landmass expansion to accommodate RESA construction, pending confirmation of structure height and shape per ongoing preliminary design. NAV CANADA, who owns and operates the Glidepath 08 system, has been engaged as part of the ongoing design activities to delineate acceptable geometry for the breakwater structure, ensuring mitigation of potential impact(s) on the Glidepath 08 antenna and its protection areas. Inputs received to date did not identify any significant constraints and that with only minor design adjustments, the breakwater structure should remain compatible with the existing Glidepath 08 operation. NAV CANADA will continue to be consulted as part of any future design activities.

5.1.5.3 Enhanced Visual Glide Slope Indicator System (Precision Approach Path Indicator 26)

The realignment of Taxiway D associated with RESA 3 creates additional space between Runway 08/26 and Taxiway D, permitting an enhancement in the visual glide slope indicator system for Runway 26. Runway 26 currently uses an Abbreviated Precision Approach Path Indicator system comprised of two light units. The proposed Taxiway D relocation will allow for the replacement of the current Abbreviated Precision Approach Path Indicator with a full Precision Approach Path Indicator system. The full Precision Approach Path Indicator system provides a higher degree of visual descent guidance accuracy to pilots in maintaining their glide slope angle while on approach, enhancing approach safety for Runway 26. The four-light unit Precision Approach Path Indicator will be consistent with that used on Runway 08/26, and provides two additional slope guidance lights, improving visual slope monitoring guidance and accuracy to pilots, enhancing safety for aircraft approaching from the east.

The new Taxiway B configuration will also enable the relocation of the existing Runway 08/26 Precision Approach Path Indicator system from the south side of Runway 08/26 to the north side which is the standard location for these types of systems.

5.1.6 Breakwater

Both east and west sides of the runway will experience exposure to wind, wave, ice, and wave spray conditions and as such, must be protected by an engineered structure to ensure long term operations. To address shoreline and coastal protection, RESA 3 includes an armoured stone breakwater structure along both east and west ends of Runway 08/26.

On the east end of Runway 08/26, which faces the Inner Harbour, the top of the breakwater structure would be 77 metres above sea level, or approximately less than 1 metres above the current runway threshold, as there is minimal to no risk of wave action and water spray. The final height and shape of the breakwater structure will be subject to further design refinement, as engagement with NAV CANADA continues pertaining to the Glidepath 08 antenna (refer to **Section 5.1.5.2** above).

The breakwater structure along the west end of the runway will have a top elevation of 81 metres above sea level, approximately 4.5 metres above the current Runway 08/26 threshold, in order to mitigate any wave overtopping and water spray.

5.1.7 Unrestricted Access Road

RESA 3 introduces unrestricted airside roads around both ends of Runway 08/26, which allows vehicles to circumvent the controlled runway environment, eliminating the need for control tower permissions currently in place. This improves airfield safety by facilitating vehicular runway crossings between the north and south sides of Runway 08/26 without need to co-ordinate crossings across an active runway (as is currently done). The road is 7.5 metres wide with flat topography, consistent with airside aviation standards. Further, this supports the Transportation Safety Board of Canada Watchlist priority to reduce the risk of runway incursions.

5.1.8 Run Up Pads

Run up pads are used primarily by small single and twin-engine piston aircraft to conduct pre-takeoff engine checks. These pre-flight checks involve throttling up the engines i.e., running up the engines, while monitoring critical engine parameters like oil pressure, temperatures, alternator condition and ignition system performance. These are considered normal and routine operational pre-flight checks for all pilots. Since these pre-flight checks take time and require the aircraft to remain stationary, most airports designate preferred locations on the airfield for these operations to avoid conflicts with other aircraft movements which in the case of Billy Bishop Toronto City Airport is extremely important due to the high frequency of commercial aircraft operations.

East End Run Up Pad

The east end of Runway 08/26 is currently served by an existing paved run up pad located just north of the intersection of Taxiways C and D. This run up pad permits pre-flight checks to be conducted clear of apron taxi lanes and taxiways. While these aircraft complete their pre-flight checks, other aircraft can safely manoeuvre and bypass this area. The RESA 3 layout impacted one of the aircraft parking positions in the East Run up Pad and proposed a small expansion to the north to accommodate for this lost position. The final run up pad layout for RESA 3 simply shifted pad slightly to the north and did not change its overall size and function.

West End Run Up Pad

There is currently no designated run up pad at the west end of Runway 08/26. Aircraft in this case may conduct their run ups on Taxiway A with the potential to delay other aircraft from reaching the runway, or in some cases aircraft are routed to Taxiway B where they conduct their pre-flight checks while other aircraft can manoeuvre freely to and from Runway 08 using Taxiway A. The existing situation, while functional, is not efficient. RESA 3 contemplated the extension of Taxiway B to the threshold of 08 and the removal of Taxiway A. This new taxiway layout offers greater efficiency in overall movement to and from threshold 08 but it removed the flexibility of using a part of Taxiway B for pre-flight engine run ups. As such, RESA 3 proposed re-using a portion of the existing Taxiway A to introduce a designated west run up pad similar in size and function to the east run up pad. Small single and twin engine piston aircraft could now park clear of the taxiway and complete their pre-flight checks without impacting the main Taxiway B movements. In addition, the proposed configuration also would take advantage of the proposed noise wall for sound attenuation and re-use parts of the existing paved Taxiway A.

5.2 Constructability and Staging

Completion of the final design and most permitting are anticipated to occur by late 2025, with some construction activities expected to start in early 2026. Initial steps of the construction phase will be administration and construction management planning, logistics and traffic planning, mobilization planning, materials procurement and stockpiling, and initiation of enabling works.

It is anticipated that construction could be completed in the following two phases:

- Phase 1 includes the first stage of construction activities, focusing on breakwater and RESA construction to meet Transport Canada's July 2027 RESA operational deadline. The work will involve offshore installation of the

breakwater, sheet piles, and dock walls, along with landmass expansion fills. The majority of Phase 1 construction activities will be completed by barging equipment, materials, construction vehicles and staff during the overnight hours when commercial airlines are not in operation from 11:00 pm to 6:45 am.¹¹ No onshore construction will take place during this phase, though onshore activities will be limited to mobilization, staging areas, and preparations for the next phase of work. This phase is expected to begin in early 2026, with RESA commissioning scheduled for July 2027.

- Phase 2 will focus on completion of the balance of the construction works unrelated to RESA operation, and will be completed in two stages:
 - The first stage of Phase 2 includes offshore and onshore construction activities. Offshore work will include continued landmass expansion fills within the breakwater, sheet piles, and dock walls installed during Phase 1. Onshore activities will focus on preparing the RESA footprint for commissioning, in advance of the final stage of construction.
 - The last stage will consist of onshore construction activities only, including airside and safety improvements to taxiways, vehicle service roads, and other related infrastructure.

Similar to construction Phase 1, it is anticipated that the majority of Phase 2 construction activities will be completed by barging equipment, materials, construction vehicles and staff during the overnight hours when commercial airlines are not in operation from 11:00 pm to 6:45 am. This phase is expected to commence in mid-2027 and continue into early 2028, with final Project close-out by Spring 2028.

5.2.1 Land Construction Activities

5.2.1.1 New Taxiway Construction and Removals

Phase 2 construction would include the reconfiguration and construction of multiple taxiways.

On the east side of the airport, the existing Taxiway D pavement would be removed, with over 80% of it converted to turf, and a new Taxiway D constructed along an alignment with standard separation from the runway centreline consistent with the existing apron taxiway. A minor expansion to the existing general aviation engine run up area would also be completed since a portion of the existing area would be sterilized by the new Taxiway D.

11. PortsToronto has experience in this construction approach having completed the Airfield Rehabilitation Program over a 3 year period in 2017, where construction staging occurred in the Port lands and barging to the airport occurred during the construction season.

On the west side of the airport, Taxiway A would be repurposed in part, Taxiway B would be widened and extended (from Taxiway E to Taxiway A at the threshold of Runway 08/26), and a portion of Taxiway E (north of Taxiway B) would be repurposed. The northern portions of taxiways A and E would be repurposed for general aviation aircraft to perform engine run ups prior to flight.

5.2.1.2 Utilities

Prior to construction, existing utilities must be either located and protected or relocated. Utilities requiring relocation or rehabilitation will be identified in the upcoming detailed design phase, ensuring minimal disruption and alignment with Project objectives. Of note, there is an existing 2400 mm Toronto Water transmission watermain located under the breakwater footprint at the east RESA, and a 400 mm High-Density Polyethylene watermain and two ductile iron sanitary forcemains, one 200 mm and another 300 mm, crossing the airport's runways.

The taxiway realignments and construction will also include the installation of taxiway edge lighting on both sides of the taxiways. This electrical utility is typically trenched into the turf shoulder of the taxiway, approximately 1.5 metres from the pavement edge, at a depth of approximately 450 mm. The trench typically includes one or two plastic ducts, spanning between light locations, and pull pits or junction boxes. It is typically a sand encased trench.

The localizer relocation will also include electrical and communication utility trenching. This will likely include trenching from the existing localizer location to the new location using common trenching at a depth of 450 – 600 mm depth. The alignments and number of ducts required will be confirmed through detailed design.

5.2.1.3 Runway End Airside Access Roads

For the RESA 3 alternative, airside roads around the runway and RESA ends have been designed to clear the airport operational Obstacle Limitation Surfaces and other obstacle free areas associated with the airside. The intent would be to construct unrestricted airside roads around the new RESAs at the east and west ends that would enable ground vehicle movement without affecting landing and departing aircraft operations and requiring co-ordination with the control tower. These roads would have an asphalt and granular pavement structure, with most of the roadway lengths being constructed on the RESA 3 landmass and lakefills. This would simplify construction staging to align with the landmass extension construction (Phase 1) and reducing the need for removal of existing earth of pavements.

5.2.1.4 Relocation of Localizer 26

The relocated localizer antenna is expected to be positioned on the extended runway centreline behind the RESA. The foundation will be constructed on landmass, lakefill materials and potentially also piles secured into the underlying bedrock. Settlement mitigation will be critical to ensure proper functionality. Though the preliminary design constructability review is ongoing at the time of this Report, a phased construction approach is under consideration to allow time for landmass consolidation prior to the localizer relocation. Additional stabilization techniques under review include vibro-compaction of the fill material, which helps increase soil density, and, if necessary, dredging unstable sediment layers. To further ensure precision of the localizer foundation, options such as pile footings driven to bedrock, in addition to more typical floating slab designs, are also under consideration. These preliminary design considerations are all subject to completion of the preliminary design and constructability review.

5.2.2 Marine Construction Activities

The lakefill and shoreline protection are anticipated to be constructed using marine-based techniques such as construction equipment operating from a barge. Tugs will be used to manoeuvre barges and scows into position for construction, and it is anticipated that separate construction crews will be working at both ends of the runway concurrently. The following provides a summary of the marine construction activities that are expected to occur at either end of the runways, subject to upcoming detailed design activities in 2025 informing Construction Plan development. For clarity, construction methods will be determined by the successful design and/or contractor at the time of detailed design and construction planning based on the equipment, materials and labour available to them. As previously noted, the majority of marine construction activities would be completed by barging equipment, materials, construction vehicles and staff during the overnight hours when commercial airlines are not in operation from 11:00 pm to 6:45 am.

Dredging may be required where lake bottom sediment is not suitable for the foundation of the lakefill or shore protection structures. Dredging is likely to be carried out using mechanical methods, removing lake bottom sediment using a long reach excavator and/or a crane with a clamshell. During this activity, material is lifted off the bottom and placed in scows. Once filled, the scows are ferried to shore where they are unloaded into trucks for off-site disposal. The disposal site will depend on the quality of the bottom sediment. Once dredging has been completed to the prescribed depth the site will be ready for construction of the rock protection.

The lakefill will begin with the construction of the perimeter berm. The berm will serve as an access berm for construction. Once it is of sufficient length and height, the shore protection revetment will begin closely behind the construction of the access berm. It is anticipated that material will be delivered to site by water using barges. Once a sufficient length of the shore protection is constructed to provide shelter from wave action, fill placement will commence. The fill is expected to be barged to site and placed via a conveyor or sling over the partially completed breakwater. Meanwhile, construction would progress around the perimeter of the lakefill area and along the crest of the revetment after the fill material is placed.

The existing concrete capped steel sheet pile walls will need to be cut down or removed for construction. This work may be completed from shore prior to placement of the fill material. It is expected that this work will be completed using land-based equipment while the other work would be taking place at the site.

On the west side of the runway, RESA 3 includes a length of a combi-wall which would be constructed with king piles with steel sheet piles, large, sturdy piles that serve as the main structural elements in a sheet pile wall system. They are typically made of steel and have a larger cross-section compared to intermediate sheet piles. The anchoring system would be located landward of the wall, and the king piles to be socketed into bedrock and grouted. The anchoring system is expected to either consist of tie rods extending to a dead man anchor landward of the wall, or rock anchors extending at an angle from the wall into bedrock. Depending on the timing of the wall's construction, it may be constructed with equipment on the access berm or from a barge on the water.

Once the fill placement is complete, compaction methods such as vibro-compaction and surcharging may be required based on the allowable settlement of the fill area.

5.2.3 Construction Staging Areas

The preliminary design of RESA 3 includes a constructability review that will identify key elements to be considered in the construction plan. Construction staging areas will be reviewed and confirmed during detailed design.

Additional studies may be required for any proposed staging areas that extend beyond previously studied locations to confirm potential impacts are adequately assessed.

5.2.4 Construction Timing and Schedule

Confirmation of construction activity and development of the construction schedule will take place during subsequent design phases. The schedule will be identified in the forthcoming construction plan, which is anticipated to be available in mid 2025.

Construction timing will be limited by the in-water work window for fisheries provided by the agencies (Ministry of Natural Resources and Fisheries and Oceans Canada) (July 16 to August 31). Work in the winter will also depend on storm conditions especially if work is at night from marine-based equipment.

Construction activities will be taking place at nighttime, during the hours of 11:00 p.m. to 6:45 a.m. Normal airport operations will continue during the daytime and there will be no runway closures.

6. Potential Environmental Effects and Mitigation Measures

This section presents the results of the detailed net effects assessment for the three RESA alternatives (RESA 1, RESA 2, RESA 3). The analysis, based on the preliminary designs of these alternatives available during the Environmental Assessment study, identifies key mitigation measures and effects management strategies aimed at minimizing or avoiding potential impacts. The remaining net effects after the application of these measures are summarized for each alternative.

6.1 Natural Environment

6.1.1 Terrestrial Ecosystems

6.1.1.1 Net Effects Analysis - Construction

Table 6-1 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3, within the terrestrial study area, during construction.

6.1.1.2 Net Effects Analysis - Operation

Table 6-2 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3, within the terrestrial study area, during operation.

Table 6-1: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Terrestrial Ecosystems – Construction

Factor	Criteria	Potential Impacts	Mitigation Measure(s)	Net Effects Assessment
■ Vegetation Communities and associated Natural Heritage Features, and Significant Wildlife Habitat.	■ Potential impact on vegetation communities including provincially and regionally rare vegetation communities and regionally rare vascular plant species. ■ Potential impact on Significant Wildlife Habitat (associated with each vegetation community). ■ Potential impact on natural heritage features and their functions (Area of Scientific Interest, City of Toronto Natural Heritage System).	Direct Impacts RESA 1 ■ Loss of general migratory breeding bird habitat in all vegetation communities. ■ Removal of Cultural Willow Deciduous Thicket Community: 575 square metres. RESA 2 ■ Loss of general migratory breeding bird habitat in all vegetation communities. ■ Removal of Cultural Willow Deciduous Thicket Community: 2,935 square metres. RESA 3 ■ Loss of general migratory breeding bird habitat in all vegetation communities. ■ Removal of Cultural Willow Deciduous Thicket Community: 2,206 square metres. ■ Removal of 1,810 square metres (0.16%) of candidate Toronto Islands Life Science Area of Natural and Scientific Interest. ■ Removal of 730 square metres (0.006%) of Cottonwood Treed Dune and associated: – Regionally rare vascular plants. – Monarch Habitat and Migratory Butterfly Stopover Area. – Candidate Shorebird Migratory Stopover Area. ■ Removal of 1,080 square metres (0.99%) of Mineral Open Beach Bar and associated: – Regionally rare vascular plants. – Candidate Shorebird Migratory Stopover Area Significant Wildlife Habitat. – Habitat for shorebird Species of Conservation Concern (Semipalmated Sandpiper). – Piping Plover habitat. Indirect Impacts RESA 1, RESA 2, RESA 3 ■ Potential structural damage to adjacent vegetation or Ecological Land Classification communities due to accidental intrusion by heavy machinery (i.e., broken tree limbs, etc.) during construction. ■ Dust, fill or sedimentation accumulation/deposition on vegetation. ■ Soil compaction by machinery in areas adjacent to natural features.	RESA 1, RESA 2, RESA 3 ■ Clearly delineate vegetation clearing zones (i.e., using silt protection fencing) on both construction drawings and on-site prior to clearing and grading to clearly define the construction footprint and prevent accidental damage or intrusion to adjacent vegetation communities. ■ Store stockpiled materials, fill and equipment 30 metres from the limits of the candidate Toronto Islands Life Science Area of Natural and Scientific Interest. ■ An Erosion and Sediment Control plan shall be developed to ensure no sedimentation enters adjacent vegetation communities. ■ All machinery, construction equipment and vehicles arriving on site shall be in clean condition (e.g., free of fluid leaks, soils containing seeds of plant material from invasive species) and be inspected and washed in accordance with the Clean Equipment Protocol for Industry (Halloran et al., 2013) prior to arriving and leaving the construction site in order to prevent the spread of invasive species to other locations. ■ Enhancement/restoration measures shall be developed during detailed design in partnership with the Toronto and Region Conservation Authority and/or other stewardship groups (as appropriate) and should cover an area equal in size or impact for each RESA alternative as follows: – RESA 1: 575 square metres. – RESA 2: 2,935 square metres. – RESA 3: 4,480 square metres total, of which at least 1,810 square metres of enhancements/restoration must occur within the Cottonwood Treed Dune and Mineral Open Beach Bar. ■ Details of enhancement and restoration measures (i.e., planting plans, invasive species removal strategies) shall be confirmed during detailed design and to the satisfaction of the City of Toronto; acting reasonably, but must also comply with all applicable airport safety regulations, ensuring that these measures do not inadvertently attract wildlife or pose bird hazard risks to airport operations. ■ Detailed invasive removal strategies and/or planting plans shall be developed during detailed design. RESA 3 ■ Undertake targeted surveys for regionally rare plants and tree inventories during detailed design to quantify tree and regionally rare plant removal to support compensation and enhancement measures.	RESA 1 ■ No Net Negative Effect. ■ RESA 1 has minimal, localized vegetation removal in Cultural Willow Deciduous Thicket, a secondary growth vegetation community, which can be offset by compensation plantings. No impacts to the Cottonwood Treed Dune or Mineral Open Beach Bar are anticipated. RESA 2 ■ Negligible Net Negative Effect. ■ Increased vegetation loss is limited to low quality secondary growth in the Cultural Willow Deciduous Thicket and can be offset by increased size or equivalency of compensation plantings of native vegetation. Post construction, secondary growth vegetation is anticipated to grow in new rip rap around the RESA 2. No impacts to the Cottonwood Treed Dune or Mineral Open Beach Bar are anticipated. RESA 3 ■ Low Net Negative Effect. ■ Vegetation and associated significant wildlife habitat loss will occur in regionally rare and provincially rare vegetation communities, Cottonwood Treed Dune or Mineral Open Beach Bar, that cannot be replicated elsewhere. ■ Compensation or equivalent enhancement measures to beach and dune communities can ensure the vegetation removal does not result in long-term impacts to the remaining habitats and key ecological functions of these communities. ■ Edge effects are not anticipated to be long-term with the implementation of the Beach and Dune Edge Management and Monitoring Plan and enhancement/restoration measures. ■ Wave action overtime will stabilize the sand.

Factor	Criteria	Potential Impacts	Mitigation Measure(s)	Net Effects Assessment
			- Where possible, translocate regionally rare vascular plant species within the Mineral Open Beach Bar and Cottonwood Treed Dune vegetation communities (American Beachgrass, American Sea-rocket, Slender-leaved False Foxglove) to other areas within the Hanlan’s Beach Environmentally Significant Areas. Translocation should be done at appropriate times by a qualified Ecologist to increased planting success. - Remove regionally rare plants by hand-held equipment within sensitive dune ecosystems within the terrestrial study area if translocation opportunities are possible. - Equipment, machinery and construction personnel should access the Cottonwood Treed Dune and Mineral Open Beach Bar from airport grounds during construction. No construction staging or laydown should occur in these sensitive communities. - Prepare a Beach and Dune Edge Management and Monitoring Plan during detailed design that will identify planting of native dune grasses and other measures to stabilize sand and reduce soil erosion and other edge effects to be implemented during and post construction.	
Effects on General Wildlife (birds, mammals, reptiles, amphibians, and insects), Migratory Birds, Species of Conservation Concerns and Terrestrial Species at Risk.	- Potential impact on terrestrial species, including General Wildlife, Migratory Birds, Species of Conservation Concern: Long-tailed Duck, Redhead, Canvasback, Monarch, Semi-palmated Sandpiper and Snapping Turtle. - Potential impact to terrestrial Species at Risk: Piping Plover, Bank Swallow and bat Species at Risk.	RESA 1, RESA 2, RESA 3 Direct Impacts - Potential wildlife (bird, mammal, reptile, amphibian) mortality from a collision with construction machinery or works. - Potential destruction of migratory bird nests during construction. Indirect Impacts - Disturbance and displacement due to noise and vibration from construction machinery. - Potential for Bank Swallow or other birds to nest in stockpiled construction materials. - Temporary disturbance to diurnal and nocturnal wildlife, including migrating birds, bats and monarch due to increased lighting and construction at night.	RESA 1, RESA 2, RESA 3 Avoidance - Restrict vegetation removal outside of the bird nesting period (April 1 to August 31) to avoid incidental take and therefore contravention of the Migratory Birds Convention Act (1994). This will also avoid removal of Monarch eggs and caterpillars on milkweeds. Mitigation - If activities are proposed to occur during the general nesting period, a breeding bird and nest survey shall be undertaken prior to required activities. Nest searches by an experienced searcher are required and shall be completed by a qualified Biologist no more than 48 hours prior to vegetation removal. - If an active nest of any bird protected under the Migratory Birds Convention Act is found at any time of year it receives protection. If the bird species is deemed to be a danger to aircraft operation, appropriate permits under the Migratory Birds Convention Act will be required to remove the migratory bird and its nest. If not considered to be a danger to aircraft operations, an appropriate-sized buffer where no construction activities are to occur will be established around an active Migratory Birds Convention Act protected nest until the young have fledged and the nest is deemed no longer active by a qualified Biologist.	RESA 1, RESA 2 - Negligible Net Negative Effects. - Active wildlife deterrence plans are in place at Billy Bishop Toronto City Airport to align with Transport Canada and Canadian Aviation Regulations. - Mitigation measures can be implemented to reduce indirect impacts of construction lighting at night. The temporary construction lighting is not anticipated to be a significant increase from baseline light pollution levels. - Vegetation adjacent to active runways is unlikely suitable for nesting given its low quality and exposure to bird deterrence. Vegetation removal outside of the bird nesting period will have no net negative effects. - The airport will remain fenced in all alternatives for security and will deter wildlife from accessing airport grounds. RESA 3 - Low Net Negative Effect. - All of the above reasons, except there will be slightly more lighting required for RESA 3 during construction to accommodate a larger construction footprint which will be reduced through the mitigation measures.

Factor	Criteria	Potential Impacts	Mitigation Measure(s)	Net Effects Assessment
			■ All stockpiled materials of soil, overburden or similar materials shall be maintained at 70 degrees or less by sloping off stockpiles to create a slot angle that will not support nesting breeding birds during the breeding bird season (April 1 to August 31). ■ Lighting used at night during construction should be shielded, facing downwards and pointed away from surrounding natural areas (Cottonwood Treed Dune, Mineral Open Beach Bar and Toronto Islands park) to minimize light spill. Use of lower-intensity or wildlife-friendly lighting within 30 metres of Hanlan’s Point Beach will be considered. ■ Installation of temporary wildlife exclusionary fencing along boundaries of the construction footprint on land and in-water (installed on top of water isolation measures to prevent waterfowl or turtles from entering isolated work area) adjacent to natural heritage features to prevent wildlife such as amphibians and reptiles from entering the area of construction. Fencing should be installed prior to start of construction activities on land and prior to April 1 of any year (during construction), in accordance with provincial guidelines. If this is not possible, pre-clearance sweeps for wildlife will be needed to be completed by a qualified biologist. ■ Develop and implement a Wildlife and Species at Risk Encounter Protocol. If wildlife is encountered, measures shall be implemented to avoid destruction, injury, or interference with the species, and/or its habitat. For example, construction activities shall be ceased or reduced, and wildlife shall be encouraged to move off-site and away from the construction area on its own. A qualified Biologist will be contacted if the wildlife does not leave on its own. ■ Should an injured or orphaned animal be encountered, a qualified ecologist should transport the animal to the closest wildlife rehabilitation centre. This is to be done in accordance with the Ministry of Natural Resources’ s wildlife handling methods (Ministry of Natural Resources, 2011. If a Species at Risk is identified, contact a qualified ecologist and then Ministry of the Environment, Conservation and Parks for further steps. ■ Train construction personnel to prevent a wildlife encounter from occurring, including the following: no personnel shall approach, feed or harass wildlife; food waste should be properly stored and disposed of; and vehicles should yield to wildlife.	

Factor	Criteria	Potential Impacts	Mitigation Measure(s)	Net Effects Assessment
			- Training shall include specifics on nocturnal wildlife and potential encounters as construction is to occur at night. - Refer to Vegetation Communities and associated Natural Heritage Features, and Significant Wildlife Habitat above regarding enhancement/restoration activities for the Cottonwood Treed Dune and Open Mineral Beach Bar.	
Species at Risk – Piping Plover	Potential impact to terrestrial Species at Risk: Piping Plover.	RESA 1, RESA 2 - No impacts on Piping Plover habitat as RESA 1 and 2 are not anticipated to extend past the existing fence line into the Mineral Open Beach Bar. RESA 3 Direct Impacts - Removal of a total 1,080 square metres of potential Piping Plover habitat in the Mineral Open Beach Bar. RESA 1, RESA 2, RESA 3 Indirect Impacts - Indirect disturbance and disruption of behaviour. - Temporary disturbance to nocturnal activities due to construction activity at night. - Incidental injury or mortality.	RESA 1, RESA 2, RESA 3 - See mitigation measures above for impacts to Vegetation Communities and associated Natural Heritage Features, and Significant Wildlife Habitat. - See mitigation measures above for impacts to General Wildlife (bird, mammal, reptile, amphibian) including Migratory Birds. - Develop and implement a Species at Risk Encounter Protocol. - Construction personnel should be provided with Species at Risk identification and Species at risk Awareness and Encounter Protocol training. - If a Piping Plover nest is found within 50 metres of the work zone, all construction activities must be halted until next steps are identified by a qualified biologist. - Consultation with Environment and Climate Change Canada – Canadian Wildlife Service and/or Ministry of the Environment, Conservation and Parks will be required to confirm permit expectations or additional mitigation and avoidance measures, if any, for the proposed works as related to Piping Plover.	RESA 1, RESA 2 - No Net Effect. - No removal of the Mineral Open Beach Bar, candidate Piping Plover habitat. - Mitigation measures will reduce indirect impacts. RESA 3 - Low Net Negative Effect. - Removal represents 0.99% of the remaining Mineral Open Beach Bar. - Disturbance of Piping Plover is temporary and limited to the construction period and will be further minimized through implementation of mitigation measures. - Piping Plover is anticipated to find suitable nesting habitat further away from the airport ground along Hanlan’s Point Beach, where 99% of the Mineral Open Beach Bar will remain intact and continue to provide suitable nesting and foraging habitat. - The area directly adjacent to the western runway is unlikely to be used by Piping Plover because of active bird deterrence used by the airport. - If Piping Plovers are encountered, mitigation and monitoring measures will minimize impacts. - Enhancing the Mineral Open Beach Bar elsewhere on Hanlan’s Point Beach can provide higher quality nesting opportunities without airport operation interactions.
Confirmed Waterfowl Stopover and Staging Areas (Aquatic). Habitat for Long-tailed Duck, Redhead and Canvasback.	Potential impact on Significant Wildlife Habitat. – Waterfowl Stopover and Staging Area.	Direct Impacts RESA 1 - Removal of approximately 13,950 square metres of habitat (approximately 7,850 square metres west; 6,100 square metres east). RESA 2 - Removal of approximately 23,100 square metres of habitat (approximately 11,800 square metres west; 11,300 square metres east). RESA 3 - Removal of approximately 42,580 square metres of habitat (approximately 12,600 square metres west; 29,980 square metres east).	RESA 1, RESA 2, RESA 3 See mitigation measures in Table 6-3 for impacts to Fish and Fish Habitat to address impacts on the open water stopover and staging areas for waterfowl.	RESA 1, RESA 2, RESA 3 - Negligible Negative Net Effect. - All RESA alternatives represent less than 0.14% loss of available local waterfowl staging and stopover aquatic area; however, RESA 3 is the most impactful relative to the other alternatives and RESA 1 is the least impactful based on lake-fill size alone.

Factor	Criteria	Potential Impacts	Mitigation Measure(s)	Net Effects Assessment
All Natural Heritage Features.	Impacts to soil and water quality across all natural heritage features.	RESA 1, RESA 2, RESA 3 Indirect Impacts Soil contamination as a result of spills (e.g., grease and/or fuel) from equipment use. Potential for spills and release of deleterious substances to Lake Ontario during construction.	RESA 1, RESA 2, RESA 3 Refer to Tables 6-7 and 6-12 for mitigation measures related to water quality and soil and sediment during construction. Refuelling and equipment maintenance / cleaning stations should be located within a centralized location on-site, and be at least 30 metres away from candidate Toronto Islands Life Science Area of Natural and Scientific Interest, waterbodies or other site drainage features.	RESA 1, RESA 2, RESA 3 No Net Effect. Provided that mitigation measures related to spill prevention and response are implemented in accordance with an approved Spill Prevention and Contingency Plan, and the measures are monitored and maintained throughout construction, no negative impacts are anticipated.

Table 6-2: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Terrestrial Ecosystems – Operation

Factor	Criteria	Potential Impacts	Mitigation Measure(s)	Net Effects Assessment
- General wildlife (birds, mammals, reptiles, amphibians, insects), including Migratory Birds. - Confirmed Waterfowl Stopover and Staging Areas (Aquatic). - Habitat for Long-tailed Duck, Redhead and Canvasback. - Semi-palmated Plover. - Piping Plover. - Snapping Turtle.	- Potential impact on terrestrial species, including wildlife, Migratory Birds and Species of Conservation Concern: Long-tailed Duck, Redhead, Canvasback, Monarch, Semi-palmated Sandpiper and Snapping Turtle. - Potential impact to terrestrial Species at Risk: Piping Plover, Bank Swallow and bat Species at Risk.	RESA 1, RESA 2, RESA 3 Direct Impacts - No changes in wildlife collisions from baseline as the number of flights taking off or landing or the type of aircraft used at the Billy Bishop Toronto City Airport will remain the same to baseline levels post-construction of RESA alternatives. Indirect Impacts - Wildlife disturbance or displacement post-construction of RESA alternatives from operation of the Billy Bishop Toronto City Airport or additional lighting to meet Transport Canada operational safety requirements for each RESA.	RESA 1, RESA 2, RESA 3 - No mitigation measures required. - Continued used of the Billy Bishop Toronto City Airport’s Wildlife Management Plan to keep birds and wildlife out of flight paths. - Addition of lighting for each RESA is a requirement to meet Transport Canada operational safety requirements and design.	RESA 1, RESA 2, RESA 3 - No Net Negative Effect. - Birds, including waterfowl, in the area have demonstrated use of habitat adjacent to an active airport, it is anticipated that bird use of the area will return to baseline post-construction (i.e., wading, flying and foraging near the constructed RESA) given there are no changes to airport operations and the Billy Bishop Toronto City Airport ‘s Wildlife Management Plan will continue to be implemented as per baseline operating procedures. - Additional runway lighting for each RESA will not change lighting conditions at night from baseline conditions because operation of the additional lights will be limited to 6:30 am to 11:00 pm unless for emergency operations outside of normal operational hours.
- Vegetation Communities and associated Natural Heritage Features, and Significant Wildlife Habitat. - Candidate Toronto Islands Life Science Area of Natural and Scientific Interest.	- Potential impact on vegetation communities including provincially and regionally rare vegetation communities and regionally rare vascular plant species. - Potential impact on Significant Wildlife Habitat associated with each vegetation community. - Potential impact on natural heritage features and their functions (Area of Scientific Interest, City of Toronto Natural Heritage System). - Potential impact on sediment deposition or accumulation (Western Channel and vicinity of RESA).	Indirect Impacts RESA 1, RESA 2 - No edge effects are anticipated as both RESA alternatives will not extend beyond the existing security fence line and encroach on the Cottonwood Treed Dune and Mineral Open Beach Bar. RESA 3 - Creation of new edge in the Cottonwood Treed Dune and Mineral Open Beach Bar, and associated candidate Toronto Islands Life Science Area of Natural and Scientific Interest resulting in short-term changes in ecosystem processes, species composition, microclimate and susceptibility to invasive species spread post construction of RESA. RESA 1, RESA 2, RESA 3 - All RESA alternatives for the western runway at Hanlan’s Point Beach will positively affect sediment processes by increasing sand storage capacity, initially reducing sand bypassing into the Western Channel, and prolonging beach growth beyond the previously estimated 25 years (Shoreplan, 2024).	RESA 1, RESA 2 - No mitigation measures required. RESA 3 - Prepare a Beach and Dune Edge Management and Monitoring Plan during detailed design that will identify planting of native dune grasses and other measures to stabilize sand and reduce soil erosion and other edge effects to be implemented during and post construction.	RESA 1, RESA 2 - No Net Negative Effect. - No impacts to the Cottonwood Treed Dune or Mineral Open Beach Bar are anticipated. RESA 3 - Low Net Negative Effect. - For RESA 3, edge effects are not anticipated to be long-term with the implementation of the Beach and Dune Edge Management and Monitoring Plan and enhancement/restoration measures. RESA 1, RESA 2, RESA 3 - Moderate Positive Net Effect. - For all three alternatives, wave action overtime will stabilize the sand and may increase the size of the Mineral Open Beach Bar and Cottonwood Treed Dune in long-term, resulting in a positive net effect.

6.1.2 Fish and Fish Habitat

6.1.2.1 Net Effects Analysis - Construction

Table 6-3 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3 within the aquatic study area during construction.

6.1.2.2 Net Effects Analysis - Operation

Table 6-4 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3, within the aquatic study area, during operation.

Table 6-3: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Fish and Fish Habitat – Construction

Factor	Criteria	Potential Impacts	Mitigation Measure(s)	Net Effects Assessment
■ Fish and Fish Habitat.	■ Potential impact on aquatic habitat including areas that could potentially support key life cycle stages such as spawning areas, or those potentially supporting sensitive species.	RESA 1 ■ Smallest total in-water footprint (35,996 square metres), and smallest impact to aquatic vegetation on east end. ■ Overall, this alternative represents the smallest impact to fish and fish habitat. RESA 2 ■ Second largest total in-water footprint (58,855 square metres) and approximately 1.6 times larger compared to RESA 1. ■ Slightly larger impact (1.7 percent by area or 546 square metres) to areas of higher submergent aquatic vegetation abundance compared to RESA 1. ■ Overall, this alternative represents a level of impact which is intermediate between RESA 1 and RESA 3. RESA 3 ■ Largest total in-water footprint (88,253 square metres) and approximately 2.4 times larger compared to RESA 1. ■ Slightly less impact (0.9 percent by area or 539 square metres) to areas of higher submergent aquatic vegetation abundance compared to RESA 2. ■ Overall, this alternative represents the largest impact to fish and fish habitat. RESA 1, RESA 2, RESA 3 ■ Fish mortality. ■ Erosion potential and sediment release during construction. ■ Potential for spills and release of deleterious substances during construction (refer to Tables 6-7 and 6.12).	RESA 1, RESA 2, RESA 3 ■ Follow the general guideline of avoiding work below the high-water mark from September 1 to July 15 (in-water works permitted from July 16 to August 31 of any given year) to protect sensitive life stages of fall and spring-spawning fish species. Should the project compliance timeline require construction during this timing window, authorization from Fisheries and Oceans Canada will be required. ■ Work below the high-water mark must be done in isolation of flowing water. An isolation / containment plan must be implemented to isolate temporary in-water work zones to always maintain clean flow around the work zone. This must include the use of properly sized, anchored and maintained in-water silt boom, turbidity curtains or other effective measures to contain suspended sediments. The Interim standard: in-water site isolation (https://www.dfo-mpo.gc.ca/pnw-ppe/codes/interim-provisoire/site-isolation-confinement-aire-travail-eng.html) and the Interim Code of Practice: End-of-pipe fish protection screens for small water intakes in freshwater (https://www.dfo-mpo.gc.ca/pnw-ppe/codes/screen-ecran-eng.html) should be referenced for these works. ■ Ensure the isolated work zone is stabilized against the impacts of high flow events (including ice and winter storms) during the work period. ■ Take steps to minimize presence of fish in the work area prior to construction, such as the use of acoustic deterrents. ■ Implement Erosion and Sediment Control plan prior to commencing work, including dewatering measures. The following principles should be incorporated to minimize sedimentation and erosion: – Site delineation measures (i.e., construction fencing or flagging) installed prior to commencing construction. Construction fencing (or silt fencing as applicable) should be used to clearly define the construction areas and prevent accidental release of sediment to Lake Ontario. – The duration of soil exposure should be minimized and slope lengths and gradients on disturbed soils should be limited. – Disturbed soils should be re-vegetated (in accordance with the contract drawings), or otherwise stabilized, as soon as possible following construction or if the disturbed soil will be inactive for 45 days. – Surface water accumulation on-site should be managed to intercept and divert runoff away from exposed soils. – Sediment fence or other sediment barrier should be installed around the perimeter of all work areas (including staging and laydown areas) and around sensitive natural heritage features prior to commencement of construction. Silt fencing should be monitored and maintained on a regular basis to maintain site containment.	RESA 1, RESA 2, RESA 3 ■ Moderate Net Negative Effect for Fish Habitat based on loss (i.e., removal) of habitat required under all RESA alternatives, which cannot be avoided or mitigated. ■ Although some potential impacts related to construction are anticipated to be mitigated through implementation of identified mitigation measures, the proposed works will remove a substantial amount of fish habitat within the aquatic study area under each RESA alternative. Given the amount of habitat loss anticipated and considering the potential value of the habitat as described elsewhere in this Report, a Moderate Net Negative Effect is anticipated as defined in Section 6 of Appendix B, the Natural Heritage Effects Assessment Report. ■ Changes in water currents and associated erosion or sediment deposition as a result of landmass expansion are anticipated to be negligible for all RESA alternatives and therefore, no long-term impacts to fish and fish habitat within or outside of the aquatic study area are anticipated. ■ Consultation with regulatory agencies (Fisheries and Oceans Canada, and the Ministry of Environment, Conservation and Parks) shall be conducted to determine the potential need for habitat compensation to offset the anticipated habitat loss. ■ Construction of the rock break wall structure is also anticipated to potentially create suitable refuge habitat for American Eel and other fish species and may be considered as offsetting to some degree. ■ By implementing aquatic habitat compensation measures, to be developed in consultation with Fisheries and Oceans Canada, and the Ministry of Environment, Conservation and Parks the moderate net negative effect associated with the loss of fish habitat is expected to be compensated for.

Factor	Criteria	Potential Impacts	Mitigation Measure(s)	Net Effects Assessment
			– All pre-existing storm drain inlets should be protected using measures including, but not limited to fibre rolls, coir logs or equivalent. – Stockpiled materials or equipment to be stored in construction areas should be positioned away from the top of bank of the waterbody or other site drainage feature (including catch basins). – Sediment barriers or other appropriate measures should be implemented around the perimeter of stockpiled material for containment. – Stockpiled material should be covered at the end of each workday to minimize erosion risk. – As appropriate, the application of dust suppressants such as water should be used to reduce or eliminate the generation of dust from heavy equipment construction and earth-moving activities, areas of exposed soils and areas of concrete drilling / cutting to mitigate dust deposition into adjacent natural areas and waterbodies. – Design water management system and dewatering operations to prevent erosion and/or release of sediment-laden or contaminated water to the waterbody. – Use sediment filter bag or an equivalent during dewatering to prevent the release of sediment laden water to Lake Ontario. – Restore and re-stabilize disturbed work areas and banks. ■ Consultation with regulatory agencies (Fisheries and Oceans Canada, and the Ministry of Environment, Conservation and Parks) shall be conducted to determine the potential offsetting and / or compensation requirements needed to remain compliant with the applicable federal and provincial legislations. ■ Enhancement and / or restoration measures shall be developed during detailed design in consultation with regulatory agencies and in partnership with the Toronto and Region Conservation Authority, and/or other stewardship groups (as appropriate) and shall cover an area equal in size or impact for each RESA alternative as follows: – RESA 1: 35,996 square metres. – RESA 2: 58,855 square metres. – RESA 3: 88,253 square metres. ■ Details of enhancement and restoration measures should be confirmed during detailed design and to the satisfaction of the City of Toronto; acting reasonably, but must also comply with all applicable airport safety regulations, including adherence to restricted areas (e.g., the Marine Exclusion Zone). ■ Follow any additional mitigation measures associated with the permits and approvals required for the construction activities.	

Factor	Criteria	Potential Impacts	Mitigation Measure(s)	Net Effects Assessment
■ Aquatic Species at Risk – American Eel.	■ Potential temporary and/or long-term effects on aquatic Species at Risk: American Eel.	RESA 1 ■ Removal of approximately 4,781 square metres of potential overwintering habitat off the east end of the runway. RESA 2 ■ Removal of approximately 16,002 square metres of potential overwintering habitat off the eastern runway. RESA 3 ■ Removal of approximately 30,456 square metres of potential overwintering habitat off the eastern runway. RESA 1, RESA 2, RESA 3 ■ Incidental injury or mortality.	RESA 1, RESA 2, RESA 3 ■ See mitigation measures above for impacts to Fish and Fish Habitat.	RESA 1, RESA 2, RESA 3 ■ Moderate Net Negative Effect. ■ Although some potential impacts related to construction are anticipated to be mitigated through implementation of work site isolation measures, Erosion and Sediment Control and spill prevention and response measures, and adherence to applicable timing windows, the proposed works will remove a substantial amount of fish habitat (including habitat for American Eel) within the aquatic study area. ■ Consultation with regulatory agencies (Fisheries and Oceans Canada, and the Ministry of Environment, Conservation and Parks) will be conducted to determine the potential need for habitat compensation to offset the anticipated habitat loss. ■ Construction of the rock break wall structure is also anticipated to potentially create suitable refuge habitat for American Eel and other fish species and may be considered as offsetting to some degree. ■ By implementing aquatic habitat compensation measures, developed in consultation with Fisheries and Oceans Canada, and the Ministry of Environment, Conservation and Parks the moderate net negative effect associated with the loss of fish habitat is expected to be compensated for.

Table 6-4: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Fish and Fish Habitat - Operation

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Water Quality and Quantity for Aquatic Ecosystems.	■ Potential to impact fish habitat and Species at Risk.	RESA 1, RESA 2, RESA 3 <u>Indirect Impact</u> ■ Increased thermal loading and runoff during operation.	RESA 1, RESA 2, RESA 3 ■ Implementation of stormwater management and low impact design measures to maintain equivalent drainage quantity and quality control.	RESA 1, RESA 2, RESA 3 ■ No Net Effect. ■ Provided appropriate stormwater management and low impact design measures are incorporated during design and construction, potential impacts to fish habitat and aquatic Species at Risk resulting from poor drainage, water quality or excessive quantity of stormwater are expected to be minimized such that no net effect is anticipated.
■ Fish and Fish Habitat including Aquatic Species at Risk.	■ Potential to impact fish habitat.	RESA 1, RESA 2, RESA 3 <u>Indirect Impact</u> ■ Minimal localized changes to water currents, potentially causing sediment deposition or erosion, along with slight alterations to water velocity in the Western Channel due to landmass expansion.	RESA 1, RESA 2, RESA 3 ■ No mitigation required.	RESA 1, RESA 2, RESA 3 ■ Negligible Net Effect. ■ For all RESA alternatives, minimal localized changes to water currents, resulting in potential sediment deposition or erosion, as well as minor changes to water velocity through the Western Channel as a result of landmass expansion are anticipated with an overall negligible net negative effect.

6.1.3 Marine Physical Environment

6.1.3.1 Net Effects Analysis - Construction

Table 6-5 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3, during construction.

6.1.3.2 Net Effects Analysis - Operation

Table 6-6 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3, during operation.

Table 6-5: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Marine Physical Environment– Construction

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Sedimentation and Erosion during Construction.	■ Footprint and impact of in-water works within the vicinity of both west and east RESAs.	RESA 1, RESA 2, RESA 3 ■ Placing stone material in the water will cause turbidity due to the fine sediments mixing with larger stone. ■ Rain, overtopping waves, and wave spray may cause surface erosion of fine materials within a construction site. ■ Risk of revetment core material being damaged by wave action after it has been placed and before it has been armoured.	RESA 1, RESA 2, RESA 3 ■ An Erosion and Sediment Control Plan for the work site should be developed and implemented prior to the start of construction and should be inspected and maintained during all phases of construction and especially following precipitation. ■ The Erosion and Sediment Control Plan should be tailored to meet construction requirements following identification of risks. Key objectives will include limiting soil disturbance, minimizing exposure, stabilizing surfaces, and controlling sediment displacement through adaptive measures to weather and site conditions. The Erosion and Sediment Control Plan should include the following primary components: – Silt fences and straw wattles: Placed strategically along the perimeter of active construction zones, these barriers will intercept and filter overland flow, slowing water movement to encourage sediment settling. – Sediment basins and traps: Sediment basins should be installed at low points and on existing catch basins to capture sediment-heavy runoff, allowing particles to settle before the water exits the construction area. These basins should be regularly inspected and maintained to ensure efficient operation throughout the Project. – Runoff management and contaminant control: Overland flow, which may carry sediments and potential contaminants, should be managed within the Erosion and Sediment Control Plan by containing and treating runoff on-site. Techniques may include the use of containment berms and filter media around sensitive zones, especially near lake boundaries. ■ Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized, or any suspended sediment has resettled to the bed of the waterbody and/or settling basin and runoff water is clear. ■ Refer to Table 6-12 for additional mitigation measures on soil and sedimentation during construction.	RESA 1, RESA 2, RESA 3 ■ No Net Effect. ■ Effects on erosion and sedimentation are temporary, short-term and localized. ■ Provided that the erosion and sediment control plan is adhered to and adjusted when necessary, and proper control measures are in place at all times, no net effects are anticipated.

Table 6-6: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Marine Physical Environment– Operation

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Sediment Transport.	■ Sediment deposition / accumulation along West Island, Western Channel and in immediate vicinity of landmass. ■ Longshore sedimentation patterns (whether sediment moves along the shoreline). ■ Sediment deposition / accumulation in the Inner harbour.	RESA 1, RESA 2, RESA 3 ■ Seawall expansion at west end is expected to positively impact sediment transport due to sediment deposition at the northern end of Hanlan’s Point Beach on the southern side of landmass expansion. ■ Over time, sediment transport processes will generate a lakeshore morphology that has adapted to the barrier and sediment will continue to be transported into the Western Channel. ■ Negative effects on sediment erosion and deposition within the Inner Harbour are likely to be minor and negligible. RESA 1 ■ RESA 1 will have the smallest positive impacts as provides shorter RESA extension on the west (54 metres). RESA 2 and RESA 3 ■ RESA 2 and RESA 3 will have moderate positive impacts as they both have a longer extension than RESA 1 on the west end (82 metres).	RESA 1, RESA 2, RESA 3 ■ No mitigation measures required.	RESA 1 ■ Low Net Positive Effect. ■ Minimal sediment deposition is expected due to the shorter RESA extension on the west end, having less of an effect on sediment transport in this area. ■ Effects to sediment transport are considered beneficial, as it reduces sedimentation in the Western Channel and provides a source for nourishment of Hanlan’s Point Beach under the Gibraltar Point Sediment Management Plan. ■ Over time, sediment transport processes will generate a lakeshore morphology that has adapted to the barrier and sediment will continue to be transported into the Western Channel. RESA 2, RESA 3 ■ Moderate Net Positive Effect. ■ The longer landmass extensions for both RESA 2 and RESA 3 mean a greater influence on sediment transport, creating a barrier for the sediment and leading to deposition along Hanlan’s Point Beach. ■ Effects to sediment transport are considered beneficial, as it reduces sedimentation in the Western Channel and provides a source for nourishment of Hanlan’s Point Beach under the Gibraltar Point Sediment Management Plan. ■ Over time, sediment transport processes will generate a lakeshore morphology that has adapted to the barrier and sediment will continue to be transported into the Western Channel.
■ Wave Formation.	■ Changes in wave height, wave period (i.e., time between waves) and wave direction.	RESA 1, RESA 2, RESA 3 ■ Small, localized changes to wave height, wave period and wave direction will occur as a result of the RESA. ■ Minor changes to the waves entering into the Western Channel in the vicinity of the west end RESA is anticipated due to the constriction of the wave energy window for the southwesterly waves by the expansion. ■ No impacts to the east end RESA area are anticipated due to the limited wave activity in the inner harbour.	RESA 1, RESA 2, RESA 3 ■ No mitigation measures required.	RESA 1, RESA 2, RESA 3 ■ Negligible Net Negative Effect. ■ Overall extension on the west end will lead to minimal and localized changes to wave formation in the area, effects are anticipated to be minor and localized.
■ Water Levels.	■ Changes in water levels in the Western Channel and nearby marina.	RESA 1, RESA 2, RESA 3 ■ No changes in water levels in the Western Channel and nearby marina are anticipated as the water depths are at a minimum 10 metres under typical water levels (Shoreplan, 2024).	RESA 1, RESA 2, RESA 3 ■ No mitigation measures required.	RESA 1, RESA 2, RESA 3 ■ No Net Effect. ■ No net effects are anticipated on the water levels in the Western Channel and nearby marina.

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Currents.	■ Changes in flow patterns and current speed.	RESA 1, RESA 2, RESA 3 ■ Areas where velocity is lowered due to fill used to create extension will see areas of sediment accumulation. ■ There is a measurable constriction created at the Western Channel due to the landmass expansion reducing channel size, resulting in increased velocities. However, the effects are anticipated to be minor and localized. The east end has limited currents, therefore there will be negligible impact to flow patterns and currents at the east end.	RESA 1, RESA 2, RESA 3 ■ No mitigation measures required.	RESA 1, RESA 2, RESA 3 ■ Negligible Net Negative Effect. ■ Localized changes to currents resulting in potential sediment deposition or erosion will be minimal.

6.1.4 Water Circulation and Quality

6.1.4.1 Net Effects Analysis - Construction

Table 6-7 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2 and RESA 3 during construction.

6.1.4.2 Net Effects Analysis - Operation

Table 6-8 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2 and RESA 3 during operation.

Table 6-7: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Water Quality – Construction

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Changes in water quality within the Inner Harbour.	■ Potential temporary impact associated with sedimentation and erosion during construction.	RESA 1, RESA 2, RESA 3 ■ All in-water works present risk of sedimentation. ■ Results of 2024 borehole drilling indicate that off-shore sediments on the east end are contaminated. Although the need to dredging is unlikely, there is a potential for water turbidity during construction.	RESA 1, RESA 2, RESA 3 ■ An Erosion and Sediment Control Plan for the work site should be developed and implemented prior to the start of construction and should be inspected and maintained during all phases of construction and especially following precipitation. ■ The Erosion and Sediment Control Plan should be tailored to meet construction requirements following identification of risks. Key objectives will include limiting soil disturbance, minimizing exposure, stabilizing surfaces, and controlling sediment displacement through adaptive measures to weather and site conditions. The Erosion and Sediment Control Plan should include the following primary components: – Silt fences and straw wattles: Placed strategically along the perimeter of active construction zones, these barriers will intercept and filter overland flow, slowing water movement to encourage sediment settling. – Sediment basins and traps: Sediment basins should be installed at low points and on existing catch basins to capture sediment-heavy runoff, allowing particles to settle before the water exits the construction area. These basins should be regularly inspected and maintained to ensure efficient operation throughout the Project. – Runoff management and contaminant control: Overland flow, which may carry sediments and potential contaminants, should be managed within the Erosion and Sediment Control Plan by containing and treating runoff on-site. Techniques may include the use of containment berms and filter media around sensitive zones, especially near lake boundaries. ■ Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized, or any suspended sediment has resettled to the bed of the waterbody and/or settling basin and runoff water is clear. ■ Activities near water should be planned to ensure that deleterious materials such as paint, primers, blasting abrasives, rust, solvents, degreasers, grout, or other chemicals do not enter the waterbody. ■ Refer to Table 6-12 for additional mitigation measures on soil and sedimentation during construction.	RESA 1, RESA 2, RESA 3 ■ No Net Effect. ■ Provided that proper erosion and sediment control measures will be in place during construction, no net effects are anticipated. ■ Provided that no dredging occurs in the eastern off-shore areas, contaminated sediment will not be mobilized, and no net effects are anticipated.

Table 6-8: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Water Quality - Operation

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Hydraulic residence time of water in Toronto Harbour.	■ Potential impact on water circulation within the Inner Harbour (longer residence times generally reflect poorer water quality).	RESA 1, RESA 2, RESA 3 ■ 3D modelling showed negligible changes in overall harbour circulation patterns, or changes in velocities in the western (harbour inlet) and eastern (harbour outlet) channels.	RESA 1, RESA 2, RESA 3 ■ No mitigation measure is required.	RESA 1, RESA 2, RESA 3 ■ No Net Effect. ■ No change expected in Inner Harbour water quality as a result of proposed RESAs.

6.1.5 Groundwater

6.1.5.1 Net Effects Analysis - Construction

Table 6-9 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3 during construction.

6.1.5.2 Net Effects Analysis - Operation

There are no anticipated operational net effects related to groundwater.

Table 6-9: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Groundwater - Construction

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Groundwater Resources.	■ Potential impact to groundwater resources.	RESA 1, RESA 2, RESA 3 ■ There is a potential to encounter the water table during construction activities. ■ General construction activities such as vehicle and machinery operation have the potential to affect groundwater and/or surface water quality through minor contaminant releases. ■ There is a potential for indirect impact to Intake Protection Zone 2.	RESA 1, RESA 2, RESA 3 ■ The impacts on groundwater and associated mitigation measures should be reviewed and identified during detailed design in preparation for tender and construction and shall be carried out in compliance with provincial regulation. ■ Any local dewatering must comply with the Ministry of the Environment, Conservation and Parks permits and approvals in accordance with the Environmental Activity Section Registry and shall meet regulatory requirements for daily volumes and dewatering effluent treatment/disposal. ■ Management and/or control measures should be implemented to maintain a dry and stable working condition. ■ A Spill Prevention and Contingency Plan, outlining the steps required to prevent and contain any contaminant releases and/or to avoid impacts to groundwater is required to be developed prior to initiation of construction activities. This Spill Prevention and Response Plan should include a requirement for a spill kit to be maintained on-site at all times during construction. ■ Re-fuelling and equipment maintenance / cleaning stations should be constructed in a manner to prevent soil and groundwater contamination from any leaks or spills and be lined with appropriate material to prevent seepage and fuel discharge. ■ Ensuring that machinery is maintained and free of leaks to reduce the possibility of fluid release and storing any potential contaminants (e.g., oils, fuels, and chemicals) in designated areas using appropriate secondary containment, where necessary. ■ Education of workers regarding appropriate chemical use, handling, storage and transportation procedures, including spill response and reporting requirements. ■ Refer to the mitigation measures outlined in Table 6-12 to address potential indirect impacts on Intake Protection Zone 2. Consultation with Toronto and Region Conservation Authority (the Source Protection Authority in Toronto area) is also recommended to address potential concerns and demonstrate adherence to water protection objectives.	RESA 1, RESA 2, RESA 3 ■ No Net Effect. ■ Provided that mitigation measures are implemented, no net effect is anticipated.

6.1.6 Stormwater and Drainage

6.1.6.1 Net Effects Analysis - Construction

Table 6-10 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3 during construction.

6.1.6.2 Net Effects Analysis - Operation

Table 6-11 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3 during operation.

Table 6-10: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Stormwater and Drainage - Construction

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Stormwater and Drainage.	■ Potential impact to stormwater quantity and quality.	RESA 1, RESA 2, RESA 3 ■ Potential sedimentation and erosion associated with in-land construction activities.	RESA 1, RESA 2, RESA 3 ■ An Erosion and Sediment Control Plan should be developed during the detailed design stages, and implemented during construction to mitigate the risk of potentially contaminated runoff using containment measures, preventative construction techniques, and site stabilization mechanisms. ■ The Erosion and Sediment Control Plan should be tailored to meet construction requirements following identification of risks. Key objectives will include limiting soil disturbance, minimizing exposure, stabilizing surfaces, and controlling sediment displacement through adaptive measures to weather and site conditions. The Erosion and Sediment Control Plan should include the following primary components: – Silt fences and straw wattles: Placed strategically along the perimeter of active construction zones, these barriers will intercept and filter overland flow, slowing water movement to encourage sediment settling. – Sediment basins and traps: Sediment basins should be installed at low points and on existing catch basins to capture sediment-heavy runoff, allowing particles to settle before the water exits the construction area. These basins should be regularly inspected and maintained to ensure efficient operation throughout the Project. – Runoff management and contaminant control: Overland flow, which may carry sediments and potential contaminants, should be managed within the Erosion and Sediment Control Plan by containing and treating runoff on-site. Techniques may include the use of containment berms and filter media around sensitive zones, especially near lake boundaries. ■ The Erosion and Sediment Control Plan will include a schedule for routine inspections and timely maintenance of control measures. Adaptive responses, such as deploying additional silt fences or sediment traps during heavy rainfall, will help sustain the Erosion and Sediment Control Plan’s effectiveness. Monitoring will be ongoing, with the contractor responsible for adjusting measures as required to minimize environmental impact on Lake Ontario and surrounding sensitive areas.	RESA 1, RESA 2, RESA 3 ■ No Net Effect. ■ Provided that proper erosion and sediment control measures will be in place during construction, no net effects are anticipated.

Table 6-11: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Stormwater and Drainage - Operation

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
Stormwater and Drainage.	Potential impact on flooding.	RESA 1, RESA 2, RESA 3 No negative effect is anticipated as: - Breakwater structures on both the east and west will protect the landmass from wave action and ice accretion. - None of RESA concepts are anticipated to aggravate the existing flood risk or introduce any new flood risk impacting the Project Study Area. RESA 2 and RESA 3 Increased elevation of Taxiway D will further mitigate flood risk within the Project Study Area.	RESA 1, RESA 2, RESA 3 No mitigation measures are required.	RESA 1 No Net Effect. RESA 2 and RESA 3 Moderate net positive effect. RESA 2 and RESA 3 mitigate flood risk by elevating Taxiway D.
	Potential impact to stormwater quantity and quality.	RESA 1, RESA 2, RESA 3 The RESA surface in all three RESA alternatives (RESA 1, RESA 2 and RESA 3) will be a combination of paved surface with turf. The paved surface area is approximately equal to existing pre-threshold conditions, resulting in neutral impact to quality of runoff. Breakwater constructed of permeable materials, resulting in neutral impact to quality of runoff. The airside access road will be paved using the same material as the existing surface. As such, there will be an increase in impervious surface, due to the airside service road lengthening to accommodate the RESA. However, the airside access road will be surrounded by highly permeable materials (i.e., rip rap leading to the breakwater, drainage channels, etc.). Existing topography is flat, and as such, flat slopes (0-1.5%) will be emphasized in the design to maximize water infiltration. RESA 2, RESA 3 New taxiway realignments are considered neutral in adding impervious surface as old taxiways will be repurposed with consideration to permeable surfacing as preliminary design progresses.	RESA 1, RESA 2, RESA 3 A detailed grading design will be developed during detailed design, which will align with existing drainage patterns and airfield stormwater management infrastructure to the extent possible. Stormwater will be collected, treated and discharged, where required, in compliance with the applicable legislated airfield stormwater management requirements. Implementation of stormwater management and low impact design measures to maintain equivalent drainage quantity and quality control.	RESA 1, RESA 2, RESA 3 No Net Effect. With implementation of appropriate grading and drainage design, alongside operational adherence to legislated airfield stormwater management requirements, no net effects are anticipated.

6.1.7 Soil and Sediments

6.1.7.1 Net Effects Analysis - Construction

Table 6-12 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3 during construction.

6.1.7.2 Net Effects Analysis - Operation

There are no anticipated operational net effects related to soil and sediments.

Table 6-12: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Soil and Sediments – Construction

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Soil and Sediment.	■ Potential to encounter contaminated soil and sediment and need for offshore sediment dredging and disposal.	RESA 1, RESA 2, RESA 3 ■ Potential to encounter, displace, and dispose of contaminated soil and sediment (i.e., various metals, mercury, polycyclic aromatic hydrocarbons, dioxins and furans were found in off-shore sediment samples at the east end of the Project Study Area in levels exceeding Table 3.1 Industrial/Commercial/Community Excess Soil Quality Standards) during construction activities. ■ Potential for temporary storage of contaminated dredged material for processing prior to disposal. ■ Potential for leakage of liquids during processing.	RESA 1, RESA 2, RESA 3 ■ Due to the environmental quality of the sediments, efforts should be made to minimize the displacement of the sediment. ■ Should removal of sediment be required, additional testing may be required to meet the Ontario Regulation 406/19 requirements. ■ Silt containment or curtains should be used to prevent sediment from migrating into nearby water bodies during in-water works. ■ A Spill Prevention and Contingency Plan should be developed and adhered to during construction. ■ Spills should be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. ■ Re-fuelling and equipment maintenance / cleaning stations should be constructed in a manner to prevent soil contamination from any leaks or spills and be lined with appropriate material to prevent seepage and fuel discharge. ■ All chemical transfer, fuelling, and vehicle maintenance should be conducted within the refuelling station areas. ■ An emergency response kit should be made available at each re-fuelling station in case of a spill. All construction vehicles and equipment should also be equipped with a spill kit suitable for the vehicle or equipment. ■ Education of workers regarding appropriate chemical use, handling, storage and transportation procedures, including spill response and reporting requirements. ■ Leak-proof containment should be implemented for liquid soils prior to processing to prevent spills. ■ The management of liquids should be implemented to control and properly handle any liquid waste generated during construction. ■ An Erosion and Sediment Control Plan for the work site should be developed and implemented prior to the start of construction and should be inspected and maintained during all phases of construction and especially following precipitation. ■ The Erosion and Sediment Control Plan should be tailored to meet construction requirements following identification of risks. Key objectives will include limiting soil disturbance, minimizing exposure, stabilizing surfaces, and controlling sediment displacement through adaptive measures to weather and site conditions. The Erosion and Sediment Control Plan should include the following primary components: – Silt fences and straw wattles: Placed strategically along the perimeter of active construction zones, these barriers will intercept and filter overland flow, slowing water movement to encourage sediment settling. – Sediment basins and traps: Sediment basins should be installed at low points and on existing catch basins to capture sediment-heavy runoff, allowing particles to settle before the water exits the construction area. These basins should be regularly inspected and maintained to ensure efficient operation throughout the Project. - Runoff management and contaminant control: Overland flow, which may carry sediments and potential contaminants, should be managed within the Erosion and Sediment Control Plan by containing and treating runoff on-site. Techniques may include the use of containment berms and filter media around sensitive zones, especially near lake boundaries. ■ A Soil Management Plan should be developed to outline procedures for handling, storing, and disposing of excess soil, ensuring compliance with environmental regulations and minimizing potential environmental impacts. ■ A Site Specific Health and Safety Plan should be developed to address potential risk associated with potential exposure and management of sediments/ soils during construction.	RESA 1, RESA 2, RESA 3 ■ No Net Effect. ■ With the implementation of avoidance and mitigation measures, no net effects are anticipated.

6.2 Socio-Economic Environment

6.2.1 Air Quality

6.2.1.1 Net Effects Analysis - Construction

Table 6-13 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3 during construction.

6.2.1.2 Net Effects Analysis - Operation

Table 6-14 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3 during operation.

Table 6-13: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Air Quality – Construction

Factor	Criteria	Potential Effects	Mitigation Measure(s)	Net Effects
Changes in Air Quality during Construction (Construction Vehicle Operation and Surface Particulate Disruption).	Potential impacts on air quality.	RESA 1, RESA 2, RESA 3 - Cumulative concentrations at all sensitive and critical receptors within the air quality study area were below the applicable air quality criteria and standards for carbon monoxide, sulphur dioxide, suspended particulate matter, particulate matter (<10 microns) and particulate matter (<2.5 microns). - Nitrogen dioxide cumulative concentrations above the respective federal Canadian Ambient Air Quality Standards were observed for the 1-hour and annual averaging period at three sensitive receptors (1, 13, and 14) and two critical receptors (2 and 3). - The nitrogen dioxide maximum exceedance for the annual averaging period was observed at one sensitive receptor (SR1) (Marina on Stadium Road, located 0.18 kilometres from the Billy Bishop Toronto City Airport). The exceedance is primarily due to elevated existing ambient air quality concentrations. - The nitrogen dioxide maximum exceedance for the 1-hour averaging period was observed at sensitive receptor 14 (multi-unit residential dwelling located at 401 Queens Quay West, within 0.49 kilometres from the Billy Bishop Toronto City Airport). A cumulative frequency analysis at this location shows that emissions from the Project alone are predicted to exceed the federal Canadian Ambient Air Quality Standards less than 2% of the time. - Overall, construction emissions from the Project alone are unlikely to significantly impact air quality within the air quality study area. - Odour and dust may cause temporary public annoyance at existing sensitive and critical receptors within the air quality study area during the construction phase.	RESA 1, RESA 2, RESA 3 - Develop an Air Quality Management Plan during detailed design and implement the plan, which will include practices to minimize combustion emissions and fine particulate release from mobile equipment, materials handling, and wind erosion, for the duration of the construction phase. - Install screening and/or barriers at practical locations within the air quality study area to decrease wind driven emissions of particulates. - Ensure that mobile equipment is in good condition, properly and regularly maintained, and compliant with applicable Federal and Provincial Regulations for off-road diesel engines. - Ensure that all machinery is maintained and operated in accordance with manufacturer's specifications. - Locate stationary equipment (generators, compressors, etc.) as far away from sensitive and critical receptors as practical. - Minimize idling time and posting signage to this effect around the construction site. - Implement the use of non-chloride dust suppressants. - Temporary seeding or mulching and compression of bare soil and storage piles to reduce erosion. - Develop a Communications Protocol and a Complaints Protocol in accordance with the Project agreement. - Site supervisors during the construction phase should monitor the site for wind direction and weather conditions to ensure that high-impact activities be reduced when the wind is blowing consistently towards nearby sensitive receptors. - Site supervisors should also monitor for visible fugitive dust. Refer to Appendix F Air Quality Assessment Report for the details of the proposed mitigation measures for fugitive dust.	RESA 1, RESA 2, RESA 3 - Low Net Negative Effect. - Although construction activities may result in localized odour and dust, these are short-term and unlikely to result in lasting effects on air quality. - The development of communication protocols and a Construction Air Quality Management Plan will support mitigation of air emission sources and help reduce public complaints related to dust or odours. - Construction activities are unlikely to significantly impact overall air quality, as some exceedances are attributed to elevated baseline concentrations.

Table 6-14: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Air Quality – Operation

Factor	Criteria	Potential Effect	Mitigation Measure(s)	Net Effects
■ Changes to Air Quality (New Airside Road and Taxiway Modifications).	■ Potential impacts on air quality.	RESA 1 ■ For on-road vehicle operations, annual greenhouse gas emissions (expressed as CO₂ equivalent) are projected to increase from 592 tonnes in 2023 (Current Conditions) to 967 tonnes in 2027 (Future Conditions). This increase, resulting from the longer travel distance due to the rerouting of vehicles to a new restricted airside road, accounts for only 0.00214% of Ontario’s reported greenhouse gas emissions for the Transportation Sector in 2021. Current vehicle idling times are still present in this alternative. ■ As no taxiway improvements are included in this alternative, no greenhouse gas emissions were estimated for aircraft taxiway operations. RESA 2 ■ For on-road vehicle operations, annual greenhouse gas emissions are projected to increase from 592 tonnes in 2023 (Current Conditions) to 974 tonnes in 2027 (Future Conditions). This increase, resulting from the longer travel distance due to the rerouting of vehicles to a new restricted airside road, accounts for only 0.00216% of Ontario’s reported greenhouse gas emissions for the Transportation Sector in 2021. As with RESA 1, current vehicle idling times remain the same. ■ For aircraft taxiway operations, annual greenhouse gas emissions are projected to decrease from 693 tonnes in 2023 (Current Conditions) to 508 tonnes in 2027 (Future Conditions) (approximately 30% reduction). The reduction is due to improved taxiway efficiency, resulting in lower emissions. RESA 3 ■ For on-road vehicle operations, annual greenhouse gas emissions are projected to increase from 592 tonnes in 2023 (Current Conditions) to 891 tonnes in 2027 (Future Conditions). This increase, resulting from the longer travel distance due to the rerouting of vehicles to a new airside road, accounts for only 0.00198% of Ontario’s reported greenhouse gas emissions for the Transportation Sector in 2021. As the new road will be unrestricted, current vehicle idling times will be eliminated which reduces emissions compared to RESA 2. ■ For aircraft taxiway operations, annual greenhouse gas emissions are projected to decrease from 693 tonnes in 2023 (Current Conditions) to 508 tonnes in 2027 (Future Conditions) (approximately 30% reduction). The reduction is due to improved taxiway efficiency, resulting in lower emissions.	RESA 1, RESA 2 ■ Implement idling reduction programs to limit vehicle emissions, particularly for trucks, tugs, and other vehicles operating at Billy Bishop Toronto City Airport and along the restricted airside perimeter road. RESA 1, RESA 2, RESA 3 ■ As most of the vehicles currently access the airport through the east side of the road, optimizing vehicle routing along the airside perimeter road by prioritizing routine use to the east side only, where feasible, would reduce total travel distances and associated on-road vehicle emissions.	RESA 1, RESA 2, RESA 3 ■ Low Net Negative Effect. ■ Increased greenhouse gas emissions associated with the increase in distance traveled from the rerouting of vehicles to a new airside perimeter road which will be longer than the existing runway crossing. However, Project greenhouse gas contributions are around 0.002% which is negligible compared to the total Ontario Transportation 2021 CO₂ eq (45,000,000 tonnes) emissions for all alternatives. RESA 2, RESA 3 ■ Low-Moderate Net Positive Effect associated with improved taxiway operation. ■ Decrease in greenhouse gas emissions (approximately 30%) due to improved taxiway operations/ shorter taxi time. RESA 3 ■ Greater Positive Effect than RESA 2 because of dual operational benefits by reducing both taxiway emissions and on-road vehicle idling.

6.2.2 Noise

6.2.2.1 Net Effects Analysis - Construction

Table 6-15 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3, during construction.

6.2.2.2 Net Effects Analysis - Operation

Table 6-16 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3, during operation.

Table 6-15: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Noise- Construction

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Changes in Noise Levels from Construction.	■ Overall anticipated noise levels from construction.	RESA 1 ■ Construction noise impacts at all points of reception are predicted to be negligible. RESA 2, RESA 3 ■ Construction sound levels are predicted to exceed the existing nighttime average background at the location of two points of reception (4 and 5) during Stage 3 construction (onshore work only). ■ The difference in average night- time sound levels is predicted to be potentially perceptible (between 2-4 dB increase), and have marginal impact at point of reception 4 (6 sub-receptors). ■ The difference in sound level is predicted to be imperceptible (1 dB increase) and have negligible impact on point of reception 5 (5 sub-receptors). ■ Construction noise impacts at other receptor locations are predicted to be negligible. RESA 1, RESA 2, RESA 3 ■ The daytime sound levels are assumed to be the same during the construction period as existing levels. ■ Despite the low predicted noise impacts, construction activities may be audible and potentially disturbing to some points of reception at limited times during construction.	RESA 1, RESA 2, RESA 3 ■ Develop Construction Noise Management Plan for the Project to include efforts to minimize community impacts by employing 'best practices for noise and sound induced vibration mitigation'. ■ Maintain equipment in an operating condition that prevents unnecessary noise, including but not limited to, effective muffler systems, properly secured components and lubrication of moving parts. ■ Restrict idling of equipment to the minimum necessary to perform the specific work. ■ Ensure vehicles employed continuously on site for extended periods of time (two days or more) are fitted with broad-band sound back-up alarms, rather than tonal alarms. ■ Avoid unnecessary revving of engines and switch off equipment when not required (do not idle). ■ Minimize drop heights of materials. ■ Use construction equipment compliant with noise level specifications in Ministry of the Environment, Conservation and Parks publications NPC-115 and NPC-118.	RESA 1 ■ Negligible Negative Net Effect. RESA 2, RESA 3 ■ Marginal Net Negative Effect. ■ Mitigation measures may reduce the extent of noise impacts on marginally affected points of receptions.

Table 6-16: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Noise- Operation

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Changes in Noise Levels from Operations (Taxiway Modifications and Noise Walls).	■ Ground operation noise levels.	RESA 1 ■ No increase in noise levels as there are no changes to ground operations. RESA 2 ■ With taxiway modifications, taxiway noise levels are predicted to range from negligible increase (0 to 1 dB increase) to marginal reduction (1 to 5 dB decrease), depending on source taxiway and receptor height, at points of reception 2-8. ■ Taxiway noise levels are predicted to range from negligible increase (0 to 1 dB increase) to negligible reduction (0 to 1 dB decrease) at the other points of reception. RESA 3 ■ With taxiway modifications and noise walls in RESA 3, taxiway noise levels are predicted to range from negligible increase (0 to 1 dB increase) to significant reduction (more than 5 dB decrease), depending on source taxiway and receptor height, at points of reception 2-6, 10, and 19. ■ Taxiway noise levels are predicted to range from negligible reduction (0 to 1 dB decrease) to marginal reduction (greater than 1 dB decrease but less than 5 dB decrease) at the other points of reception. ■ Refer to Appendix G , Noise Assessment Study Report, Table 8 for detailed information on changes in taxiway operations noise levels at various points of receptions.	RESA 1, RESA 2, RESA 3 ■ No mitigation measures required.	RESA 1 ■ No Net Effect. ■ No changes to ground operations. RESA 2 ■ Negligible Net Effect. ■ Marginal noise level reductions from taxiway operations at several points of reception. RESA 3 ■ Negligible to Positive Net Effect. ■ Significant noise level reductions from taxiway operations at several points of reception.
	■ Air operation noise levels.	RESA 1, RESA 2, RESA 3 ■ No impacts to any noise-sensitive locations.	RESA 1, RESA 2, RESA 3 ■ No mitigation measures required.	RESA 1, RESA 2, RESA 3 ■ No Net Effect.

6.2.3 Social Environment

6.2.3.1 Net Effects Analysis - Construction

Table 6-17 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3, during construction.

6.2.3.2 Net Effects Analysis - Operation

Table 6-18 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3, during operation.

Table 6-17: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Social Environment – Construction

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Residential.	■ Changes in the use and enjoyment of residential properties.	RESA 1 ■ Negative effect to the nighttime use and enjoyment of residential properties due to traffic, congestion, dust, light pollution and noise. This may negatively impact residents’ sleep quality/ sleep patterns. This is anticipated to last for the 18-month construction period. RESA 2 ■ Negative effect to the nighttime use and enjoyment of residential properties due to traffic, congestion, dust, light pollution and noise. This may negatively impact residents’ sleep quality/ sleep patterns. This is anticipated to last for the 21-month construction period. RESA 3 ■ Negative effect to the nighttime use and enjoyment of residential properties due to traffic, congestion, dust, light pollution and noise. This may negatively impact residents’ sleep quality/ sleep patterns. This is anticipated to last for the 24-month construction period.	RESA 1, RESA 2, RESA 3 ■ Residents to be informed about upcoming construction activities and mitigation measures as described by each relevant discipline should be implemented to minimize noise and nuisance impacts, where possible. ■ To reduce potential temporary light pollution impacts, lights will be directed southward, away from residential areas located to the north of the site. This approach has been successfully used in other major construction projects at Billy Bishop Toronto City Airport. ■ Additionally, where possible, the construction contractor will be required to: - Use shielded or directed lighting to focus light only where needed. - Avoid unnecessary nighttime lighting where feasible. - Maintain lights at the minimum brightness necessary for safe construction activities. - Regularly monitor and adjust lighting as needed to minimize light spill onto nearby residential and recreational areas.	RESA 1, RESA 2, RESA 3 ■ Net Negative Effect. ■ Negative effects from construction activities can be reduced through the implementation of appropriate mitigation measures as described by each discipline e.g., Noise Management Plan, Air Quality Management Plan, Traffic Management Plan, and Construction Management Plan to be developed during detailed design, etc.
■ Recreational.	■ Changes to the use and enjoyment of recreational spaces.	RESA 1 ■ Potential negative effect to the nighttime use and enjoyment of recreational water space due to the delivery of materials by barge, and in-water construction activities restricting use. ■ Potential for negative effect to nighttime water and land-based recreational activities in the area, as users may be discouraged due to noise and visual distraction (e.g. light pollution). ■ Impacts are anticipated to last for the 18-month construction period. RESA 2 ■ Potential negative effect to the nighttime use and enjoyment of recreational water space due to the delivery of materials by barge, and in-water construction activities restricting use. ■ Potential for negative effect to nighttime water and land-based recreational activities in the area, as users may be discouraged due to noise and visual distraction (e.g. light pollution). ■ Impacts are anticipated to last for the 21-month construction period. RESA 3 ■ Potential negative effect to the nighttime use and enjoyment of recreational water space due to the delivery of materials by barge, and in-water construction activities restricting use. ■ Potential for negative effect to nighttime water and land-based recreational activities in the area, as users may be discouraged due to noise and visual distraction (e.g. light pollution). ■ Impacts are anticipated to last for the 24-month construction period.	RESA 1, RESA 2, RESA 3 ■ To minimize impacts on nighttime recreational users (e.g., water taxis, beach use) notice should be provided regarding all construction activities. Mitigation measures as described by each relevant discipline should be implemented to minimize noise and nuisance impacts, including light pollution, where possible. ■ See first row, above, for light pollution mitigation measures.	RESA 1, RESA 2, RESA 3 ■ Net Negative Effect. ■ Negative effects from construction activities can be reduced through the implementation of appropriate mitigation measures e.g., providing notice about construction activities to recreational facilities; noise and light pollution mitigations, to be developed during detailed design, etc.

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Public Services and Institutions.	■ Changes to use and access to public facilities, emergency services, and institutions.	RESA 1 ■ Potential negative effect due to temporary traffic congestion, dust and noise in the socio-economic study area, which may disturb or discourage access to some local services and institutions. ■ Potential negative effect from Project-related water transportation and barging which could create congestion and may impact water-based servicing (e.g., ferries, Toronto Marine Police Services). ■ If construction activities require Billy Bishop Toronto City Airport to close their runway for any reason, this may interrupt air services, including emergency medical air services. ■ Impacts are anticipated to last for the 18-month construction period. RESA 2 ■ Potential negative effect due to temporary traffic congestion, dust and noise in the socio-economic study area, which may disturb or discourage access to some local services and institutions. ■ Potential negative effect from Project-related water transportation and barging which could create congestion and may impact water-based servicing (e.g., ferries, Toronto Marine Police Services). ■ If construction activities require Billy Bishop Toronto City Airport to close their runway for any reason, this may, interrupt air services, including emergency medical air services. ■ Impacts are anticipated to last for the 21-month construction period. RESA 3 ■ Potential negative effect due to temporary traffic congestion, dust and noise in the socio-economic study area, which may disturb or discourage access to some local services and institutions. ■ Potential negative effect from Project-related water transportation and barging which could create congestion and may impact water-based servicing (e.g., ferries, Toronto Marine Police Services). ■ If construction activities require Billy Bishop Toronto City Airport to close their runway for any reason, this may interrupt air services, including emergency medical air services. ■ Impacts are anticipated to last for the 24-month construction period.	RESA 1, RESA 2, RESA 3 ■ A detailed assessment of potential traffic disruptions should be completed, including potential mitigation measures that would minimize disruptions to existing traffic and pedestrian flows. ■ Mitigations should be developed in consultation with essential service providers including the Toronto Police Marine Unit and Ornge, water taxi and ferry services, and the Toronto Transit Commission to prevent disruption of access to public services and institutions by the public or any barrier to emergency services on land or in the water during or after construction.	RESA 1, RESA 2, RESA 3 ■ Net Negative Effect. ■ Negative effects from construction activities can be reduced through the implementation of appropriate mitigation measures e.g., planning construction activities with input from local service providers and institutions including emergency services; Noise Management Plan, Air Quality Management Plan, Traffic Management Plan, and Construction Management Plan to be developed during detailed design, etc.
■ Economy and Tourism.	■ Changes to economic, business, or tourism activity.	RESA 1 ■ Potential negative effect from Project-related water transportation and barging activities as well as noise and light pollution which could create congestion and may impact nighttime business and tourism activity (e.g., ferries, boat cruises). ■ Impacts are anticipated to last for the 18-month construction period. RESA 2 ■ Potential negative effect from Project-related water transportation and barging activities as well as noise and light pollution which could create congestion and may impact nighttime business and tourism activity (e.g., ferries, boat cruises). ■ Impacts are anticipated to last for the 21-month construction period. RESA 3 ■ Potential negative effect from Project-related water transportation and barging activities as well as noise and light pollution which could create congestion and may impact nighttime business and tourism activity (e.g., ferries, boat cruises). ■ Impacts are anticipated to last for the 24-month construction period.	RESA 1, RESA 2, RESA 3 ■ To minimize impacts on nighttime business and tourism activities (e.g., boat cruise, water taxis) notice should be provided regarding all construction activities. Mitigation measures as described by each relevant discipline should be implemented to minimize noise and nuisance impacts, including light pollution, where possible. ■ See first row above, for light pollution mitigation measures.	RESA 1, RESA 2, RESA 3 ■ Net Negative Effect. ■ Negative effects from construction activities can be reduced through implementation of appropriate mitigation measures e.g., inform local businesses and tourism operators about construction activities to minimize impacts to their customers, noise and light pollution mitigations to be developed during detailed design, etc.
■ Non-Use Values.	■ Changes to identified Non-Use Values.	RESA 1, RESA 2, RESA 3 ■ Negligible net effects are anticipated.	RESA 1, RESA 2, RESA 3 ■ N/A.	RESA 1, RESA 2, RESA 3 ■ No Net Effect.

Table 6-18: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Social Environment - Operation

Factor	Criteria	Effects	Mitigation Measures	Net Effects
Residential.	Changes in the use and enjoyment of residential properties.	RESA 1 Negligible effects are anticipated during operation phase. RESA 2 Some residents are expected to experience a positive change as a result of taxiway modifications in reducing emissions and noise from the aircraft when on the ground. RESA 3 Some residents are expected to experience a positive change as a result of the taxiway modifications and the new noise wall reducing the noise of aircraft when on the ground.	RESA 1, RESA 2, RESA 3 N/A.	RESA 1 No Net Effect. RESA 2 Net Positive Effect. Some residents are expected to experience a positive change from reduced emissions and decreased noise driven by taxiway improvements. RESA 3 Net Positive Effect. Some residents are expected to experience a positive change from reduced emissions and decreased noise driven by the taxiway improvements and the new noise walls.
Recreational.	Changes to the use and enjoyment of recreational spaces.	RESA 1 Some users may experience negative effects due to infill in the harbour changing the viewshed and reducing overall water-area. Impacts are related to the amount of infill, which totals approximately 332,000 tonnes. RESA 2 Some users may experience negative effects due to infill in the harbour changing the viewshed and reducing overall water-area. Some users may experience positive effects due to improved mitigation of noise and reduction of emissions due to design elements. Impacts are related to the amount of infill, which totals approximately 450,000 tonnes. RESA 3 Some users may experience negative effects due to infill in the harbour changing the viewshed and reducing overall water-area. Some users may experience positive effects due to improved mitigation of noise and reduction of emissions due to design elements. Impacts are related to the amount of infill, which totals approximately 865,000 tonnes.	RESA 1, RESA 2, RESA 3 Negative effects may be indirectly mitigated by community initiatives to enhance other areas of the waterfront important to recreational users. Possible enhancements to recreational use and enjoyment may be achieved in collaboration with environmental and community groups, including initiatives for clean water along the waterfront and sand renourishment for Hanlan’s Point Beach.	RESA 1 Net Negative Effect. Some recreational users may experience negative effects from changing viewshed/ reduced water area, related to the amount of infill (approximately 332,000 tonnes). RESA 2 Net Negative Effect. Some recreational users may experience negative effects from changing viewshed/ reduced water area, related to the amount of infill (approximately 450,000 tonnes). Net Positive Effect. Some users will experience positive effects from noise/ emission reduction, driven by taxiway modifications. RESA 3 Net Negative Effect. Some recreational users may experience negative effects from changing viewshed/ reduced water area, related to the amount of infill (approximately 865,000 tonnes). Net Positive Effect. Some users will experience positive effects from noise/ emission reduction, driven by taxiway modifications and the new noise wall.
Public Facilities, Services and Institutions.	Changes to use and access to public facilities, emergency services, and institutions.	RESA 1, RESA 2, RESA 3 No change anticipated in ability to use or access public facilities or services as a result of any of the RESA alternatives, as airport operations remain consistent.	RESA 1, RESA 2, RESA 3 N/A.	RESA 1, RESA 2, RESA 3 No Net Effect.
Economy and Tourism.	Changes to economic, business, or tourism activity.	RESA 1, RESA 2, RESA 3 No change in economic conditions, local business activities or tourist behaviours anticipated as a result of any of the RESA alternatives, as airport operations remain consistent.	RESA 1, RESA 2, RESA 3 N/A	RESA 1, RESA 2, RESA 3 No Net Effect.

Factor	Criteria	Effects	Mitigation Measures	Net Effects
■ Non-Use Values.	■ Changes to identified Non-Use Values.	RESA 1 ■ Negative effect as the infill (approximately 332,000 tonnes) from the RESA will prevent potential future uses of that area for water-based activities or enjoyment (approximately 13,950 square metres of water). RESA 2 ■ Negative effect as the infill (approximately 450,000 tonnes) from the RESA will prevent potential future uses of that area for water-based activities or enjoyment (approximately 23,100 square metres of water). RESA 3 ■ Negative effect as the infill (approximately 865,000 tonnes) from the RESA will prevent potential future uses of that area for water-based activities or enjoyment (approximately 42,580 square metres of water).	RESA 1, RESA 2, RESA 3 ■ No mitigation measures possible. Infill for a RESA is a permanent feature.	RESA 1 ■ Net Negative Effect. ■ Negative net effects are anticipated from the loss of future use or enjoyment of the water (approximately 13,950 square metres of water). RESA 2 ■ Net Negative Effect. ■ Negative net effects are anticipated from the loss of future use or enjoyment of the water (approximately 23,100 square metres of water). RESA 3 ■ Net Negative Effect. ■ Negative net effects are anticipated from the loss of future use or enjoyment of the water (approximately 42,580 square metres of water).

6.2.4 Public Health

6.2.4.1 Net Effects Analysis - Construction

Table 6-19 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3 during construction.

6.2.4.2 Net Effects Analysis - Operation

Table 6-20 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3 during operation.

Table 6-19: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Public Health – Construction

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Impact of Changes in Noise Levels on Public Health.	■ Changes to the noise levels. ■ Changes in the percentage of a Highly Annoyed population (%HA).	RESA 1 ■ Construction noise impacts at all receptor locations are predicted to be negligible. RESA 2, RESA 3 ■ Construction sound levels are only predicted to exceed the existing nighttime average background at the location of two points of receptions (4 and 5) during Stage 3 construction (onshore work only). ■ The difference in sound level is predicted to be potentially perceptible (4 dB),and have marginal impact at point of reception 4 (6 sub-receptors). ■ The difference in sound level is predicted to be imperceptible (1 dB) and have negligible impact on point of reception 5 (5 sub-receptors). ■ Construction noise impacts at other receptor locations are predicted to be negligible. ■ Existing nighttime background noise conditions and predicted construction sound levels are anticipated to exceed Health Canada’s thresholds for adverse sleep impacts at assessed points of reception. However, the estimated change in percentage of population highly annoyed at all locations is less than Health Canada’s suggested mitigation level of 6.5%. The estimated change at the location of points of reception 4 and 5 are 5% and 3%, respectively. RESA 1, RESA 2, RESA 3 ■ The daytime sound levels are assumed to be the same during the construction period as existing levels. ■ Despite the low predicted noise impacts, construction activities may be audible and potentially disturbing to some points of reception at limited times during construction.	RESA 1, RESA 2, RESA 3 ■ Refer to Table 6-15 for the mitigation measures related to construction noise.	RESA 1, RESA 2, RESA 3 ■ Negligible Net Negative Effect. ■ Noise from overnight construction activity may disturb the sleep of nearby residents. ■ The estimated change in %HA at all receptors is less than the Health Canada ‘s recommended mitigation level of 6.5%. ■ Mitigation measures may reduce the extent of noise impacts on marginally affected points of receptions.
■ Impact of Changes in Air Quality on Public Health.	■ Changes to air quality.	RESA 1, RESA 2, RESA 3 ■ Cumulative concentrations at all sensitive and critical receptors within the air quality study area were below the applicable air quality criteria and standards for carbon monoxide, sulphur dioxide, suspended particulate matter, particulate matter (<10 microns) and particulate matter (<2.5 microns). ■ Nitrogen dioxide cumulative concentrations above the respective federal Canadian Ambient Air Quality Standards were observed for the 1-hour and annual averaging period at three sensitive receptors (1, 13, and 14) and two critical receptors (2, and 3), which could potentially pose health risks to individuals in these areas. ■ The nitrogen dioxide maximum exceedance for the annual averaging period was predicted at sensitive receptor 1 (Marina on Stadium Road, located 0.18 kilometres from the Billy Bishop Toronto City Airport). The exceedance is primarily due to elevated existing ambient air quality concentrations. ■ Project nitrogen dioxide level does not exceed the Canadian Ambient Air Quality for the annual averaging period. ■ The nitrogen dioxide maximum exceedance for the 1-hour averaging period was predicted at sensitive receptor 14 (multi-unit residential dwelling located at 401 Queens Quay West, within 0.49 kilometres from the Billy Bishop Toronto City Airport). A cumulative frequency analysis at this location shows that 1-hour emissions from the Project alone are predicted to exceed the federal Canadian Ambient Air Quality Standards less than 2% of the time. ■ Long-term exposure to elevated nitrogen dioxide levels may increase the likelihood of respiratory problems and cardiovascular issues. Given the construction durations of 18, 21, and 24 months for RESA 1, RESA 2, and RESA 3, respectively, and based on the cumulative frequency analysis (which shows Project exceedance occurs less than 2% of the time), no long-term exposure related to the Project is expected.	RESA 1, RESA 2, RESA 3 ■ Refer to Table 6-13 for the mitigation measures related to construction air quality.	RESA 1, RESA 2, RESA 3 ■ Low Net Negative Effect. ■ Nitrogen dioxide cumulative concentrations exceeded the federal Canadian Ambient Air Quality Standards at the location of five receptors. ■ The annual exceedance is primarily due to elevated existing ambient air quality concentrations, prior to including the construction contributions. ■ The 1-hour concentration of nitrogen dioxide from the Project alone is predicted to exceed the Canadian Ambient Air Quality Standards for less than 2% of the time, based on the cumulative frequency analysis. ■ For all other criteria air contaminants, cumulative concentrations remain below applicable standards and criteria, suggesting that construction emissions from the Project alone across all alternatives are unlikely to significantly impact overall air quality within the air quality study area. ■ The negative impact of nitrogen dioxide exceedance is limited and short-term (up to a maximum of 24 months for RESA 3). It can be mitigated through an Air Quality Management Plan during the construction phase.

Table 6-20: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Public Health - Operation

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Impact of Changes in Noise Levels on Public Health.	■ Changes to the noise levels. ■ Changes in the percentage of a Highly Annoyed population (%HA).	RESA 1 ■ No changes to noise levels. RESA 2 ■ With taxiway modifications, taxiway noise levels are predicted to range from negligible increase (0 to 1 dB increase) to marginal reduction (1 to 5 dB decrease), depending on source taxiway and receptor height, at points of reception 2-8. ■ Taxiway noise levels are predicted to range from negligible increase (0 to 1 dB increase) to negligible reduction (0 to 1 dB decrease) at the other points of reception. ■ The Noise Exposure Forecast contours based on existing conditions and with the Project are mostly co-aligned and the only locations where they are slightly divergent are above the Inner Harbour, with no impacts to any noise-sensitive locations. RESA 3 ■ With taxiway modifications and noise walls in RESA 3, taxiway noise levels are predicted to range from negligible increase (0 to 1 dB increase) to significant reduction (more than 5 dB decrease), depending on source taxiway and receptor height, at points of reception 2-6, 10, and 19. ■ Taxiway noise levels are predicted to range from negligible reduction (0 to 1 dB decrease) to marginal reduction (greater than 1 dB decrease but less than 5 dB decrease) at the other points of reception. ■ The Noise Exposure Forecast contours based on existing conditions and with the Project are mostly co-aligned and the only locations where they are slightly divergent are above the Inner Harbour, with no impacts to any noise-sensitive locations.	RESA 1, RESA 2, RESA 3 ■ No mitigation measures required.	RESA 1 ■ No Net Effects. ■ No changes to noise levels. RESA 2, RESA 3 ■ Negligible to Positive Net Effect. ■ Marginal to significant noise level reductions at several points of reception. ■ Negligible increase (less than 1 dB) at some points of reception.
■ Impact of Changes in Air Quality on Public Health.	■ Changes to air quality	RESA 1, RESA 2, RESA 3 ■ Limited public health effects are expected due to generally unchanged operational characteristics (flight numbers, frequency, times etc.). ■ Re-routing vehicles to a new airside road will increase annual greenhouse gas emissions due to the longer distance compared to the existing runway crossing; however, the Project greenhouse gas contributions are negligible (around 0.002 %) compared to the total Ontario Transportation 2021 CO₂_{eq} emissions (45,000,000 tonnes) for all alternatives. RESA 2, RESA 3 ■ Improved taxiway efficiency (shorter taxi times and less emissions) will decrease (30%) the annual greenhouse gas emissions associated with taxiway operations. RESA 3 ■ The unrestricted airside perimeter eliminates current idling times which further offset on road emissions.	RESA 1, RESA 2, RESA 3 ■ Refer to Table 6-14 for the mitigation measures related to air quality during operation.	RESA 1, RESA 2, RESA 3 ■ Negligible Net Negative Effect. ■ Increase in greenhouse gas emissions for on-road vehicle operations. This increase is associated with the increase in distance traveled from the rerouting of vehicles to the airside perimeter road. Concentrations of greenhouse gases contaminants at receptors are expected to be minimal due to the distance between the airside perimeter road and the ground level emissions. Provincial screening levels for greenhouse contaminant concentrations are significantly higher than ambient air quality standards for other combustion-related emissions.

6.2.5 Marine Navigation

6.2.5.1 Net Effects Analysis - Construction

Table 6-21 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3 within the marine navigation study area, during construction.

6.2.5.2 Net Effects Analysis - Operation

Table 6-22 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3 within the marine navigation study area, during operation.

Table 6-21: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Marine Navigation – Construction

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Maneuverability of Vessels and Navigation Safety.	■ Changes in the ability of boats to navigate the Western Channel and Inner Harbour during construction.	RESA 1, RESA 2, RESA 3 ■ Construction equipment within the Marine Exclusion Zone (e.g., barges with vertical hulls) could temporarily affect the pattern and reflection of waves. This could affect the stability of some boaters around the Marine Exclusion Zone. ■ Construction equipment could block some navigation markers or land markers that boaters and paddlers use. ■ Reduced navigability during in-water construction activities including lakebed densification, and placement of in-water fill. ■ Temporary construction lighting may cause confusion with navigation lights or block visibility to navigation lights. ■ Each existing RESA has two navigation lights at the end of the landmass, which would need to be relocated during construction while maintaining the edge of the landmass. This could lead to confusion for boaters, as the navigation lights would no longer be in their usual location.	RESA 1, RESA 2, RESA 3 ■ Notifications should be sent out to boating communities in advance of the construction. ■ Temporary signage should be installed during construction. ■ Commercial ferries and private vessels may adjust their path to avoid getting close to the construction. ■ Construction lighting should follow the guidance for lighting around waterways. ■ Temporary navigation lights should be placed at the end of the construction area to mark the placement of new material.	RESA 1, RESA 2, RESA 3 ■ Negligible Net Negative Effect. ■ Construction will temporarily restrict navigation in some areas, particularly around the Marine Exclusion Zone.

Table 6-22: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Marine Navigation - Operation

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Maneuverability of Vessels and Navigation Safety.	■ Potential changes in waves, currents, and water depths.	RESA 1, RESA 2, RESA 3 ■ No changes to Marine Exclusion Zone are anticipated. ■ The land expansion from the west RESA would reduce the water width between the west RESA and Ontario Place East Island to 135 metres (RESA 2 and 3) or 181 metres (RESA 1), which could potentially affect waves and current within the Western Channel and its approach. ■ Slight impact to large recreational boats is anticipated. ■ Operators of small boats including paddle boats, kayaks and small motorboats may need to adjust to changed wave conditions and the new entrance width. ■ Replacement of the vertical sheet pile wall with the stone revetment will potentially reduce wave reflection, reducing negative impacts on vessels. ■ The creation of the east RESA closer to the Hanlan Ferry route may require the ferry and other vessels that use this moorage to adjust their path to avoid the proximity to the landmass.	RESA 1, RESA 2, RESA 3 ■ Notifications regarding the land expansion should be sent to boating communities. ■ Navigation markers should be moved to indicate the narrower entrance. ■ New navigation lights should be installed to mark the edge of the landmass within the East and West Marine Exclusion Zone. ■ Navigation markers and navigation lights will need to be more numerous or brighter with the larger landmass expansion for RESA 2 and even more so for RESA 3.	RESA 1, RESA 2, RESA 3 ■ Negligible Net Negative Effect. ■ No changes to Marine Exclusion Zone are anticipated. ■ The implementation of the RESA in the Marine Exclusion Zone will change wave conditions/patterns outside of the Marine Exclusion Zone. ■ Temporary instability of boaters is anticipated as they make minor adjustments to their navigational routes in and out of the Western Channel from the west. ■ Change in the wave conditions outside of the Marine Exclusion Zone will be greater with the larger landmass expansion in RESA 2 and even more so in RESA 3. Adjustments by boaters would likely be greater with the larger landmasses in the water.
	■ Visibility of Boaters on the Water.	RESA 1, RESA 2, RESA 3 ■ The west and east RESA extensions lengthen the peninsula formed by each RESA. Boaters would need to navigate further offshore to see beyond RESA 2 and 3 and to a lesser extent offshore for RESA 1.	RESA 1, RESA 2, RESA 3 ■ Notifications regarding the land expansion should be sent to the boating communities.	RESA 1, RESA 2, RESA 3 ■ Negligible Net Negative Effect. ■ The boaters are expected to adjust to the new landmass in the area. Minimal negative effects are anticipated.

6.2.6 Built Form and Land Use

6.2.6.1 Net Effects Analysis - Construction

There are no anticipated construction net effects related to built form and land use.

6.2.6.2 Net Effects Analysis - Operation

Table 6-23 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3 during operation.

For RESA 2 and 3, the relocation of the localizer 26 results in a slight change in the final approach course to Runway 08/26 from the east. The existing localizer is oriented such that the final approach course is slightly south of the runway alignment. The proposed RESA alternatives and all associated new infrastructure will respect the existing Obstacle Limitation Surface and Obstacle Protection Surface and will not change their level of protection or geometrics (Avia NG, 2024). According to Avia NG, no changes will be expected to the airspace, and no impacts to the Toronto Island Airport Zoning Regulations are anticipated. Therefore, no further review and update have been carried out in reviewing the compatibility of the Project with respect to Obstacle Limitation Surface, Obstacle Protection Surface and Airport Zoning Regulations surfaces.

Table 6-23: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Built Form and Land Use – Operation

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Planning Policies.	■ Conformity to City of Toronto planning policies.¹²	RESA 1, RESA 2, RESA 3 ■ All three RESA alternatives comply with City of Toronto policies related to Heritage Conservation — City of Toronto Official Plan, Policy 3.1.6. ■ The landmass expansion in all three RESA alternatives will impact the lands currently designated as Natural Heritage System along the periphery of Billy Bishop Toronto City Airport indicated on Map 9 of the Official Plan —City of Toronto Official Plan, Policies 3.4.11 and 3.4.13. ■ All three RESA alternatives will impact the lands currently designated as Parks and Natural Areas indicated on Land Use Map 18 of the Official Plan, where development is generally restricted—City of Toronto Official Plan Policy 4.3.2, 4.3.3 and 4.3.6. ■ The landmass expansion in all three RESA alternatives will alter the boundary delineated by Site and Area Specific Policies 192 and 194. ■ All RESA alternatives will serve the aviation uses — Site and Area Specific Policy 194. ■ All three RESA alternatives involve infilling in Lake Ontario and are subject to Policy 3.4.17 — Lakefilling Projects in Lake Ontario. They all meet the requirements of Policy 3.4.17 specific to natural hazards. This Environmental Assessment is being completed to ensure that water quality and quantity, and terrestrial and aquatic habitat will be protected (Refer to Table 9-1 for further details on how these requirements have been addressed). RESA 1 ■ RESA 1 meets the policy requirement of being an essential public work (City of Toronto, June 2024) which addresses the requirements of the Policies 3.4.17 (lakefilling in Lake Ontario) and land use policy 4.3.2, 4.3.3 and 4.3.6 (restricted development in areas designated as Parks and Natural Areas). ■ The Tripartite Amending Agreement (January 2025) permits a minimum landmass expansion to accommodate RESA (as per its schedule A). As a result, RESA 1 is consistent with Site and Area Specific Policies 192 and 194. RESA 1, RESA 2 ■ No impact on City of Toronto Environmentally Significant Areas — City of Toronto Official Plan, Policies 3.4.14. ■ No impact to the Provincially Significant Natural Heritage Features candidate Toronto Islands Area of Natural and Scientific Interest —City of Toronto Official Plan, Policy 3.4.15. RESA 2, RESA 3 ■ Pending the City’s decision on whether RESA 2 and RESA 3 are considered an essential public work, they do not fully conform Policies 3.4.17 (lakefilling in Lake Ontario) and land use policy 4.3.2, 4.3.3 and 4.3.6 (restricted development in areas designated as Parks and Natural Areas).	RESA 1, RESA 2, RESA 3 ■ The Natural Heritage System to be impacted by all three RESA alternatives have been recognized, and all direct and indirect potential impacts have been assessed in the Natural Heritage Effects Assessment Report in Appendix B. The Natural Heritage Effects Assessment Report identifies potential impacts to habitat for aquatic and terrestrial native flora and fauna, water and sediment quality, landforms (beaches and dunes), shorelines, seasonal movements of migration species, and potential impacts of climate change. For all impacts, mitigation measures, including compensation and enhancement measures have been identified to minimize adverse impacts and where possible, restore and enhance the Natural Heritage System. Commitments to completing compensation and/or enhancement/restoration measures proportional to the area of impact for each RESA alternative have been made and the details of such will be developed and confirmed during detailed design with the City of Toronto, Ports Toronto and appropriate regulatory agencies. Refer to Section 6.1.1 and 6.1.2 for details of the Project effects on Natural Heritage System. ■ Mitigation measures to avoid or minimize impacts on air quality, noise, soil, surface and groundwater quality, and to manage stormwater quality and quantity, are outlined under relevant disciplines in this section. RESA 2, RESA 3 ■ Where landmass expansion requires lakefilling and development in areas designated as Parks and Natural Areas, and alters the delineated boundary of the Toronto Islands (as designated in Site and Area Specific Policies 192 and 194), an Official Plan Amendment may be required to: - Update the land use to reflect the adjusted airport boundary. - Clarify that the new landmass is reserved for essential aviation and servicing infrastructure only. - Confirms no expansion of flight operations or development unrelated to aviation safety will occur. RESA 3 ■ The environmentally sensitive areas (i.e., Natural Heritage System with Environmentally Significant Qualities, and Provincially Significant Natural Heritage Features) have been assessed as part of Natural Heritage Effects Assessment study (Appendix B). For all impacts to the environmentally sensitive areas, mitigation measures, including potential compensation and enhancement measures have been identified to minimize adverse impacts and where possible, restore and enhance the Natural Heritage System.	RESA 1, RESA 2, RESA 3 ■ No Net Effect ■ RESA 2 and 3 are in partial conformity with land use policies, with some policy conflicts that may require resolution through planning tools.

12. Refer to Table 9-1 for a detailed description of the applicable policies from the City of Toronto’s Official Plan, 2024, relevant to this Project, along with an explanation of how the Project complies with these policies and the measures being implemented to ensure alignment with the City’s planning framework and objectives.

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
		- While RESA 2 and RESA 3 align with permitted aviation uses, the expanded footprint extending into the environmentally sensitive area described in Site and Area Specific Policy 194, beyond the boundary indicated in the Schedule A (the Proposed RESA Design) of the 2025 Tripartite Amending Agreement, may not conform with Site and Area Specific Policies 192 and 194. RESA 3 - RESA 3 will impact the Natural Heritage System, with Environmental Significant Qualities (Policy 3.4.14), and Provincially Significant Natural Heritage Features (Policy 3.4.15). - Additionally, a portion of Hanlan’s Point Beach is converted for infrastructure, which is inconsistent with Policy 4.3.3 which calls for the preservation and enhancement of publicly accessible open spaces.		
Existing and Planned Land Uses.	Potential impacts to current land use and potential future developments as per currently permitted uses.	RESA 1, RESA 2, RESA 3 No impact to current land use or any areas of planned or approved future development in the built form and land use study area is anticipated.	RESA 1, RESA 2, RESA 3 No mitigation measures required.	RESA 1, RESA 2, RESA 3 No Net Effect.

6.2.7 Traffic and Transportation

6.2.7.1 Net Effects Analysis - Construction

Table 6-24 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3 during construction.

6.2.7.2 Net Effects Analysis - Operation

There are no anticipated operation net effects related to traffic and transportation.

Table 6-24: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Traffic and Transportation – Construction

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Traffic on Mainland.	■ Potential impact on traffic movement during construction.	RESA 1, RESA 2, RESA 3 ■ The construction materials are expected to be hauled to the construction site by barges, which will also minimize the potential impact to traffic on the surrounding road network (particularly on mainland intersections), as well as the airport operations. ■ It is anticipated that construction works are to be carried out during nighttime to avoid impacts to the airport operations. As such, impacts to vehicular traffic and pedestrian operations on the mainland, especially during peak periods, as well as on the island are expected to be minimal to moderate. RESA 1 ■ The duration of construction staging works associated with RESA 1 is expected to be shorter (18 months) than for RESA 2 and RESA 3, and the potential effects will be minimal. RESA 2 ■ The duration of construction staging works associated with RESA 2 is expected to be slightly longer than for RESA 1 (21 months), and the potential effects will be moderate. RESA 3 ■ The duration of construction staging works associated with RESA 3 is expected to be slightly longer (24 months) than for RESA 1 or 2, as such, the potential effects will be greater than for RESA 1 and RESA 2.	RESA 1, RESA 2, RESA 3 ■ A detailed assessment of anticipated impacts during constructions works is required during the detailed design stage. ■ Measures should be implemented to manage construction traffic effectively, minimizing disruptions to existing traffic and pedestrian flows. ■ Adherence to the City of Toronto’s traffic by-laws will be essential to ensure that construction activities do not unduly affect the surrounding traffic network, road users and local residents. ■ A traffic management plan shall be required for construction activities.	RESA 1, RESA 2, RESA 3 ■ Negligible Net Negative Effect. ■ It is anticipated that construction works are to be carried out during nighttime to avoid impacts to the airport operations. As such, impacts to vehicular traffic and pedestrian operations on the mainland, especially during peak periods, as well as on the island are expected to be minimal. ■ Traffic disruptions could be expected during construction. However, the effects will be short-term and will be minimized, where possible. ■ Adherence to the City’s by-laws and a Traffic Management Plan will result in a reduction in net negative effects.

6.3 Cultural Environment

6.3.1 Marine Archaeology

6.3.1.1 Net Effects Analysis - Construction

Table 6-25 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3, during construction.

6.3.1.2 Net Effects Analysis - Operation

There are no anticipated operation net effects related to marine archaeology. However, compliance legislation must be adhered to in the event of the discovery of deeply buried cultural material or features.

Table 6-25: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Marine Archaeology – Construction

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Marine Archaeological Features.	RESA 1, RESA 2, RESA 3 ■ Effects on areas retaining marine archaeological potential and known marine archaeological sites, within the marine archaeology study area.	RESA 1, RESA 2, RESA 3 ■ No potential effects on marine archaeological resources as the marine archaeology study area does not retain archaeological potential.	RESA 1, RESA 2, RESA 3 ■ No mitigation measures required.	RESA 1, RESA 2, RESA 3 ■ No Net Effect.

6.3.2 Terrestrial Archaeology

6.3.2.1 Net Effects Analysis - Construction

Table 6-26 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3, during construction.

6.3.2.2 Net Effects Analysis - Operation

There are no anticipated operation net effects related to terrestrial archaeology. However, compliance legislation must be adhered to in the event of the discovery of deeply buried cultural material or features.

Table 6-26: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Terrestrial Archaeology – Construction

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
Terrestrial Archaeological Features	RESA 1, RESA 2, RESA 3 Effects on areas retaining archaeological potential and known archaeological sites, within the terrestrial archaeology study area.	RESA 1, RESA 2, RESA 3 No potential effects on terrestrial archaeological resources as the terrestrial archaeology study area does not retain archaeological potential.	RESA 1, RESA 2, RESA 3 No mitigation measures required.	RESA 1, RESA 2, RESA 3 No Net Effect.

6.3.3 Cultural Heritage

6.3.3.1 Net Effects Analysis - Construction

Table 6-27 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3, during construction.

6.3.3.2 Net Effects Analysis - Operation

Table 6-28 outlines the potential effects, proposed mitigation measures, and net effects of RESA 1, RESA 2, and RESA 3, during operation.

Table 6-27: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Cultural Heritage – Construction

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Cultural Heritage Features	■ Effects on identified cultural heritage resources, including buildings and cultural heritage landscapes within the cultural heritage study area.	RESA 1, RESA 2 ■ No direct or indirect adverse impacts to the known or potential cultural heritage resources are anticipated at this time. RESA 3 ■ Potential direct adverse impacts to a small section (2,108.5 m²) of the publicly accessible beach along the northern edge of Hanlan’s Point Beach from the construction of a breakwater structure. While this represents a minor portion of the overall beach, consideration must be given to its significance as part of a broader cultural heritage landscape valued by Indigenous communities. Concerns have been raised by the Six Nations of the Grand River regarding the historical transformation of the waterfront and the potential impacts of further modifications. In addition, the Friends of Hanlan’s organization has emphasized the cultural and social significance of the beach to the 2SLGBTQIA+ community and has expressed concerns regarding the potential direct adverse impacts the project may have on the beach. ■ A portion of Hanlan’s Point Beach is located within the Study Area and may experience indirect adverse impacts from temporary construction staging for RESA 3. This could involve providing access for construction personnel and machinery. Although the exact land requirements for the staging areas are not yet determined, the use of temporary construction staging has the potential to cause indirect adverse impacts to the natural features.	RESA 1, RESA 2 ■ No mitigation measures are required. RESA 3 <u>Preferred Measures:</u> ■ Explore methods to facilitate access for construction personnel and machinery while avoiding temporary staging areas or conversion of Hanlan’s Point Beach. ■ Prioritize design solutions that minimize alterations to the natural landscape, ensuring that any proposed breakwater structure does not further disrupt the cultural heritage landscape valued by the Indigenous communities. <u>Alternative Measures:</u> ■ If the above is not feasible, minimize direct and indirect impacts from land conversion and temporary staging by: – Engaging with Indigenous communities and other relevant stakeholders (i.e., City of Toronto, Friends of Hanlan’s, etc.) when installing temporary fencing and establishing no-go zones on construction maps to delineate areas of the beach that must not be disturbed. – In instances where disturbance to Hanlan’s Point Beach is unavoidable, restore the beach to its pre-construction condition upon completion of staging, including the reintroduction of native vegetation to enhance the area’s ecological and cultural integrity. ■ If the above noted measures are not feasible, minimize direct and indirect impacts from the new breakwater structures by: – Engaging with Indigenous communities and other relevant stakeholders (i.e., City of Toronto, Friends of Hanlan’s, etc.) in the design and placement of breakwater structures. – Exploring breakwater design and materials that are sympathetic to the natural and cultural heritage of the waterfront valued by Indigenous communities, avoiding highly engineered, impermeable structures that further separate the water from the land. – Engaging with Indigenous communities to incorporate cultural markers to acknowledge the historical transformation of the landscape and the enduring connections of Indigenous communities to the site.	RESA 1, RESA 2 ■ No Net Negative Effect. RESA 3 ■ Low Net Negative Effect. ■ Minor indirect and direct adverse impacts to Hanlan’s Point beach due to land conversion, temporary staging and the construction of the new breakwater structures, but mitigation efforts can reduce the disruption to cultural heritage and Indigenous connections to the beach.

Table 6-28: Net Effects Analysis of RESA 1, RESA 2 and RESA 3 for Cultural Heritage - Operation

Factor	Criteria	Potential Effects	Mitigation Measures	Net Effects
■ Effects of Sediment Transport on Cultural Heritage Features.	Effects of sediment transport on identified cultural heritage resources, including buildings and cultural heritage landscapes within the cultural heritage study area.	RESA 1, RESA 2, RESA 3 ■ Seawall expansion at west end is expected to positively impact sediment transport due to sediment deposition at the northern end of Hanlan’s Point Beach on the southern side of landmass expansion. RESA 1 ■ RESA 1 will have the least positive impacts as it is the shortest RESA extension on the west end (54 metres). RESA 2, RESA 3 ■ RESA 2 and RESA 3 will have moderate positive impacts as they both have a longer extension than RESA 1 on the west end (82 metres).	RESA 1, RESA 2, RESA 3 ■ No mitigation measures are required.	RESA 1 ■ Low Net Positive Effect. ■ Less sediment deposition is expected due to the shorter RESA extension on the west end, having less of an effect on sediment transport in this area. ■ Effects to sediment transport are considered beneficial, as it reduces sedimentation in the Western Channel and provides a source for nourishment of Hanlan’s Point Beach under the Gibraltar Point Sediment Management Plan. ■ Over time, sediment transport processes will generate a lakeshore morphology that has adapted to the barrier and sediment will continue to be transported into the Western Channel. RESA 2, RESA 3 ■ Moderate Net Positive Effect. ■ The longer landmass extensions for both RESA 2 and RESA 3 mean a greater influence on sediment transport, creating a barrier for the sediment and leading to deposition along Hanlan’s Point Beach. ■ Effects to sediment transport are considered beneficial, as it reduces sedimentation in the Western Channel and provides a source for nourishment of Hanlan’s Point Beach under the Gibraltar Point Sediment Management Plan. ■ Over time, sediment transport processes will generate a lakeshore morphology that has adapted to the barrier and sediment will continue to be transported into the Western Channel.

7. Climate Change Vulnerability Assessment

The primary objective of the Climate Change Vulnerability Assessment was to build on the previous work completed by AECOM in the 2019 Climate Change Vulnerability Study and conduct a Climate Change Vulnerability Assessment on the proposed RESA alternatives and the associated infrastructure at Billy Bishop Toronto City Airport using the Public Infrastructure Engineering Vulnerability Committee High-Level Screening Guide. The Public Infrastructure Engineering Vulnerability Committee High-Level Screening Guide is a practical tool designed to help assess the potential risks that climate change poses to infrastructure. It provides a structured approach for identifying vulnerabilities and prioritizing areas that need more detailed analysis or immediate action. The guide is flexible and can be applied to various types of infrastructure, from single elements to entire portfolios.

7.1 Data

Two sets of data were required for the Climate Change Vulnerability Assessment:

- The Project elements as described in **Section 7.1.1** below.
- The local climate and projected climatic changes to evaluate the exposure of the identified Project elements to climate change and assess the associated risks.

The Climate Change Vulnerability Assessment identified potential climate indicators, and analyzed expected impacts over the infrastructure's lifespan along with their likelihood of occurrence.

7.1.1 Elements

According to the RESA Study Technical Analysis and Findings Discussion Document by Avia NG (2024), the following Project elements were identified as relevant to the Climate Change Vulnerability Assessment for their potential sensitivity to certain climate indicators:

- RESA surface.
- Noise walls.
- Navigational aids (impacted by alternatives).
- Breakwater and landmass.
- Airfield pavements (Taxiways B and D).

- Security fences.
- Shoreline and dock walls.
- Airfield perimeter roads.
- Airfield lighting.
- Staff.
- Utility conduit.

7.1.2 Climate Data

Expected climatic changes include the continued increase in air temperature, increased frequency of high temperature events and heat waves, increased annual rainfall and decreased snowfall, increased frequency and intensity of extreme precipitation events including hurricanes and thunderstorms, and increased number of days with poor air quality due to wildfire smoke. Climate-related changes that will likely have the greatest impact on the proposed RESA alternatives are the increase in winter temperatures resulting in lower lake ice coverage and increasing wave action resulting in erosion of the shoreline. Water levels of Lake Ontario are projected to remain, on average, stable with the potential for a limited increase. However, climate projections indicate large fluctuations in water levels and the potential of increased maxima during wet years by up to 0.3 metres higher than the historical record.

To determine the climate-related risks to the RESA, climate conditions were analyzed for both the historical climate normal (1991-2020) and future periods (i.e., 2041-2070 and 2071-2100) using Environment and Climate Change Canada and local climate projections extracted from downscaled global climate models for Billy Bishop Toronto City Airport. The years 2021-2040 were not explicitly analyzed as the climate will change incrementally and the differences to the historical climate normal will be, for the most parts, small. All data were statistically analyzed, and relative increases of average conditions and extreme events were calculated in two emission scenarios – an intermediate and a high-emission scenario (i.e., Shared Socio-economic Pathways 2-4.5 and Shared Socio-economic Pathways 5-8.5, respectively). In addition to the climate change data analysis undertaken for this Project (summer 2024), the data from the recently published Toronto and Region Conservation Authority's Toronto's Current and Future Climate Report were reviewed (Lam et al., 2024). That report used the same emission scenarios and climate models as this study but had some differences, like the time period for the past climate, location, and how it defines certain climate indicators. Even with these differences, the Toronto and Region Conservation Authority climate data were used where possible to be consistent with the approach taken for other projects in the Toronto area. Refer to **Appendix P**, Climate Change Vulnerability Assessment Memorandum, for further details on the climate data used for this study.

7.2 Climate Risk Assessment

The focus of the climate risk assessment is on how climate change-driven alterations may impact PortsToronto infrastructure. Risk is a product of likelihood (climate) and consequence (to an impact category), if an element is exposed to climate indicators. The risk score is obtained by multiplying the likelihood/probability (of the weather/climate event) by the severity/consequence score of the impact category and potential of exposure to the climate events. To estimate the level of consequence (from 1 to 5), five impact categories were identified based on the most relevant aspects regarding risk management for the project. These five impact categories are impact on health and safety, infrastructure integrity, operational impact, financial impact, and reputational exposure (**Appendix P**; Climate Change Vulnerability Assessment Report). These impact categories were used to score the severity of impacts, which, combined with likelihood and exposure, determine the risk score for each element in the Project.

The risk assessment for the historical climate normal and the two future timeframes using Shared Socio-economic Pathways 5-8.5 climate projections shows similar risks for most climate indicators across the periods. However, significantly higher risks were identified for heat waves (temperature-based heat warning frequency), extreme rainfall (100-year return values for daily rainfall), short-duration high-intensity rainfall (50-year return values for 15-minute rainfall), and thunderstorms. Additional risks arise from reduced air quality due to climate-change driven larger and more frequent wildfires across North America whose smoke will be transported large distances. For example, heat waves pose the risk of frequent thermal expansion and contraction of pavements, leading to cracking and deformation and can exceed the operating temperatures of electronic components, resulting in reduced performance or failures. Heavy rainfall can cause in localized erosion and storm sewer capacity overload, leading to flooding and standing water on the RESA surface, taxiway or adjacent vegetated areas. Heavy winds associated with thunderstorms can cause physical damage to security fences, misalignment or damage to navigational aid systems and signage. In addition, staff well-being and productivity is impacted by heat waves through heat exhaustion, dehydration, and heat stress. Reduced air quality due to larger and more frequent wildfires can further cause health problems, respiratory issues, reducing visibility, and complicating outdoor work and maintenance activities. A detailed table outlining the severity levels of each climate indicator and their impacts on infrastructure components is provided in Climate Change Vulnerability Assessment Report (**Appendix P**). Only medium- and high-risk interactions were considered for developing adaptation measures, as this approach prioritizes critical vulnerabilities requiring immediate action or further study, while excluding low-risk interactions that do not necessitate action at this time.

7.3 Risk Treatment and Adaptation Measures

The Project Team identified risk treatment and adaptation measures for reducing or controlling unacceptable risks to acceptable levels based on available literature and professional judgment. A detailed table of adaptation measurements is included in Climate Change Vulnerability Assessment Report (**Appendix P**) with additional information on the effectiveness of the adaptation measures as well as the recommended timeframe for their implementation. These measures are summarized in **Table 7-1**.

Table 7-1: Summary of Proposed Climate Change Adaptation Measures

Climate Indicator	Asset Type	Proposed Adaptation Measures
Higher Temperature	RESA Surface, Airfield Pavements (Taxiways B and D), Airfield Perimeter Roads	■ Apply heat-resistant and reflective marking materials to reduce heat absorption and enhance visibility. ■ Conduct regular inspection and maintenance of the RESA surface to identify any visible damage, repair it or prevent it from worsening (during and post-event).
	Navigational Aids	■ Improve insulation and/or add reflective covers around navigational aids sensitive equipment to protect it from heat exposure. ■ Develop response plans to address damage to navigational aids caused by climate events.
	Staff	■ Adjust work schedules to cooler parts of the day, such as early morning or late afternoon. ■ Develop emergency response and staffing plans for climate events.
Precipitation	RESA Surface, Airfield Pavements (Taxiways B and D), Airfield Perimeter Roads	■ Use durable and water-resistant marking materials that can withstand heavy rainfall and remain visible. ■ Design drainage system with increased capacity to handle large volumes of water during heavy rainfall events (minor system and major overland route).
Hurricane, Thunderstorms	Security Fences, Navigational Aids, Airfield Lighting	■ Utilize flexible mounting systems for signage to allow for some movement without causing damage. ■ Elevate critical components such as signage to prevent water damage and maintain visibility during flooding. ■ Install reliable backup power systems, such as generators to ensure that navigational aids remain operational during power outages caused by extreme weather. ■ Design airfield lighting system to withstand high winds and reduce wind load on components such as inset lights and signage.
Air Quality	Navigational Aids	■ It is recommended that the Construction Management Plan for the RESA project include bi-weekly or monthly maintenance checks of NAV CANADA's navigational aids during wildfire seasons, with this maintenance to be conducted by NAV CANADA. ■ Improve sealing of all critical components and connections to block contaminants and ensure long-term durability. ■ Develop response plans to address damage to navigational aids caused by climate events.

8. Cumulative Effects

The Cumulative Effects Assessment evaluates the environmental, social, and economic changes caused by RESA 1, RESA 2, and RESA 3 in combination with other past, present, and reasonably foreseeable future projects and activities. This high-level assessment generally follows the Impact Assessment Agency of Canada guidance, and is based on professional judgment and available information, focusing on the Project's potential interactions with other developments.

8.1 Cumulative Effects Assessment Methodology

The Cumulative Effects Assessment was conducted utilizing aspects of Impact Assessment Agency of Canada's guidelines, incorporating a structured approach to identify, analyze, and evaluate cumulative effects. This process included scoping, analysis of pathways, and determination of cumulative effect significance.

8.1.1 Scoping and Boundaries

The scope of the Cumulative Effects Assessment was informed by the net effects identified during the Project's effects assessment. Due to limited detailed information on the net effects of other projects, the assessment uses a high-level approach to evaluate how the Project's net effects might interact with other Projects. This involves making reasonable assumptions based on professional judgment and known activities of other projects.

The spatial boundaries of the assessment encompassed the airport vicinity, the waterfront, and adjacent urban areas where interactions with other activities may occur. Temporal boundaries included the construction phase (2026–2028) and operational phase (2028–2045).

8.1.2 Determining Potential Significance: Cumulative Effects Evaluation Decision Matrix

To evaluate the potential significance of cumulative effects, a high-level qualitative approach was applied, using professional judgment to determine magnitude, extent, duration, frequency, and reversibility of potential interactions. Each of these criteria contributes to the final significance rating (negligible, minor, moderate, or significant) based on its relative importance and the context of the effect.

Given the high-level nature of this assessment and the reliance on professional judgment, an Evaluation Decision Matrix is used to qualitatively characterize the potential significance of cumulative effects and provide transparency into the process.

The Matrix does not function as a checklist or a formula where certain criteria automatically dictate the outcome. Instead, it provides a framework to ensure that relevant aspects are considered and uses professional judgement to balance the criteria and determine the appropriate significance levels. This process recognizes that while all criteria are important, they may not all contribute equally to the overall significance of the cumulative effect.

To come to a final decision on overall significance professional judgment is used to apply contextual weighting of the criteria:

- **Magnitude** is the primary and most influential criterion as it reflects the degree of change to environmental component. A higher magnitude generally suggests a greater significance, so it is given the most weight.
- **Duration** and **extent** can elevate significance if they are at the high end of the scale (e.g., long-term duration or regional extent), even when magnitude is low. This is the same for **frequency** and **reversibility** (e.g., when continuous or irreversible).
- If most criteria suggest a lower significance (e.g., low magnitude, localized extent, intermittent frequency, full reversibility), but one criterion is at a higher level (e.g., long-term duration), the Overall Significance may still be elevated.
- **A single criterion does not automatically determine the overall significance.** Instead, the interplay between all criteria is considered as well as the overall context, including consideration of the possibility of the effect to substantially alter the environmental component.

The Evaluation Decision Matrix is presented **Table 8-1**.

8.1.3 Net Effects Considered

The following net effects were carried forward from the Project's effects assessment:

- Noise increases during construction.
- Temporary air quality degradation during construction.
- Habitat alteration in aquatic and terrestrial environments.
- Traffic disruptions during construction.

These net effects were analyzed to determine how they may interact cumulatively with other projects.

Table 8-1: Cumulative Effect Evaluation Decision Matrix

Magnitude	Extent	Duration	Frequency	Reversibility	Overall Significance
Negligible	Localized	Short-term	Rare / Infrequent	Fully Reversible	■ When all criteria are at the lowest levels the Overall Significance is Negligible. ■ No appreciable cumulative effect; no mitigation required.
Low to Moderate	Local to Regional	Medium-term	Intermittent	Fully Reversible	■ If most criteria are at lower levels but one or two are higher the Overall Significance may be Minor. ■ Minor effect is noticeable but manageable through standard mitigation.
Moderate	Local to Regional	Long-term	Regular	Partially Reversible	■ When several criteria are at moderate levels the overall significance is Moderate. ■ Moderate effect requires enhanced mitigation and monitoring to remain within acceptable thresholds.
High	Regional to Beyond	Long-term	Regular/ Continuous	Irreversible	■ If most criterion are at the highest levels the overall significance is Significant. ■ Significant effect exceeds thresholds of acceptability, requiring extensive mitigation and possibly justification to proceed.

8.2 Other Projects or Activities Considered

Past, existing and reasonably foreseeable projects that could interact with the Project were included in the cumulative effects assessment. Physical activities are included in the assessment based on their potential to interact with Project effects.

8.2.1 Airport Past, Current and Future Projects

Over the past decade, Billy Bishop Toronto City Airport has undertaken several significant projects, including the ongoing Renewable Energy Initiative (2010-present), which aims to power operations with renewable energy. In 2012, the airport undertook a lakefill project within the westernmost Marine Exclusion Zone, filling an area of approximately 5,000 m². The enhanced marine vessel safety by preventing entry in areas close to flight paths and was accompanied by an Environmental Assessment to evaluate the impact on fish habitats, water quality, and other environmental features. The opening of a pedestrian tunnel in 2015 focused on improving public accessibility. A Noise Management Program was implemented in 2017 to mitigate noise pollution. Finally, the Airfield Rehabilitation Program (2016-2019) modernized infrastructure and reduced energy usage. Looking ahead, the airport plans to introduce US Customs and Border Protection Preclearance by 2025, carry out critical infrastructure upgrades for which the Government of Canada invested \$30 million in June 2023, in addition to ongoing updates to the airport's master plan to guide future growth and development, ensuring continued modernization and enhanced passenger experience.

8.2.2 City of Toronto Past, Current and Future Projects

The downtown and waterfront core of Toronto remains an active area for municipal construction undertakings. The subsequent subsections outline ongoing and planned future construction works by the City of Toronto relative to the Project Study Area. In particular, ongoing and planned future construction work was considered within the area defined by Front Street to the north, Spadina Avenue to the east, along the waterfront including Billy Bishop Toronto City Airport lands to the south, and Strachan Avenue to the west.

8.2.2.1 Municipal Infrastructure & Development Projects

8.2.2.1.1 Lakeshore Boulevard West

Lakeshore Boulevard West has ongoing and planned future utility work between 2024-2026, including overhead and underground civil and electrical work, as well as the replacement of gas mains. Additionally, neighbourhood improvements, road repairs, watermain replacements, and minor transit rehabilitation works are scheduled between 2024 and 2025. Net effects associated with these planned works may include

occasional and intermittent traffic delays during the minor improvement, repair, and replacement works.

8.2.2.1.2 Gardiner Expressway Strategic Rehabilitation Plan

The Gardiner Expressway Strategic Rehabilitation Plan is a 6-phase large-scale project to rehabilitate the heavily used expressway, between Highway 427 to 300 metres east of Dufferin Street. The project is currently in its second phase, undergoing significant rehabilitation between Dufferin Street and Strachan Avenue. Traffic management measures such as lane closures and shifts are in place, with construction scheduled from 7:00 a.m. to 11:00 p.m., Monday to Saturday, and occasional Sunday work.

Phase 2 of this rehabilitation project is anticipated to be completed by spring 2026, with efforts being made to accelerate the timeline. This rehabilitation project will likely cause increased traffic congestion within proximity to the Project Study Area, with both projects' construction coinciding in 2026.

8.2.2.1.3 East Bayfront Project

The East Bayfront Project is part of Waterfront Toronto's broader revitalization efforts to transform the city's waterfront, revitalizing a former industrial area into a vibrant mixed-use district. The East Bayfront Project study area extends between Lower Jarvis Street to Parliament Street, from Lake Shore Boulevard to the waterfront, incorporating new and rehabilitating existing residential buildings, commercial spaces, and institutions like Corus Entertainment and George Brown College. This city project has been implemented in various phases, the first phase beginning in 2010, the second phase in 2017, and the final phase expected to be completed in 2025.

8.2.2.1.4 Don River and Central Waterfront Wet Weather Flow System

The Don River and Central Waterfront Wet Weather Flow System in Toronto is a significant stormwater management project aimed at improving water quality along a 22-kilometre tunnel system throughout the Lower Don River, Taylor-Massey Creek, and Toronto's Inner Harbour. This project includes weather flow storage shafts and offline storage tanks to manage excess water during heavy rain. As of July 2024, the Coxwell Bypass Tunnel is nearing completion, with three of the five main shafts scheduled for completion in 2024. The next phase of this project is the Inner Harbour West Tunnel, currently in its design phase, with construction anticipated to begin in 2029. Construction of the Inner Harbour West Tunnel phase is not expected to coincide with the construction of the Project. The final phase of this project is the Taylor-Massey Creek Tunnel, currently in its early planning stages, with a footprint and timeline not applicable to the Project.

8.2.2.1.5 Lake Shore Boulevard East Reconfiguration

The City of Toronto's Lake Shore Boulevard East project aims to enhance the public realm and infrastructure along the corridor. The Lake Shore Boulevard East Reconfiguration Project's study area includes the easternmost portion of the Gardiner Expressway, an approximate 2.4 kilometre section of road east of Jarvis Street to approximately Logan Avenue. Key improvements include new sidewalks, a bi-directional cycling trail, and green spaces to boost connectivity to the waterfront. The project is being co-ordinate alongside the Gardiner Expressway Strategic Rehabilitation Plan, involving the removal of Gardiner/Logan ramps and widening the Lake Shore Bridge at Don Roadway for better traffic flow and pedestrian/ cyclist paths. Additionally, the bridge's expansion supports flood protection efforts as part of the Port Lands Flood Protection initiative. Construction began in September 2021 and is expected to be completed by 2025, before the construction of Ports Toronto's RESA is set to begin.

8.2.3 Provincial and Regional Projects

8.2.3.1 Ontario Place Revitalization

The Ontario Place Revitalization project, an undertaking of Infrastructure Ontario and the Ministry of Infrastructure, is a comprehensive redevelopment of the Ontario Place site. The project has included multiple phases, beginning with the opening of Trillium Park and the William G. Davis Trail in 2017. The government proceeded with public consultations and Environmental Assessment in 2021, with significant upgrades to infrastructure such as sewage, water, electrical, and gas services. Additionally, site servicing and building repair work is ongoing and continuing in 2025, involving structural repairs as well as improvements to cladding and lighting.

8.2.3.2 Metrolinx

Metrolinx has ongoing and planned future work in the downtown Toronto area. Metrolinx has recently began developing the new 15.6 kilometre Ontario Line, with 15 new stations from Exhibition Place, through the heart of downtown, to the Eglinton Crosstown Light Rail Transit at Don Mills Road. Construction for the Ontario Line is currently underway and forecasted to continue until 2041, with the construction of new tunnels, construction of new stations and/or revitalization of existing stations, and other construction activities along the Ontario Line corridor. Pertinent to the Project Study Area, the west segment of the Ontario Line is anticipated to present traffic, transit, and pedestrian delays during construction, namely along Bathurst Street between King Street West and Queen Street West (2022-2031).

8.2.3.3 Toronto Island Park Flood and Erosion Mitigation Project

Initiated by Toronto and Region Conservation Authority and the City of Toronto, the Toronto Island Park Flood and Erosion Mitigation Project seeks to safeguard the park against future flooding and rising lake levels, following significant flooding in 2017 and 2019. The project is following Ontario's Class Environmental Assessment for Remedial Flood and Erosion Control Projects. This project is currently in its second round of engagement, undergoing detailed environmental screening of the preferred alternative.

8.2.3.4 The Port Lands Flood Protection Project

The Port Lands Flood Protection Project is a comprehensive plan for flood protecting 290 hectares (715 acres) of southeastern downtown Toronto, including areas at risk of flooding in the Port Lands, South Riverdale, Leslieville, south of Eastern Avenue, and the First Gulf/Unilever development site. The Lake Shore Boulevard East Reconfiguration Project's study area includes the easternmost portion of the Gardiner Expressway, an approximate 2.4-kilometre section of road east of Jarvis Street to approximately Logan Avenue.

The Port Lands Flood Protection Project was initiated in 2016, with preceding key milestones including the removal of the Logan Avenue ramps and the start of work on the Lake Shore Bridge over the Don River in 2021, and ongoing construction of parks, roads, and bridges through 2022-2023. The project is expected to be substantially completed by the end of 2024, with sequential opening of parks and public realm spaces into 2025.

8.3 Cumulative Effects Analysis

This Section applies the Evaluation Decision Matrix (**Table 8-1**) to assess how each Project Net Effect carried forward into the cumulative effects assessment interacts with other projects or activities identified earlier. The Project Net Effects include noise increases during construction, temporary air quality degradation during construction, habitat alteration in aquatic and terrestrial environments, and traffic disruptions during construction.

A separate table is provided for each Project Net Effect analyzing its interaction with other Projects or activities (**Tables 8-2, 8-3, 8-4 and 8-5**). These tables summarize details about the other projects or activities, such as their timelines, distances from the Project, descriptions, potential cumulative effect pathways, and proposed mitigation measures. Each table also includes an evaluation of the overall significance of the cumulative effect, along with a justification for the determination.

Effects are described separately for RESA 1, RESA 2, and RESA 3 where differences are expected—primarily based on the construction duration (18, 21, and 24 months, respectively), total Project footprint, and associated likelihood of temporal and spatial overlap with other projects.

Table 8-2: Cumulative Effects Analysis for Noise Increases During Construction

Name of Undertaking	Timeline/ Status	Distance from Project	Description of Activities	Potential Cumulative Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Mitigation Measures	Overall Significance	Justification
Airfield Rehabilitation Project	Completed in 2018	At Billy Bishop Toronto City Airport	Modernization: reconstructed runways, taxiways, installed LED lighting, and noise-reduction infrastructure.	The Airfield Rehabilitation Project was completed prior to the commencement of this Project's construction activities. There will be no temporal overlap between the two projects construction phases. The previous project has already implemented noise-reduction measures that benefit current airport operations. Therefore, there is no potential for cumulative noise effects during construction.	Low	Localized	Short-term	Infrequent	Fully Reversible	No mitigation required.	Negligible: No cumulative noise effect.	All criteria are at the lowest levels due to the lack of temporal overlap and the completed nature of the Airfield Rehabilitation Project. According to the Evaluation Decision Matrix, when all criteria are at the lowest levels, the overall significance is negligible.
Lakeshore Boulevard West	Ongoing (2023–2026)	0.4 kilometres to 1.2 kilometres	Utility upgrades, road repairs, and transit improvements.	The Project's nighttime construction is assumed to have limited temporal overlap with the construction activities of these projects. Compliance with nighttime noise regulations reduces potential disturbances. The spatial separation and existing urban noise levels further reduce the potential for cumulative noise effects.	Low	Localized	Short-Term	Infrequent	Fully Reversible	Maintain communication with municipal project teams to co-ordinate any necessary activities and avoid overlap in construction schedules for activities in close proximity. Implement standard noise control measures during construction. Maintain regular communication with affected communities, addressing concerns, and adjusting mitigation strategies as needed. No RESA-specific adjustment is required.	Negligible: No cumulative noise effect.	Magnitude is low due to minimal overlap in noisy activities and urban ambient noise levels. With criteria such as extent, duration, frequency, and reversibility at the lowest levels, the overall significance is negligible according to the Decision Matrix. All three RESA alternatives temporally overlap for the same period, as each alternative spans at least 18 months, coinciding with Lakeshore Boulevard West's final construction year. There is no difference in the cumulative effects for the alternatives.

Name of Undertaking	Timeline/ Status	Distance from Project	Description of Activities	Potential Cumulative Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Mitigation Measures	Overall Significance	Justification
Gardiner Expressway Strategic Rehabilitation Plan	Ongoing (2015–2026)	1.3 kilometres to 2.2 kilometres	Rehabilitation: structural repairs, lane closures, and traffic management.	The Gardiner Expressway Rehabilitation Plan includes nighttime construction activities that may coincide with this Project's nighttime work. Potential cumulative noise effects could occur due to simultaneous operations. However, the distance between the projects and the presence of existing urban noise reduce the potential effect on sensitive receptors.	Moderate	Localized	Short-term	Occasional	Fully Reversible	Co-ordinate with the Gardiner project team to minimize overlapping noisy activities. Implement noise suppression techniques, use low-noise equipment, and schedule the loudest operations earlier in the night. Provide community notifications about construction schedules. Maintain regular communication with affected communities, addressing concerns, and adjusting mitigation strategies as needed. No RESA-specific adjustment is required.	Minor: Manageable through mitigation and communication strategies.	With magnitude at a moderate level due to potential overlap but other criteria at lower levels, and effective mitigation measures in place, the overall significance is determined to be minor according to the Decision Matrix. All three RESA alternatives temporally overlap for the same period, as each alternative spans at least 18 months, coinciding with Lakeshore Boulevard West's final construction year. There is no difference in the cumulative effects for the alternatives
East Bayfront Project	Ongoing (2010–2025)	2.7 kilometres	Redevelopment: residential, commercial, and institutional spaces.	The East Bayfront Project may have construction that occurs at night that could overlap with the Project. However, it is assumed that the East-Bayfront Project would be competed with limited to no temporal overlap between construction activities. Additionally, the distance between the projects and urban ambient noise levels reduces the potential for cumulative noise effects.	Low	Localized	Short-term	Infrequent	Fully Reversible	No mitigation required.	Negligible: no cumulative noise effect.	All criteria are at the lowest levels, leading to a negligible overall significance as per the Decision Matrix. Limited temporal and spatial overlap and urban ambient noise levels minimizes cumulative noise effects.

Name of Undertaking	Timeline/ Status	Distance from Project	Description of Activities	Potential Cumulative Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Mitigation Measures	Overall Significance	Justification
Ontario Place Revitalization Project	Ongoing (2017–future)	1.8 kilometres	Infrastructure upgrades, public space enhancements, and redevelopment activities.	The Ontario Place Revitalization Project has construction activities that may coincide with the Project's nighttime work. Potential cumulative noise effects could occur due to simultaneous operations. However, the distance between the projects and the presence of existing urban noise reduce the potential effect on sensitive receptors. RESA 3 (compared to RESA 1 and RESA 2) has a slightly higher potential for overlap and cumulative effects due to its longer construction period.	Moderate	Localized	Short-term	Infrequent (Slight increase in frequency from RESA 1 to RESA 2 and RESA 3)	Fully Reversible	Co-ordinate with the Ontario Place Revitalization project team to minimize overlapping noisy activities. Implement noise suppression techniques, use low-noise equipment, and schedule the loudest operations earlier in the night. Provide community notifications about construction schedules. Maintain regular communication with affected communities, addressing concerns, and adjusting mitigation strategies as needed. No RESA-specific adjustment is required.	Minor: Manageable through mitigation and communication strategies.	With magnitude at a moderate level due to potential overlap and distance to the Project, but other criteria at lower levels, and effective mitigation measures in place, the overall significance is determined to be minor according to the Decision Matrix. While RESA 3 may have a marginally greater cumulative effect relative to RESA 2 and RESA 1 primarily due to its longer construction period, interaction with this undertaking is still considered infrequent, leading to no difference in the overall rating for the alternatives.
Metrolinx Ontario Line Transit Project	Ongoing (2022–2031)	1.4 kilometres	Transit expansion: tunnels, stations, and infrastructure improvements.	The Metrolinx Ontario Line Transit Project includes nighttime construction activities that may temporally overlap with the Project. Potential cumulative noise effects could occur due to simultaneous nighttime operations. However, the distance between the projects and existing urban noise levels help mitigate the potential effect on sensitive receptors.	Moderate	Localized	Short-term	Occasional (Slight increase in frequency from RESA 1 to RESA 2 and RESA 3)	Fully Reversible	Co-ordinate scheduling with Metrolinx to avoid simultaneous noisy activities when possible. Utilize noise suppression equipment and techniques. Provide community notifications about construction activities Maintain regular communication with affected communities, addressing concerns, and adjusting mitigation strategies as needed. No RESA-specific adjustment is required.	Minor: Manageable through mitigation and communication strategies.	With magnitude at moderate due to potential overlap, but other criteria at lower levels, and effective mitigation in place, the overall significance is minor per the Decision Matrix. While RESA 3 may have a marginally greater cumulative effect relative to RESA 2 and RESA 1 primarily due to its longer construction period, interaction with this undertaking is still considered infrequent, leading to no difference in the overall rating for the alternatives.

Name of Undertaking	Timeline/ Status	Distance from Project	Description of Activities	Potential Cumulative Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Mitigation Measures	Overall Significance	Justification
Toronto Island Park Flood Mitigation	Ongoing (2021–current)	0.7 kilometres to 3.7 kilometres	Flood and erosion control measures for Toronto Island Park.	It is assumed that the Toronto Island Park Flood Mitigation construction activities occur primarily during daytime hours, resulting in limited temporal overlap with this Project’s nighttime construction. The distance between the projects and the presence of existing urban noise reduces the potential effect on sensitive receptors. RESA 3 (compared to RESA 1 and RESA 2) has a slightly higher potential for overlap and cumulative effects due to its longer construction period.	Low	Localized	Short-term	Infrequent (Slight increase in frequency from RESA 1 to RESA 2 and RESA 3)	Fully Reversible	Collaborate with flood mitigation Project Teams to co-ordinate any noisy activities as required. No RESA-specific adjustment is required.	Negligible: No cumulative noise effect	All criteria are at the lowest levels. Magnitude is low due to Limited temporal overlap and existing urban sounds result in negligible cumulative effects according to the Decision Matrix. While RESA 3 may have a marginally greater cumulative effect relative to RESA 2 and RESA 1 primarily due to its longer construction period, interaction with this undertaking is still considered infrequent, leading to no difference in the overall rating for the alternatives.
Port Lands Flood Protection Project	Ongoing (2016–2025)	3.7 kilometres	Flood protection and rehabilitation in Port Lands and adjacent areas.	The Port Lands Flood Protection Project is expected to be completed before this Project’s construction phase begins. There will be no temporal overlap, eliminating the potential for cumulative noise effects during construction.	Low	Localized	Short-Term	Infrequent	Fully Reversible	No mitigation required.	Negligible: No cumulative noise effect.	With no temporal overlap and criteria at the lowest levels, the overall significance is negligible as per the Evaluation Decision Matrix.
Lake Shore Boulevard East Reconfiguration	Ongoing (2022–2025)	4.5 kilometres	Roadway, bridge, and traffic system improvements.	The Lake Shore Boulevard East Reconfiguration Project is scheduled for completion before this Project commences construction. There will be no temporal overlap, and the distance further reduces any potential for cumulative noise effects.	Low	Localized	Short-Term	Infrequent	Fully Reversible	No mitigation required.	Negligible: No cumulative noise effect.	All criteria are at the lowest levels with no temporal overlap, resulting in negligible overall significance according to the Evaluation Decision Matrix.

Table 8-3: Cumulative Effects Analysis for Temporary Air Quality Degradation During Construction

Name of Undertaking	Timeline/ Status	Distance from Project	Description of Activities	Potential Cumulative Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Mitigation Measures	Overall Significance	Justification
Airfield Rehabilitation Project	Completed in 2018	At Billy Bishop Toronto City Airport	Modernization: reconstructed runways, taxiways, installed LED lighting, and noise-reduction infrastructure.	The Airfield Rehabilitation Project was completed prior to this Project's construction phase. There is no temporal overlap, and therefore, no potential for cumulative air quality effects during construction. The previous project may have improved air quality during operation due to energy-efficient upgrades, potentially contributing positively to cumulative air quality effects.	Low	Localized	Short-Term	Infrequent	Fully Reversible	No mitigation required.	Negligible: No cumulative air quality effect.	All criteria are at the lowest levels due to lack of temporal overlap and completed nature of the previous project. According to the Evaluation Decision Matrix, the overall significance is negligible.
Lakeshore Boulevard West	Ongoing (2023–2026)	0.4 kilometres to 1.2 kilometres	Utility upgrades, road repairs, and transit improvements.	The Project's nighttime construction is assumed to have limited temporal overlap with the construction activities of these projects. Additionally, this Project plans to transport all the construction materials and equipment by barge, significantly reducing vehicular emissions on local roads. The limited overlap and reduced road traffic minimize potential cumulative air quality effects.	Low	Localized	Short-Term	Infrequent	Fully Reversible	No mitigation required.	Negligible: No cumulative air quality effect	Magnitude is low due to minimized emissions and limited temporal and spatial overlap. With other criteria at the lowest levels, the overall significance is negligible according to the Evaluation Decision Matrix. All three RESA alternatives temporally overlap for the same period, as each alternative spans at least 18 months, coinciding with Lakeshore Boulevard West's final construction year. There is no difference in the cumulative effects for the alternatives.
Gardiner Expressway Rehabilitation Plan	Ongoing (2015–2026)	1.3 kilometres to 2.2 kilometres	Rehabilitation: structural repairs, lane closures, and traffic management.	The Gardiner Expressway Rehabilitation Plan may contribute to increased vehicular emissions due to traffic congestion from lane closures and detours as well as localized effects to air quality due to construction (e.g., dust). This Project mitigates additional traffic emissions by conducting construction at night and transporting materials by barge. It also uses dust suppression measures. Limited temporal overlap and reduced contribution to road traffic minimize potential cumulative air quality effects.	Low	Localized	Short-Term	Infrequent	Fully Reversible	No mitigation required.	Negligible: Minimal cumulative air quality effect	Magnitude is low due to minimized emissions and limited temporal and spatial overlap. With other criteria at the lowest levels, the overall significance is negligible according to the Evaluation Decision Matrix. All three RESA alternatives temporally overlap for the same period, as each alternative spans at least 18 months, coinciding with Lakeshore Boulevard West's final construction year. There is no difference in the cumulative effects for the alternatives.

Name of Undertaking	Timeline/ Status	Distance from Project	Description of Activities	Potential Cumulative Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Mitigation Measures	Overall Significance	Justification
East Bayfront Project	Ongoing (2010–2025)	2.7 kilometres	Redevelopment: residential, commercial, and institutional spaces.	It is expected that the Project’s construction schedule will not coincide with the East Bayfront Project, so there will be limited cumulative effects as result of construction air quality degradation.	Low	Localized	Short-Term	Infrequent	Fully Reversible	No mitigation required.	Negligible: No cumulative air quality effect.	With all criteria at the lowest levels and limited potential for cumulative effects, the overall significance is negligible according to the Evaluation Decision Matrix.
Ontario Place Revitalization Project	Ongoing (2017–Future)	1.8 kilometres	Infrastructure upgrades, public space enhancements, and redevelopment activities.	The Ontario Place Revitalization Project has construction activities that may coincide with this Project’s nighttime work and may contribute to cumulative air emissions that could temporally overlap with the Project. However, the distance between the projects and this Project’s reliance on barging materials reduce the potential for significant cumulative air quality effects that could result from increased construction traffic or construction dust emissions.	Low	Localized	Short-Term	Infrequent (Slight increase in frequency from RESA 1 to RESA 2 and RESA 3)	Fully Reversible	No mitigation required.	Negligible: No cumulative air quality effect.	All criteria are at the lowest levels with limited temporal and spatial overlap, resulting in negligible overall significance as per the Evaluation Decision Matrix. While RESA 3 may have a marginally greater cumulative effect relative to RESA 2 and RESA 1 primarily due to its longer construction period, interaction with this undertaking is still considered infrequent, leading to no difference in the overall rating for the alternatives.
Metrolinx Ontario Line Transit Project	Ongoing (2022–2031)	1.4 kilometres	Transit expansion: tunnels, stations, and infrastructure improvements.	Construction dust, emissions interact with similar effects from Project activities, compounding air quality effects in localized areas during the overlapping construction period (2026–2028). However, due to the distance and assumed limited temporal overlap in construction activities, and the Project implementing Construction Air Quality Management Plan, cumulative effects to air quality are minimized.	Low	Localized	Short-term	Infrequent (Slight increase in frequency from RESA 1 to RESA 2 and RESA 3)	Fully Reversible	No mitigation required.	Negligible: No cumulative air quality effect.	All criteria are at the lowest levels with limited temporal and spatial overlap, resulting in negligible overall significance as per the Evaluation Decision Matrix. While RESA 3 may have a marginally greater cumulative effect relative to RESA 2 and RESA 1 primarily due to its longer construction period, interaction with this undertaking is still considered infrequent, leading to no difference in the overall rating for the alternatives.

Name of Undertaking	Timeline/ Status	Distance from Project	Description of Activities	Potential Cumulative Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Mitigation Measures	Overall Significance	Justification
Toronto Island Park Flood Mitigation	Ongoing (2021–current)	0.7 kilometres to 3.7 kilometres	Flood and erosion control measures for Toronto Island Park.	It is assumed the Toronto Island Park Flood Mitigation activities occur during daytime hours with limited temporal overlap. This Project’s use of barging and nighttime scheduling further minimize potential air quality cumulative effects that may result from increase road traffic during construction.	Low	Localized	Short-term	Infrequent (Slight increase in frequency from RESA 1 to RESA 2 and RESA 3)	Fully Reversible	No mitigation required.	Negligible: No cumulative air quality effect.	All criteria are at the lowest levels with limited temporal and spatial overlap, resulting in negligible overall significance as per the Evaluation Decision Matrix. While RESA 3 may have a marginally greater cumulative effect relative to RESA 2 and RESA 1 primarily due to its longer construction period, interaction with this undertaking is still considered infrequent, leading to no difference in the overall rating for the alternatives.
Port Lands Flood Protection Project	Ongoing (2016–2025)	3.7 kilometres	Flood protection and rehabilitation in Port Lands and adjacent areas.	The Port Lands Flood Protection Project is expected to be completed prior to this Project’s construction phase. There will be no temporal overlap, eliminating potential cumulative air quality effects during construction.	Low	Localized	Short-term	Infrequent	Fully Reversible	No mitigation required	Negligible: No cumulative air quality effect.	With no temporal overlap and all criteria at the lowest levels, the overall significance is negligible according to the Evaluation Decision Matrix.
Lake Shore Boulevard East Reconfiguration	Ongoing (2022–2025)	4.5 kilometres	Roadway, bridge, and traffic system improvements.	The Lake Shore Boulevard East Reconfiguration Project is scheduled for completion before this Project commences construction. There will be no temporal overlap, and the distance reduces any potential for cumulative air quality effects.	Low	Localized	Short-term	Infrequent	Fully Reversible	No mitigation required	Negligible: No cumulative air quality effect.	With no temporal overlap and all criteria at the lowest levels, the overall significance is negligible according to the Evaluation Decision Matrix.

Table 8-4: Cumulative Effects Analysis for Habitat Alteration

Name of Undertaking	Timeline/ Status	Distance from Project	Description of Activities	Potential Cumulative Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Mitigation Measures	Overall Significance	Justification
Airfield Rehabilitation Project	Completed in 2018	At Billy Bishop Toronto City Airport	Modernization: reconstructed runways, taxiways, installed LED lighting, and noise-reduction infrastructure. Also included lakefill project within the westernmost marine exclusion zone, filling approximately 5,000 m² to enhance marine vessel safety by preventing entry into areas close to flight paths.	The Airfield Rehabilitation Project included a lakefill component in 2012, resulting in the permanent alteration of approximately 5,000 m² of aquatic habitat. This habitat loss may contribute cumulatively to the habitat alteration effects of the Project, which also involves lakefilling activities. The cumulative effect pathway involves the additive loss of aquatic habitat in Lake Ontario, potentially affecting benthic organisms, fish habitats, and overall aquatic and terrestrial ecosystem function when combined with this Project’s lakefilling. For all RESA alternatives aquatic and terrestrial habitat effects remain moderate; however, when disaggregated: ■ RESA 1: Results in moderate aquatic habitat loss with only minimal adjacent terrestrial disturbance. ■ RESA 2: The increased landmass required (via taxiway improvements) increases both aquatic and terrestrial loss. ■ RESA 3: The substantially larger fill area produces a notably higher cumulative loss of aquatic habitat and greater terrestrial effects.	Moderate	Local-Regional	Long-Term	Occasional	Partially Reversible	RESA 1, RESA 2 and RESA 3: Co-ordinate with historical data from the 2012 lakefill project to enhance habitat restoration efforts. As effect increases progressively from RESA 1 to RESA 2 to RESA 3, mitigation measures should be scaled accordingly. While RESA 1 should include standard habitat offsetting as agreed to through consultation with relevant agencies and stakeholders RESA 2, and even more so, RESA 3 should consider expanded vegetation buffer zones, enhanced re-vegetation, and focused, robust aquatic compensation that considers migration pathways and regional ecosystem health.	Moderate: Significant but mitigable cumulative effect.	Magnitude is moderate due to the combined loss of aquatic and terrestrial habitat. Extent is local to regional as cumulative habitat loss could lead to regional ecosystem impacts. Duration is long-term, as habitat restoration takes time to mature. Frequency is occasional, associated with specific construction phases. Reversibility is partial through successful habitat compensation. According to the Evaluation Decision Matrix, several criteria at moderate levels result in a moderate overall significance. Effective mitigation can reduce effects over time. Although RESA 3 has a marginally greater cumulative effect due to its larger footprint relative to RESA 2 and even more so RESA 1, the extent of potential cumulative effects is still considered local-regional, leading to no difference in the overall significance rating between alternatives.

Name of Undertaking	Timeline/ Status	Distance from Project	Description of Activities	Potential Cumulative Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Mitigation Measures	Overall Significance	Justification
Lakeshore Boulevard West	Ongoing (2023–2026)	0.4 kilometres to 1.2 kilometres	Utility upgrades, road repairs, and transit improvements.	These projects are conducted within developed urban settings, primarily along existing roads and infrastructure corridors. There is minimal interaction with aquatic habitats, as activities are confined to terrestrial environments already altered by human activity. There is expected to be little to no spatial overlap with the aquatic or terrestrial habitats affected by the Project. The expanded footprint of RESA 3 increases both aquatic and terrestrial alteration, resulting in a marginally greater (but still moderate) cumulative effect relative to RESA 1 and RESA 2 .	low	Localized	Short-term	Infrequent	Fully Reversible	No mitigation required.	Negligible: no cumulative habitat effect.	Magnitude is low due to limited habitat interaction. With other criteria at the lowest levels, the overall significance is negligible according to the Evaluation Decision Matrix. The developed urban context and minimal spatial overlap keep cumulative effects negligible regardless of RESA alternative, even with the larger footprint of RESA 3 .
Gardiner Expressway Rehabilitation Plan	Ongoing (2015–2026)	1.3 kilometres to 2.2 kilometres	Rehabilitation: structural repairs, lane closures, and traffic management.	The effect of rehabilitation work is limited to the footprint of the existing Gardiner Expressway, an elevated roadway in a highly urbanized area. There is no direct interaction with aquatic or terrestrial habitats affected by the Project, as activities are confined to the expressway structure and adjacent roadways.	Low	Localized	Short-term	Infrequent	Fully Reversible	No mitigation required.	Negligible: no cumulative habitat effect.	All criteria are at the lowest levels. The Gardiner Expressway Rehabilitation Plan does not affect aquatic or terrestrial habitats affected by the Project, and there is no spatial overlap with the Project’s lakefilling activities. Therefore, the overall significance is negligible according to the Evaluation Decision Matrix.

Name of Undertaking	Timeline/ Status	Distance from Project	Description of Activities	Potential Cumulative Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Mitigation Measures	Overall Significance	Justification
East Bayfront Project	Ongoing (2010–2025)	2.7 kilometres	Redevelopment: residential, commercial, and institutional spaces. These activities include shoreline developments.	The East Bayfront Project includes development along Lake Ontario’s shoreline, potentially involving minor shoreline modifications or stabilization works. Any in-water works would be subject to environmental assessments and regulatory approvals to mitigate effects on aquatic habitats. The Project and East Bayfront are approximately 2.7 kilometres apart, with no direct overlap in the aquatic habitats affected. While both projects are along the waterfront, the spatial separation reduces the likelihood of cumulative effects on the same aquatic habitats. However, there may be cumulative regional effects on Lake Ontario’s aquatic ecosystem due to multiple shoreline developments reducing available habitat. Similar can be said for the terrestrial habitats and continued regional alteration. The expanded footprint of RESA 3 increases both aquatic and terrestrial alteration, resulting in a marginally greater (but still moderate) cumulative effect relative to RESA 1 and RESA 2 .	Moderate	Regional	Long-term	Occasional	Partially Reversible	RESA 1, RESA 2 and RESA 3 : Collaborate with the East Bayfront Project proponents to co-ordinate habitat restoration efforts, aiming to contribute to regional aquatic and terrestrial habitat networks and improve overall ecosystem health. As effect increases progressively from RESA 1 to RESA 2 to RESA 3 , mitigation measures should be scaled accordingly. While RESA 1 should include standard habitat offsetting as agreed to through consultation with relevant agencies and stakeholders RESA 2 , and even more so, RESA 3 should consider expanded vegetation buffer zones, enhanced re-vegetation, and focused, robust aquatic compensation that considers migration pathways and regional ecosystem health.	Minor: Effects are manageable with mitigation and co-ordination.	The magnitude is moderate due to potential regional cumulative effects on aquatic or terrestrial habitats from multiple shoreline projects. The extent is regional, the duration is long-term, frequency is occasional, and reversibility is partial. With effective mitigation and co-ordination, the overall significance is reduced to minor according to the Evaluation Decision Matrix. Although RESA 3 has a marginally greater cumulative effect due to its larger footprint relative to RESA 2 and even more so RESA 1 , the extent of potential cumulative effects is still considered regional, leading to no difference in the overall significance rating between alternatives.

Name of Undertaking	Timeline/ Status	Distance from Project	Description of Activities	Potential Cumulative Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Mitigation Measures	Overall Significance	Justification
Ontario Place Revitalization Project	Ongoing (2017– Future)	1.8 kilometres	Infrastructure upgrades, public space enhancements, and redevelopment activities.	The Ontario Place Revitalization may involve shoreline works such as repair, stabilization, or enhancement. These activities could temporarily disturb aquatic or terrestrial habitats or result in minor habitat alteration. Ontario Place is approximately 1.8 kilometres west of the Project site. While there is no direct overlap in the specific aquatic habitats affected, both projects are within the western waterfront area of Toronto, contributing to cumulative habitat alterations in Lake Ontario. The additive effects of multiple projects could lead to incremental loss or modification of aquatic habitats in the region. The expanded footprint of RESA 3 increases both aquatic and terrestrial alteration, resulting in a marginally greater (but still moderate) cumulative effect relative to RESA 1 and RESA 2 .	Moderate	Regional	Long-term	Occasional	Partially Reversible	RESA 1, RESA 2 and RESA 3 : Co-ordinate with Ontario Place proponents to align habitat restoration efforts, potentially creating contiguous or complementary aquatic and terrestrial habitats to enhance regional ecosystem connectivity. As effect increases progressively from RESA 1 to RESA 2 to RESA 3 , mitigation measures should be scaled accordingly. While RESA 1 should include standard habitat offsetting as agreed to through consultation with relevant agencies and stakeholders RESA 2 , and even more so, RESA-3 should consider expanded vegetation buffer zones, enhanced re-vegetation, and focused, robust aquatic compensation that considers migration pathways and regional ecosystem health.	Minor: Effects are manageable with mitigation and co-ordination.	The magnitude is moderate due to cumulative regional effects. With effective mitigation and co-ordination, the overall significance is reduced to minor as per the Evaluation Decision Matrix. Spatial separation reduces the likelihood of significant cumulative effects on the same habitats.

Name of Undertaking	Timeline/ Status	Distance from Project	Description of Activities	Potential Cumulative Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Mitigation Measures	Overall Significance	Justification
Metrolinx Ontario Line Transit Project	Ongoing (2022–2031)	1.4 kilometres	Transit expansion: tunnels, stations, and infrastructure improvements.	The Ontario Line Project includes construction activities at the Lower Don Bridge segment, which spans the Don River. These activities involve in-water works and potential alterations to the riverbed and banks. The Don River is a direct tributary to the Inner Toronto Harbour, where part of the Project’s lakefilling activities will occur. When combined with the Project’s potential effects to aquatic and terrestrial habitats there is an additive effect on the habitats in the Inner Toronto Harbour. The cumulative effect pathway involves both projects contributing to habitat alteration, which can have broader implications for the aquatic ecosystem health of Lake Ontario. The expanded footprint of RESA 3 increases both aquatic and terrestrial alteration, resulting in a marginally greater (but still moderate) cumulative effect relative to RESA 1 and RESA 2 .	Moderate	Regional	Long-term	Occasional	Partially reversible	RESA 1, RESA 2 and RESA 3 : Engage Metrolinx teams to synchronize construction schedules to minimize overlapping periods of peak disturbance. Share data on sediment and contaminant levels to jointly manage and mitigate downstream effects. Collaborate on regional habitat restoration projects to offset cumulative habitat losses. For RESA 3 a more enhanced restoration program should be considered due to the marginally greater cumulative effects (relative to RESA 2 and especially RESA 1). Explore opportunities for creating connected aquatic habitats that benefit fish migration and biodiversity, as well as enhancing connectivity of regional habitats and increased vegetation buffer zones.	Moderate: Significant but mitigable cumulative aquatic habitat effect.	The magnitude of the cumulative effect is moderate due to the combined habitat alterations in both the Don River and the Inner Toronto Harbour, which affect aquatic species and ecosystem functions. The extent is regional, as effects extend from the Don River through the Inner Toronto Harbour, influencing a significant portion of the local aquatic environment. The duration is long-term because the lasting effects on habitats and water quality will persist beyond the construction phase, requiring extended periods for recovery. The frequency is occasional, with intermittent effects aligned with specific construction activities. Reversibility is partially reversible; while mitigation measures can alleviate some effects, full restoration of the original conditions may not be achievable. According to the Evaluation Decision Matrix, the presence of multiple criteria at moderate levels elevates the overall significance to moderate. However, with the implementation of detailed and co-ordinated mitigation measures, the cumulative effects can be managed and reduced over time.

Name of Undertaking	Timeline/ Status	Distance from Project	Description of Activities	Potential Cumulative Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Mitigation Measures	Overall Significance	Justification
Toronto Island Park Flood Mitigation	Ongoing (2021–current)	0.7 kilometres to 3.7 kilometres	Flood and erosion control measures for Toronto Island Park.	The flood mitigation project involves shoreline stabilization and may enhance aquatic and terrestrial habitats through erosion control and habitat creation. Terrestrial effects remain minimal since activities focus on shoreline stabilization. Even for the larger footprint of RESA 3 , additional terrestrial cumulative effects are negligible. While the Project and Toronto Island are separated by approximately 0.7 kilometres of open water, the cumulative effects could be positive if both projects contribute to habitat enhancement. However, there is a potential for sediment displacement during construction to interact, temporarily affecting water quality and aquatic habitats in the vicinity.	Moderate	Localized	Short-Term	Occasional	Fully Reversible	RESA 1, RESA 2 and RESA 3: Co-ordinate with Toronto Island Park project teams to schedule activities to avoid peak periods of sediment disturbance and share monitoring data on water quality to manage cumulative effects. No RESA-specific adjustments are required.	Minor: Manageable cumulative effects with mitigation.	Magnitude is moderate due to potential temporary effects on water quality and aquatic habitats. With effective mitigation and co-ordination, the overall significance is reduced to minor according to the Evaluation Decision Matrix.
Port Lands Flood Protection Project	Ongoing (2016–2025)	3.7 kilometres	Flood protection and rehabilitation in Port Lands and adjacent areas.	This project involves significant habitat restoration, including the creation of wetlands and aquatic habitats, improving ecological function in the area. Although located 3.7 kilometres east of the Project, both contribute to the overall state of aquatic and terrestrial habitats in the Toronto Waterfront. The Project’s habitat compensation efforts can complement the Port Lands restoration, leading to cumulative positive effects on regional aquatic and terrestrial ecosystems.	Low	Regional	Long-term	Occasional	Partially Reversible	For RESA 1, RESA 2 and RESA 3: Collaborate with Port Lands project teams to maximize habitat connectivity and ecological benefits, potentially contributing to larger habitat networks along the waterfront. No RESA-specific adjustments are required.	Negligible: Potential positive cumulative effects.	Magnitude is low as the Port Lands Project is a rehabilitation Project that should improve the regional habitat quality of the Toronto Waterfront Areas. If considered with compensation plans implemented as part of the Project, there is potential for a positive cumulative effect.

Name of Undertaking	Timeline/ Status	Distance from Project	Description of Activities	Potential Cumulative Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Mitigation Measures	Overall Significance	Justification
Lake Shore Boulevard East Reconfiguration	Ongoing (2022–2025)	4.5 kilometres	Roadway, bridge, and traffic system improvements.	The project focuses on roadway improvements and may include naturalization efforts, but is located 4.5 kilometres away from the Project site. There is minimal interaction with aquatic or terrestrial habitats directly related to the Project. Due to the distance and the nature of the activities, there is no significant cumulative effect to terrestrial or aquatic habitats. However, overall efforts to enhance green spaces contribute to regional environmental quality.	Low	Regional	Long-Term	Infrequent	Fully Reversible	RESA 1, RESA 2 and RESA 3: Support regional naturalization efforts where feasible. No specific cumulative mitigation required due to lack of direct effect overlap. No RESA-specific adjustments are required.	Negligible: No cumulative habitat effect.	All criteria are at the lowest levels. The distance and nature of the project result in negligible cumulative effects on aquatic habitats, as per the Evaluation Decision Matrix.

Table 8-5: Cumulative Effects Analysis for Traffic Disruptions During Construction

Name of Undertaking	Timeline/ Status	Distance from Project	Description of Activities	Potential Cumulative Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Mitigation Measures	Overall Significance	Justification
Airfield Rehabilitation Project	Completed in 2018	At Billy Bishop Toronto City Airport	Modernization: reconstructed runways, taxiways, installed LED lighting, and noise-reduction infrastructure.	The Airfield Rehabilitation Project was completed prior to this Project’s construction phase. There is no temporal overlap, and therefore, no potential for cumulative traffic effects during construction.	Low	Localized	Short-term	Infrequent	Fully Reversible	No mitigation required.	Negligible: No cumulative traffic effect.	All criteria are at the lowest levels with no temporal overlap, resulting in negligible overall significance according to the Evaluation Decision Matrix.
Lakeshore Boulevard West	Ongoing (2023–2026)	0.4 kilometres to 1.2 kilometres	Utility upgrades, road repairs, and transit improvements.	The Lakeshore Boulevard West may cause local traffic disruptions during daytime hours due to lane closures or detours. This Project’s construction activities are scheduled for nighttime (11:00 pm to 6:45 am), and all the materials and equipment will be transported by barge. The Project is anticipated to have negligible net negative effects on traffic due to nighttime construction and minimal use of roadways. Any additional traffic disruptions are expected to be minimal and short-term. The cumulative effect pathway involves the potential for minor additive traffic disruptions if both projects require road use simultaneously during nighttime hours.	Low	Localized	Short-term	Infrequent	Fully Reversible	Co-ordinate with municipal authorities to ensure any necessary road use during nighttime does not conflict with other projects. Utilize barging to reduce road traffic. No RESA-specific adjustment is required.	Negligible: No cumulative traffic effect.	Given the negligible net negative effect of this Project and the minimal potential for cumulative effects, the magnitude is low. With other criteria at the lowest levels, the overall significance is negligible according to the Evaluation Decision Matrix.
Gardiner Expressway Rehabilitation Plan	Ongoing (2015–2026)	1.3 kilometres to 2.2 kilometres	Rehabilitation: structural repairs, lane closures, and traffic management.	The Gardiner Expressway Rehabilitation Plan may contribute to increased traffic congestion due to lane closures and detours. While this Project conducts construction at night and utilizes barging, there is potential for cumulative traffic disruptions if nighttime road use is required.	low	Localized	Short-term	Infrequent	Fully Reversible	Develop a Traffic Management Plan in co-ordination with the Gardiner project team as necessary. Schedule any necessary road deliveries during off-peak hours. Provide advance public notifications of potential disruptions. No RESA-specific adjustment is required.	Negligible: No cumulative effect to traffic	Given the negligible net negative effect of this Project and the minimal potential for cumulative effects, the magnitude is low. With other criteria at the lowest levels, the overall significance is negligible according to the Evaluation Decision Matrix.

Name of Undertaking	Timeline/ Status	Distance from Project	Description of Activities	Potential Cumulative Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Mitigation Measures	Overall Significance	Justification
East Bayfront Project	Ongoing (2010–2025)	2.7 kilometres	Redevelopment: residential, commercial, and institutional spaces.	The East Bayfront Project may cause localized traffic disruptions within its immediate vicinity. However, there is no spatial or temporal overlap with our Project’s construction activities.	low	Localized	Short-term	Infrequent	Fully Reversible	No mitigation required.	Negligible: No cumulative traffic effect.	All criteria are at the lowest levels with no overlap. According to the Evaluation Decision Matrix, the overall significance is negligible.
Ontario Place Revitalization Project	Ongoing (2017–Future)	1.8 kilometres	Infrastructure upgrades, public space enhancements, and redevelopment activities.	Construction activities may cause localized traffic disruptions within the vicinity of Ontario Place; however, the Project is anticipated to have negligible net negative effects on traffic due to nighttime construction and minimal use of roadways. Any additional traffic disruptions are expected to be minimal and short-term. The cumulative effect pathway involves the potential for minor additive traffic disruptions if both projects require road use simultaneously during nighttime hours. As RESA 3 has a longer construction duration, the potential for cumulative effects for traffic marginally increases relative to RESA 2 , and even more so RESA 1 .	Low	Localized	Short-term	Infrequent	Fully Reversible	Co-ordinate with Ontario Place Revitalization project team to ensure any necessary road use during nighttime does not conflict with their activities. Utilize barging to reduce road traffic. No RESA-specific adjustment is required.	Negligible: No cumulative traffic effect.	Given the negligible net negative effect of this Project and the minimal potential for cumulative effects, the magnitude is low. With other criteria at the lowest levels, the overall significance is negligible according to the Evaluation Decision Matrix.
Metrolinx Ontario Line Transit Project	Ongoing (2022–2031)	1.4 kilometres	Transit expansion: tunnels, stations, and infrastructure improvements.	The Ontario Line construction may cause traffic disruptions due to road closures or increased construction vehicle activity, primarily during daytime hours, when traffic is generally worse. The Project’s nighttime construction and negligible net negative effect on traffic minimize the potential for cumulative effects. Any overlapping effects would be minimal and short-term. As RESA 3 has a longer construction duration, the potential for cumulative effects for traffic marginally increases relative to RESA 2 , and even more so RESA 1 .	Low	Localized	Short-term	Infrequent	Fully Reversible	Co-ordinate with Metrolinx to ensure that any necessary road use does not coincide with significant disruptions caused by the Ontario Line Project. No RESA-specific adjustment is required.	Negligible: No cumulative traffic effect.	Magnitude is low due to negligible net negative effect and minimal overlap. With other criteria at the lowest levels, the overall significance is negligible according to the Evaluation Decision Matrix.

Name of Undertaking	Timeline/ Status	Distance from Project	Description of Activities	Potential Cumulative Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Mitigation Measures	Overall Significance	Justification
Toronto Island Park Flood Mitigation	Ongoing (2021–current)	0.7 kilometres to 3.7 kilometres	Flood and erosion control measures for Toronto Island Park.	The project primarily affects marine transportation routes around the island, with minimal effect on vehicular or pedestrian traffic on the mainland or the island. This Project’s construction activities have negligible net negative effects on traffic and do not significantly interact with marine transportation routes. There is no cumulative effect on transportation from Toronto Island Park project when combined with this Project.	Low	Localized	Short-term	Infrequent	Fully Reversible	No mitigation required.	Negligible: No cumulative traffic effect.	All criteria are at the lowest levels with minimal interaction. According to the Evaluation Decision Matrix, the overall significance is negligible.
Port Lands Flood Protection Project	Ongoing (2016–2025)	3.7 kilometres	Flood protection and rehabilitation in Port Lands and adjacent areas.	The project may cause minor traffic disruptions within the Port Lands area during construction. Due to the distance and lack of spatial and temporal overlap, there is no cumulative traffic effect when combined with this Project.	Low	Localized	Short-term	Infrequent	Fully Reversible	No mitigation required.	Negligible: No cumulative traffic effect.	All criteria are at the lowest levels with minimal interaction. According to the Evaluation Decision Matrix, the overall significance is negligible.
Lake Shore Boulevard East Reconfiguration	Ongoing (2022–2025)	4.5 kilometres	Roadway, bridge, and traffic system improvements.	The reconfiguration may cause traffic disruptions along Lake Shore Boulevard East during construction. However, it expected Lakeshore Boulevard East project will be completed before construction on the Project begins. Further, Given the distance from this Project and the negligible net negative effect on traffic, there is no effect Pathway.	Low	Localized	Short-term	Infrequent	Fully Reversible	No mitigation required.	Negligible: No cumulative traffic effect.	All criteria are at the lowest levels with minimal interaction. According to the Evaluation Decision Matrix, the overall significance is negligible.

8.3.1 Summary of Cumulative Effects

The cumulative effects assessment examined how the Project's net effects interact with those from other projects or activities (undertakings). This analysis focused on four key Project net effects: noise during construction, air quality degradation during construction, permanent habitat alteration, and traffic disruptions during construction. For each of these effects, the cumulative contributions from all relevant projects were evaluated by considering the combined magnitude, geographic extent, duration, frequency, and reversibility of the potential cumulative effects (see **Tables 8-2, 8-3, 8-4 and 8-5**). The analysis followed the criteria outlined in the Evaluation Decision Matrix (**Table 8-1**). Separate effect descriptions and mitigations are assigned to RESA 1, RESA 2, or RESA 3 where differences are expected. A summary of the results is provided below, along with a detailed discussion explaining how the assessments contributed to determining the overall significance of the cumulative net effects for each Project net effect.

8.3.1.1 Noise

Several undertakings within the analysis have the potential to interact with this Project's nighttime construction activities, although the overall cumulative effects are managed to remain negligible or minor. For instance, projects such as the Airfield Rehabilitation Project, Port Lands Flood Protection Project, and Lake Shore Boulevard East Reconfiguration have either been completed or are scheduled to finish before the onset of this Project's construction phase. This results in no temporal overlap and, hence, no cumulative noise effects. Other ongoing projects, including the Lakeshore Boulevard West, Gardiner Expressway Rehabilitation Plan, Ontario Place Revitalization Project, Metrolinx Ontario Line Transit Project, and Toronto Island Park Flood Mitigation, do present some temporal overlap. In these cases, while a moderate magnitude of noise effect may be identified—particularly where simultaneous noisy activities are possible—the localized extent, short-term duration, and infrequent nature of these overlaps, coupled with the reversible effects, mean that the overall cumulative effect remains minor. Although RESA 3 exhibits a marginally higher potential for overlap due to its extended construction period, the differences are minimal and do not alter the overall significance rating. The slight increase in frequency noted for RESA 3 is offset by effective mitigation of the noise effects.

Mitigation Measures & Commitments

In addition to the mitigation measures outlined in **Section 6.2.2.1**, the following mitigation measures and commitments are suggested to ensure that none of the RESA alternatives contribute to cumulative degradation or significant noise effects:

- **Co-ordination & Scheduling:** Active co-ordination with the teams managing overlapping projects (e.g., Gardiner Expressway Rehabilitation, Ontario Place

Revitalization, and Metrolinx Ontario Line) is prioritized. This includes synchronizing construction schedules where feasible to avoid simultaneous high-noise operations.

Overall Cumulative Net Effect on Noise Significance

By aggregating the cumulative effect analysis for each undertaking, the overall cumulative noise effect during construction is determined to be **minor**, and is the same for all RESA alternatives. The potential for moderate noise from overlapping activities in certain projects is effectively mitigated by the localized extent, short-term duration, infrequent occurrence, and the fully reversible nature of the effects. With the mitigation measures and commitments in place, the cumulative noise effects remain manageable and are not expected to contribute to significant cumulative effects.

8.3.1.2 Air Quality

Undertakings like the Lakeshore Boulevard West, Gardiner Expressway Rehabilitation Plan, and Metrolinx Ontario Line Transit Project have potential temporal overlaps with this Project. However, the Project's reliance on barging for transporting materials significantly reduces vehicular emissions on local roads, minimizing the potential for cumulative air quality effects. Further, dust emissions from the Project's excavation activities may interact with those from adjacent construction zones, particularly during periods of high material movement. However, distances to other projects are far enough that cumulative effects from dust are expected to be minimal.

The individual assessments for these undertakings indicate a low magnitude of effect due to limited temporal and spatial overlap and the implementation of mitigation measures. The extent is localized, and the duration is short-term, confined to the construction period. The frequency is infrequent, and effects are fully reversible upon the completion of construction activities.

Projects like the Airfield Rehabilitation Project, Toronto Island Park Flood Mitigation, and Lake Shore Boulevard East Reconfiguration have no temporal overlap or are located at distances that further reduce any potential for cumulative air quality effects.

Aggregating these assessments, the overall cumulative air quality effect during construction is determined to be minor. The low magnitude across all undertakings, combined with the localized extent, short-term duration, infrequent frequency, and full reversibility, results in negligible cumulative effects according to the Evaluation Decision Matrix.

Although RESA 3 may experience a slightly higher frequency of overlapping activities due to a longer construction period compared to RESA 1 and RESA 2, this marginal difference does not alter the overall negligible significance of the cumulative effects.

Mitigation Measures & Commitments

To ensure that the RESA alternatives do not contribute to cumulative air quality degradation or overall loss, the following mitigation measures and commitments are recommended in addition to the mitigation measures outlined in **Section 6.2.1.1**.

Co-ordination with Project Teams: Regular co-ordination with teams from overlapping projects (such as the Gardiner Expressway Rehabilitation, Ontario Place Revitalization, and Metrolinx Ontario Line Transit projects) is suggested when feasible. This co-ordination ensures that construction schedules are managed to reduce simultaneous activities that could otherwise compete.

Overall Cumulative Net Effect on Air Quality Significance:

Due to minimized emissions, limited temporal and spatial overlap, and effective mitigation measures, cumulative air quality effects during construction for all RESA alternatives are **negligible**.

8.3.1.3 Habitat Alteration

Project like the Lakeshore Boulevard West, Gardiner Expressway Rehabilitation Plan, and Lake Shore Boulevard East Reconfiguration exert negligible effects individually because they operate in already altered or spatially separate contexts. Their specific effects are minor and mitigable.

However, other undertakings, such as the historical Airfield Rehabilitation Project (with its prior lakefilling), the East Bayfront Project, Ontario Place Revitalization Project, and the Metrolinx Ontario Line Transit Project involve shoreline works or in-water activities. These projects, when combined with the Project, lead to an additive loss of aquatic and terrestrial habitat. This is more pronounced for RESA 3, then it is RESA 2 and RESA 1. This collective effect, especially when factoring in the long-term and regional nature of habitat recovery, raises the overall cumulative effect to a moderate level.

Mitigation Measures & Commitments

In addition to the mitigation measures outlined in **Sections 6.1.1** and **6.1.2**, the following mitigation measures and commitments are recommended to help ensure that the RESA alternatives do not contribute further to cumulative habitat degradation—and, where possible, to manage or offset residual effects:

- Collaborate with other agencies (e.g., Waterfront Toronto, Aquatic Habitat Toronto and Toronto and Region Conservation Authority) where feasible to identify opportunities for regional habitat restoration to synchronize habitat restoration measures and mitigate cumulative effects at a regional scale.

Restoration and habitat compensation should focus on re-establishing regional connectivity, with a focus on migration routes.

- Where feasible, co-ordinate with projects like Port Lands Flood Protection and Toronto Island Park Flood Mitigation to support regional restoration goals and create interconnected habitat networks along the Toronto Waterfront.

RESA-Specific Consideration: While co-ordinating with other restoration efforts can improve regional ecosystem health for all RESA alternatives, it is recommended that the level of compensation and habitat restoration increase from standard offsetting (RESA 1) to enhanced buffer zones and connectivity improvements (RESA 2), to a comprehensive program with re-vegetation and regional aquatic ecosystem restoration (RESA 3). This step wise increase in recommended mitigation for the three alternatives reflects the fact that RESA 3 constitutes the greatest cumulative effect and warrants a more robust regional cumulative effect mitigation strategy than compared to RESA 2, and especially RESA 1.

Overall Cumulative Net Effect on Habitat Alteration

When evaluating all adjacent undertakings collectively, the aggregate cumulative effect on habitat alteration is assessed as **moderate**. This overall rating reflects the additive effects of historical lakefilling (as seen in the Airfield Rehabilitation Project) and the Project's own lakefilling activities, which together affect both aquatic and terrestrial habitats over a regional scale. However, the significance of these cumulative effects varies slightly among the RESA alternatives:

- **RESA 1:**

This alternative results in a moderate loss of aquatic habitat with only minimal adjacent terrestrial disturbance. With standard habitat offsetting measures in place, the overall cumulative effect remains moderate yet is on the lower end of the spectrum. The effects are significant but can be effectively managed through routine compensation and restoration practices.

- **RESA 2:**

With an increased landmass requirement (primarily due to expanded taxiway improvements), RESA 2 increases both aquatic and terrestrial habitat alteration relative to RESA 1. Although the overall significance still falls within the moderate category, the cumulative effects are slightly higher.

- **RESA 3:**

Featuring a substantially larger fill area, RESA 3 produces a notably higher cumulative loss of aquatic habitat and greater terrestrial effects. While the overall rating remains moderate from a regional perspective, RESA 3 represents the upper end of the moderate effect spectrum among the alternatives.

In summary, although all RESA alternatives are managed within a framework that yields an overall moderate cumulative significance, RESA 2 and RESA 3 demand proportionately more robust and tailored mitigation measures to address their greater potential effects.

8.3.1.4 Traffic Disruptions

The RESA alternatives have a negligible net negative effect on traffic due to nighttime construction and the use of barging for material transport, reducing reliance on local roadways.

Undertakings like the Lakeshore Boulevard West and the Gardiner Expressway Rehabilitation Plan may cause daytime traffic disruptions due to lane closures or detours. However, the temporal separation of construction activities and this Project's minimal use of roadways reduce the potential for cumulative traffic effects.

Each undertaking assessment indicates a low magnitude of effect, with the extent being localized, the duration short-term, and the frequency infrequent. Effects are fully reversible upon completion of construction activities.

Aggregating these assessments, the overall cumulative traffic disruption effect is determined to be negligible. The low magnitude across all projects, combined with effective mitigation measures, results in negligible cumulative effects according to the Evaluation Decision Matrix.

Mitigation Measures & Commitments

In addition to the mitigation measures outlined in **Section 6.2.7**, the following mitigation measures are recommended to address cumulative traffic effects:

- **Co-ordination with other Projects:** The Project will maintain communication with municipal authorities and co-ordinate with other nearby project teams to avoid overlapping road use during nighttime hours where feasible.

Overall Cumulative Net Effect on Traffic Significance:

Negligible. Due to the Project's negligible net negative effect on traffic and minimal potential for cumulative effects, traffic disruptions are minimal and manageable. No significant cumulative traffic effects are anticipated during the construction or operation phase.

8.4 Conclusion

The cumulative effects assessment demonstrates that the Project contributes to cumulative effects in the broader area, particularly regarding aquatic habitat alteration due to lakefilling activities. However, the effects can be mitigated through effective measures and collaboration. The key findings are:

- **Noise: Minor** cumulative effects during construction are manageable with mitigation and communication strategies across all RESA alternatives. While some projects contribute to a moderate magnitude of cumulative noise due to potential overlaps, the overall significance is reduced due to the localized extent, short-term duration, occasional frequency, and full reversibility. RESA 2 and RESA 3's operational improvements may contribute to noise reduction during operation. Overall, the Project will result in a minor cumulative effect during construction, with RESA 2 and RESA 3 contributing to positive cumulative effects during operation.
- **Air Quality: Negligible** cumulative effects during construction are anticipated due to minimized emissions, limited temporal and spatial overlap, and effective mitigation measures. The overall low magnitude, localized extent, short-term duration, infrequent frequency, and full reversibility result in negligible cumulative effects.
- **Habitat Alteration: Moderate** cumulative effects are anticipated due to the additive loss of aquatic and terrestrial habitats from multiple lakefilling and shoreline modification projects. Projects with shoreline or in-water activities, such as the East Bayfront Project and Metrolinx Ontario Line Transit Project, contribute to additive habitat loss. RESA 3, with its larger construction footprint, results in a higher level of cumulative effect compared to RESA 1 and RESA 2. However, habitat compensation programs and habitat restoration measures are recommended to mitigate these effects and facilitate regional connectivity. Collaboration with other restoration projects is recommended to enhance regional ecosystems health and reduce the overall effect over time.
- **Traffic Disruptions: Negligible** cumulative effects during construction are minimized through nighttime scheduling and the use of barging. The low magnitude, localized extent, short-term duration, infrequent frequency, and full reversibility result in negligible cumulative effects. The Project has a negligible net negative effect on traffic, and no significant cumulative traffic effects are anticipated during the operation phase.

9. Compliance with the City of Toronto Policies

Table 9-1 outlines the applicable policies from the City of Toronto's Official Plan, 2024, that are relevant to this Project. It also describes how the Project complies with these policies, detailing the measures being implemented to ensure alignment with the City's planning framework and objectives.

Table 9-1: City of Toronto Official Plan Policy Alignment

Official Plan Policy	Policy Requirement	Project Implications and how will be Addressed
Policy 2.3.2.6 (Toronto's Green Space System and Waterfront)	- Policy 6 states that increased public enjoyment and use of waterfront lands will be promoted by ensuring that future development and actions on the part of both the public and private sectors, including the Toronto Port Authority, the Toronto Waterfront Revitalization Corporation and the Toronto and Region Conservation Authority, will help to achieve the following objectives: a) minimize physical and visual barriers between the City and Lake Ontario; b) increase and improve public access to lands along the water's edge and between parts of the waterfront; c) improve water quality and the quality of beaches; d) improve the public realm with more parks, public squares and natural settings that please the eye and lift the spirit and support a sense of belonging to the community; e) increase the availability, choice and awareness of recreational opportunities and public activities throughout the year; f) protect, improve and where possible extend the Martin Goodman/Waterfront Trail as a continuous waterfront route for cyclists, pedestrians and people with disabilities; and g) maintain and enhance the natural heritage value of lands near or along the water's edge by protecting existing habitat and, where appropriate, restoring and enhancing habitat. - Policies 6 (c) and 6 (g) are especially relevant to this Project.	- The Project is a PortsToronto initiative located near Toronto Waterfront lands, with Hanlan's Point Beach positioned southwest of the Project Study Area. Sustaining, restoring and enhancing the health and the integrity of the natural ecosystem has been addressed through mitigation, enhancement and compensation considerations discussed in the Natural Heritage Effects Assessment Report in Appendix B. The Natural Heritage Effects Assessment Report identifies potential impacts to habitat for aquatic and terrestrial native flora and fauna, water and sediment quality, landforms (beaches and dunes), shorelines, seasonal movements of migration species, and potential impacts of climate change. - In terms of water quality and the quality of beaches, none of the RESA alternatives are anticipated to impact water quality, provided standard erosion and sediment control and spill prevention measures are implemented. Any landmass expansion at the west end of Runway 08/26 will benefit sediment transport, reduce sedimentation in the Western Channel, and potentially support the Gibraltar Point Sediment Management Plan by trapping sediment, which could then be redirected to Hanlan's Point Beach, helping to sustain the beach. Therefore, all three RESA alternatives align with the City's policy to improve the beach's long-term quality. However, the longer west landmass extensions in RESA 2 and RESA 3 have a greater influence on sediment transport and offer more support for the sustainability of Hanlan's Point Beach compared to RESA 1. - Mitigation measures and proposed compensation and enhancement measures for all three RESA alternatives have been outlined in the Natural Heritage Effects Assessment Report to identify habitat creation and restoration; where suitable. Additionally, further mitigation measures for water quality protection are provided in Table 6-7 of this Report.
Policy 3.1.6 (Heritage Conservation)	- According to Policy 2 properties and Heritage Conservation Districts of potential cultural heritage value or interest will be identified and evaluated to determine their cultural heritage value or interest consistent with provincial regulations, where applicable, and will include the consideration of cultural heritage values including design or physical value, historical or associative value and contextual value. The evaluation of cultural heritage value of a Heritage Conservation District may also consider social or community value and natural or scientific value. The contributions of Toronto's diverse cultures will be considered in determining the cultural heritage value of properties on the Heritage Register or scientific value. - According to Policy 3 Heritage properties of cultural heritage value or interest properties, including Heritage Conservation Districts and archaeological sites that are publicly known will be protected by being designated under the Ontario Heritage Act and/or included on the Heritage Register. - According to Policy 4 properties on the Heritage Register will be conserved and maintained consistent with the Standards and Guidelines for the Conservation of Historic Places in Canada, as revised from time to time and as adopted by Council. - According to Policy 5 proposed alterations, development, and/or public works on or adjacent to, a property on the Heritage Register will ensure that the integrity of the heritage property's cultural heritage value and attributes will be retained, prior to work commencing on the property and to the satisfaction of the City. Where a Heritage Impact Assessment is required in Schedule 3 of the Official Plan, it will describe and assess the potential impacts and mitigation strategies for the proposed alteration, development or public work. - According to Policy 22 an Heritage Impact Assessment will address all applicable heritage conservation policies of the Official Plan and the assessment will demonstrate conservation options and mitigation measures consistent with those policies. A Heritage Impact Assessment shall be considered when determining how a heritage property is to be conserved.	- The Toronto Island Airport Terminal "A" Building and the Ned Hanlan Memorial, both listed on the Municipal Heritage Register, are located outside the Project Study Area. While RESA 1, 2, and 3 are not anticipated to directly impact these built heritage resources, Section 3.1.6, Policy 23 of the City of Toronto's Official Plan stipulates that a Heritage Impact Assessment is required to evaluate the impact of a proposed alteration to a property on the Heritage Register, and/or to properties adjacent to a property on the Heritage Register. - A Heritage Impact Assessment for the Toronto Island Airport Terminal "A" Building and the Ned Hanlan Memorial will be completed during the detailed design phase. The assessment will identify potential impacts, if any, and recommend appropriate mitigation measures for these listed heritage resources. - A Stage 1 terrestrial archaeological assessment completed for the Project determined that the areas which may be physically affected by the proposed RESA did not retain archaeological potential and no further assessment was recommended. - A marine archaeological assessment conducted for the Project concluded that the lakebed areas potentially impacted by the proposed RESA do not have archaeological potential, and no further assessment was recommended.

Official Plan Policy	Policy Requirement	Project Implications and how will be Addressed
	■ According to Policy 23 an Heritage Impact Assessment will evaluate the impact of a proposed alteration to a property on the Heritage Register, and/or to properties adjacent to a property on the Heritage Register, to the satisfaction of the City. ■ According to Policy 35 t development and site alteration will be permitted on lands containing archaeological resources or areas of potential only where the archaeological resources have been assessed, documented, and conserved. Any alterations to known archaeological sites will only be performed by licenced archaeologists. ■ Policies 36 through 39 address the requirements of archaeological assessments, mitigation of archaeological resources, and best practices for Indigenous engagement. ■ Policy 42 states that the City may require an Archaeological Assessment for marine archaeological remains and artifacts, to be conducted by a licensed marine archaeologist, when a development is proposed in the water or along the waterfront and/or shoreline.	
Policy 3.4.1 (The Natural Environment)	■ Policy 3.4.1 states that, to strong communities, a competitive economy and a high quality of life, public and private city-building activities and changes to the built environment, including public works, will be environmentally friendly, based on: a) protecting and improving the health of the natural ecosystem, by: i. minimizing air, soil and water pollution; ii. recognizing rainwater and snowmelt as a resource to improve the health of Toronto's watercourses and the near shore zones of Lake Ontario; iii. managing the quantity and improving the quality of stormwater and groundwater infiltration and flows; iv. cleaning-up contaminated soils, sediment, groundwater, watercourses and buildings; v. mitigating the unacceptable effects of noise and light; and vi. minimizing the release and proliferation of invasive species and mitigating their impacts; b) sustaining, restoring and enhancing the health and integrity of the natural ecosystem, supporting biodiversity in the City and targeting ecological improvements, paying particular attention to: i. locations of habitat for native flora and fauna, both terrestrial and aquatic; ii. water and sediment quality; iii. ground and surface water contributions to natural features; iv. landforms, ravines, watercourses, wetlands and the shoreline and associated biophysical processes; v. natural linkages between the Natural Heritage System and other green spaces; vi. seasonal movements of migration species; vii. opportunities for additional habitat provided by the built environment; and viii. the potential impacts of a changing climate on biodiversity and ecosystem health; c) addressing environmental stresses caused by the consumption of natural resources, by reducing: i. the amount of solid waste requiring disposal in landfill and by promoting programs for reducing, reusing, recycling and composting; ii. consumption of water and generation of wastewater; iii. energy consumption and greenhouse gas emissions; and iv. reliance on carbon-based fuels for energy; d) preserving and enhancing the urban forest by: i. providing suitable growing environments for trees; ii. increasing tree canopy coverage and diversity, especially of long-lived native and large shade trees; and iii. regulating the injury and destruction of trees;	■ Sustaining, restoring and enhancing the health and the integrity of the natural ecosystem has been addressed through mitigation, enhancement and compensation considerations discussed in the Natural Heritage Effects Assessment Report in Appendix B. The Natural Heritage Effects Assessment Report identifies potential impacts to habitat for aquatic and terrestrial native flora and fauna, water and sediment quality, landforms (beaches and dunes), shorelines, seasonal movements of migration species, and potential impacts of climate change. Mitigation measures and proposed compensation and enhancement measures for all three RESA alternatives have been outlined in the Natural Heritage Effects Assessment Report to identify habitat creation and restoration, where suitable. ■ Additionally, mitigation measures to avoid or minimize impacts on air quality, noise, soil, surface and groundwater quality, and to manage stormwater quality and quantity, are outlined in the relevant tables in Section 6 of this Report.

Official Plan Policy	Policy Requirement	Project Implications and how will be Addressed
	e) reducing the risks to life, health, safety, property, and ecosystem health that are associated with flooding, unstable slopes, erosion and contaminated lands and considering the potential impacts of climate change that may increase the risk associated with natural hazards; f) reducing the adverse effects of stormwater and snow melt based on a hierarchy of watershed-based wet weather flow practices which recognize that wet weather flow is most effectively managed where it falls, supplemented by conveyance, then end-of-pipe solutions; g) protecting, improving or restoring the quality and quantity of water and drinking water sources; and h) promoting green infrastructure to complement infrastructure. ■ Especially relevant to this Project, Policy 1(a) refers to minimizing air, soil and water pollution, managing the quantity and improving the quality of stormwater and groundwater infiltration, and mitigating the unacceptable effects of noise and light. Policy 1(b) states that development should respect terrestrial and aquatic habitats, water and sediment quality, migration species, landforms, ravines, watercourses, wetlands and the shoreline and associated biophysical processes.	
Policy 3.4.3 (Proposed Development's impact on Natural Environment)	■ According to Policy 3.4.3, a study will be required, when appropriate, to assess a proposed development's impact on the natural environment and propose measures to reduce negative impacts on and where possible improve, the natural environment.	■ The Natural Heritage Effects Assessment Report in Appendix B addresses this condition by evaluating the impacts from all three RESA alternatives and recommending avoidance and mitigation measures to reduce negative impacts while enhancing/restoring the City's Natural Heritage System to the extent possible.
Policy 3.4.11 (Development in or near Natural Heritage System)	■ According to Policy 3.4.11, development is generally not permitted in the Natural Heritage System illustrated on Map 9 of the City Official Plan. Where the underlying land use designation provides for development in or near the Natural Heritage System, development should: a) recognize natural heritage values and potential impacts on the natural ecosystem as much as is reasonable in the context of other objectives for the area; and b) minimize adverse impacts and when possible, restore and enhance the Natural Heritage System.	■ Portions of the Project including the shorelines on the east and west, fall within or adjacent the City's Natural Heritage System. The terrestrial and aquatic natural heritage values to be impacted by all three RESA alternatives have been recognized, and all direct and indirect potential impacts have been assessed in the Natural Heritage Effects Assessment Report in Appendix B. For all impacts, mitigation measures, including compensation and enhancement measures have been identified to minimize adverse impacts and where possible, restore and enhance the Natural Heritage System. Commitments to completing compensation and/or enhancement/restoration measures proportional to the area of impact for each RESA alternative have been made and the details of such will be developed and confirmed during detailed design with the City of Toronto, Ports Toronto and appropriate regulatory agencies.
Policy 3.4.13 (Development in or near Natural Heritage System)	■ According to Policy 3.4.13, all proposed development in or near the Natural Heritage System will be evaluated to assess the development's impacts on the Natural Heritage System and identify measures to mitigate negative impact on and/or improve the Natural Heritage System, taking into account the consequences for: a) terrestrial natural habitat features and functions including wetlands and wildlife habitat; b) known watercourses and hydrologic functions and features; c) significant physical features and land forms; d) riparian zones; e) buffer areas and functions; f) vegetation communities and species of concern; and g) aquatic features and functions including the shoreline of Lake Ontario. ■ To assist this evaluation, an impact study may be required in accordance with guidelines established for this purpose.	■ Portions of the Project including the shorelines on the east and west, fall within or adjacent the City's Natural Heritage System. All three RESA alternatives have been evaluated in the Natural Heritage Effects Assessment Report in Appendix B to assess the impact of each alternative on the Natural Heritage System, including wildlife habitat, watercourses and hydrologic functions, significant features and landforms (i.e., dune and beach communities), buffer areas and functions (including edge effects), vegetation communities and species of concern, including Species at Risk and aquatic features and functions, including the shoreline of Lake Ontario.

Official Plan Policy	Policy Requirement	Project Implications and how will be Addressed
Policy 3.4.14 (Natural Heritage System with Environmentally Significant Qualities)	■ According to Policy 3.4.14, areas of land or water within the Natural Heritage System with any of the following characteristics are particularly sensitive and require additional protection to preserve their environmentally significant qualities: a) habitats for vulnerable, rare, threatened or endangered plant and/or animal species and communities that are vulnerable, threatened or endangered within the City or the Greater Toronto Area; or b) rare, high quality or unusual landforms created by geomorphological processes within the City or the Greater Toronto Area; or c) habitats or communities of flora and fauna that are of a large size or have an unusually high diversity of otherwise commonly encountered biological communities and associated plants and animals; or d) areas where an ecological function contributes appreciably to the healthy maintenance of natural ecosystems beyond its such as serving as a wildlife migratory stopover or concentration point, or serving as a water storage or recharge area. ■ Development or site alteration, aside from appropriate trails and conservation, flood, or erosion control projects, is not allowed on lands within the Natural Heritage System. Activities must align with the preservation of natural features and ecological functions. ■ New or expanding infrastructure should be avoided unless there is no reasonable alternative, adverse impacts are minimized, and natural features and ecological functions are restored or enhanced where feasible. ■ An impact study will be required (if not already subject to an Environmental Assessment under the Environmental Assessment Act) for development proposed in or near the Natural Heritage System to evaluate the development's impacts on the Natural Heritage System and identify measures to mitigate negative impacts on and/or improve the Natural Heritage System.	■ The following sensitive areas have been assessed in the Natural Heritage Effects Assessment Report for all three RESA alternatives: habitats for vulnerable, rare, threatened and endangered plant or animal species, and plant or animal communities that are vulnerable within the City of Toronto, rare and unusual landforms (sand dunes), and habitats for flora and fauna, including Significant Wildlife Habitats. Specifically, this includes assessment of Significant Wildlife Habitat (for Shorebirds, Waterfowl, and Species of Conservation Concern, including Monarchs), habitat for migratory birds, regionally and provincially rare vegetation communities (i.e., Mineral Open Beach Bar and Cottonwood Treed Dune), regionally rare vascular plant species, and Species at Risk. Wildlife concentration areas and migratory stopovers have been assessed under the Significant Wildlife Habitat assessment. For all impacts to the sensitive areas, mitigation measures, including potential compensation and enhancement measures have been identified to minimize adverse impacts and where possible, restore and enhance the Natural Heritage System. ■ Regarding habitat enhancement, specific requirements and opportunities related to habitat compensation / offsetting will be developed during detailed design in consultation with the relevant regulatory agencies (e.g., Fisheries and Oceans Canada). ■ The construction of a RESA is required to comply with the new Canadian Aviation Regulations Part III, Subpart 2, Division VI and as such there is no reasonable alternative to avoid impacts to the City's Natural Heritage System completely. However, RESA 1 has the least impact among the alternatives on the City's Natural Heritage System.
Policy 3.4.15 (Provincially Significant Natural Heritage Features)	■ According to Policy 3.4.15, the Provincially Significant Natural Heritage features will be protected by: a) prohibiting development or site alteration in provincially significant wetlands; b) prohibiting development or site alteration in significant portions of the habitat of threatened or endangered species and fish habitat, except in accordance with provincial and federal requirements; c) only permitting development or site alteration in the following locations if it has been demonstrated, through a study, that there will be no negative impacts on the natural features or the ecological functions for which the area is identified: i. lands adjacent to provincially significant wetlands, or significant portions of the habitat of threatened or endangered species; ii. lands adjacent to fish habitat; and iii. in or on lands adjacent to provincially significant areas of natural and scientific interest, woodlands, valleylands and wildlife habitat; and d) avoiding new or expanding infrastructure unless there is no reasonable alternative, negative impacts are minimized, and natural features and ecological functions are restored or enhanced where feasible.	■ No Provincially Significant wetlands will be impacted by any of the three RESA alternatives. ■ RESA 1 and RESA 2 have no impact on candidate Toronto Islands Life Science Area of Natural and Scientific Interest. RESA 3 will impact 2,285 square metres (0.16%) of the candidate Toronto Islands Life Science Area of Natural and Scientific Interest. ■ All three RESA Alternative potentially impact habitat of Species at Risk. Specific federal requirements as identified during consultation with the relevant regulatory agencies (Fisheries and Oceans Canada, Ministry of the Environment Conservation, and Parks, Environment and Climate Change Canada -Canadian Wildlife Services) will be adhered to for threatened or endangered species and fish habitat (i.e., American Eel and Piping Plover). ■ The Natural Heritage Effects Assessment Report in Appendix B has assessed impacts to natural heritage features and identified mitigation, enhancement and compensation measures, via ecological studies to minimize negative impacts to natural features and enhance and restore ecological functions, where feasible. ■ Mitigation measures for terrestrial natural heritage features are discussed in detail in the Natural Heritage Effects Assessment Report in Appendix B and will include, but are not limited to timing restrictions, wildlife fencing, nest sweeps, wildlife and Species at Risk Protocols and contractor training. ■ Enhancement/restoration measures equal to the area of impact of each RESA may include a combination of the following, and are not limited to: invasive species removal, native plantings, dune restoration and enhancement, translocation of regionally rare species and native pollinator habitat creation, including planting of Milkweed for Monarchs. Details of enhancement and restoration measures shall be confirmed during detail design to the satisfaction of the City of Toronto; acting reasonably, but must also comply with all applicable airport safety regulations, ensuring that these measures do not inadvertently attract wildlife or pose bird hazard risks to airport operations.

Official Plan Policy	Policy Requirement	Project Implications and how will be Addressed
		■ Mitigation measures for fish habitat are discussed in detail in the Natural Heritage Effects Assessment Report in Appendix B and will include but are not limited to in-water work timing windows, work site isolation measures, and development and implementation of an Erosion and Sediment Control Plan and Spill Prevention and Response Plan. ■ Consultation with regulatory agencies (Fisheries and Oceans Canada, and the Ministry of Environment, Conservation and Parks) shall be conducted to determine the potential offsetting and / or compensation requirements needed to remain compliant with the applicable federal and provincial legislations. ■ Enhancement and / or restoration measures for fish habitat will be developed during detailed design in consultation with regulatory agencies and in partnership with the Toronto and Region Conservation Authority, and/or other stewardship groups (as appropriate) and will cover an area equal in size or impact for each RESA alternative. ■ Enhancement and / or restoration measures, in accordance with the goals and guiding principles of the Toronto Waterfront Aquatic Habitat Restoration Strategy, may include but are not limited to the following: - Increased structural habitat for fish and other aquatic organisms through construction of shoals, artificial reefs, anchored logs or underwater cribs. - Increased cover for fish and other aquatic organisms through implementation of cantilevered board walks, docks, or other pedestrian structures. - Increased habitat complexity for fish and other aquatic organisms through construction of submerged and vegetated terraces, artificial reefs, or fluted substrates.
Policy 3.4.16 (Partnerships for Protection of the Natural Heritage System)	■ According to Policy 3.4.16, protecting, restoring and enhancing the Natural Heritage System will recognize the joint role of, and opportunities for, partnerships among public and private landowners, institutions and organizations.	■ Compensation and enhancement/restoration measures will be further developed in consultation with the City of Toronto, PortsToronto and other regulatory agencies and stakeholders (i.e., Aquatic Habitat Toronto) during detailed design.
Policy 3.4.17 (Lakefilling Projects in Lake Ontario)	■ According to Policy 3.4.17 lakefilling projects in Lake Ontario will be supported only where: a) the land created will be used for natural habitat, public recreation or essential public works; b) the project has been the subject of an Environmental Assessment which ensures that water quality and quantity and terrestrial and aquatic habitat will be protected or enhanced; and, c) the project does not create new or aggravate existing natural hazards.	■ Compliance with RESA necessitates lakefilling in Lake Ontario. ■ RESA 1 meets the policy requirement of being an essential public work (City of Toronto, 2024a). The determination of whether RESA 2 and RESA 3 qualify as essential public works will depend on the City’s decision through a separate process. ■ The Environmental Assessment demonstrates that environmental considerations have been fully integrated into the design and planning of the RESA design. The Project has no adverse impact on water quality and quantity. The terrestrial and aquatic habitats will be protected with the implementation of the mitigation, compensation /restoration measures, where feasible. Specific requirements and opportunities related to habitat compensation / offsetting will be developed during detailed design in consultation with the relevant regulatory agencies (e.g., Fisheries and Oceans Canada).Refer to Tables 6-1 to 6-4 for further details on mitigation, compensation/restoration measures for terrestrial and aquatic habitats. The Environmental Assessment process has been established in consultation with the City of Toronto and Transport Canada. ■ The Project Study Area is located in the Great Lakes-St. Lawrence system, where natural hazards such as flooding, erosion, and dynamic beach hazards are key considerations. These hazards are managed under the Provincial Policy Statement (2024) and Ministry of Natural Resources Technical Guidelines (2001), which set requirements for identifying, avoiding, or mitigating risks during development. The Project does not create new or aggravate existing natural hazards in the area including flooding, erosion and dynamic beach hazards due the following reasons: a) The shoreline within the Project Study Area and its vicinity is largely artificial and heavily reinforced with engineered structures, including seawalls and revetments. The shoreline at

Official Plan Policy	Policy Requirement	Project Implications and how will be Addressed
		both the west and east end RESAs is already hardened, and the shoreline of the East Island is protected by a large rock, located approximately 500 metres to the west of the west end RESA. Therefore, the dynamic beach hazard does not apply at this site as the artificial shoreline is protected by existing structures. b) The Project will address the erosion hazard, as both the east and west end RESAs will be hardened through. Shoreline structure including armour stone breakwater. The design of RESA will not create any new erosion hazards, nor will it exacerbate existing erosion hazards as the design does not lead to any significant increases in velocities or shear stresses that could lead to increased erosion within the Project Study Area. The only area that may see small increases in velocities is the Western Channel, which has a hardened shoreline. c) The flooding hazard limit is defined as the 100-year flood level plus an allowance for wave uprush and other water related hazards. Toronto and Region Conservation Authority has adopted a 100-year flood level of 76.2 metres International Great Lakes Datum 1985 for Toronto Harbour. The existing shore walls at either end of the runway have a low free board (approximately elevation 76.5 metres) and will be significantly overtopped by wave action at the 100-year flood level. RESA 3 will raise the crest elevation of the shore protection reducing the impact of wave action or overtopping water flooding the site. d) Further, the realignment of Taxiway D increases the taxiway elevation by approximately 300 mm in compliance with Canadian airport design standards, from the current elevation of 76.2 metres to 76.5 metres (to be confirmed with ongoing preliminary design), adding freeboard above the projected 100-year flood level. The increased elevation of the taxiway will be supplemented with gravity and natural drainage infrastructure within the infield grass areas to maintain existing infiltration and drainage patterns towards the lake. e) As for the shorelines in the vicinity of the Project Study Area, it is not expected that the RESA 3 design will create any new flooding hazards, nor exacerbate existing flooding hazards as the design will not increase the water levels.
Policy 4.3.2, 4.3.3 and 4.3.6 (Parks and Open Space Areas)	■ According to Policy 4.3.2, development is generally not allowed in Parks and Open Space Areas, except for specific uses such as recreational and cultural facilities, conservation projects, cemetery facilities, public transit, and essential public works and utilities where supported by appropriate assessment. ■ Policy 3 emphasizes preserving Natural Areas in their natural state, permitting limited uses only if they minimize ecological impacts and no reasonable alternatives exist, while allowing for: a) compatible recreational, cultural and educational uses and facilities that minimize adverse impacts on natural features and functions; and b) conservation projects, public transit, public works and utilities for which no reasonable alternatives are available, that are designed to have only minimal adverse impacts on natural features and functions, and that restore and enhance existing vegetation and other natural heritage features. ■ As per Policy 6, any development within these areas must: a) Protect or enhance natural heritage and connectivity; b) Preserve or improve public access and visibility, where appropriate; c) Support continuous recreational linkages; d) Maintain or expand public open space and its recreational value; e) Align with the area's physical character and function; and f) Ensure safe and comfortable pedestrian access.	■ Billy Bishop Toronto City Airport lands are designated as Parks, with water's edges and shorelines designated as Natural Areas, as demonstrated in Map 18 of the City of Toronto Official Plan (2024c). ■ RESA 1 meets the policy requirement of being an essential public work (City of Toronto, 2024a). The determination of whether RESA 2 and RESA 3 qualify as essential public works will depend on the City's decision through a separate process. ■ All alternatives are located in or adjacent to Natural Areas, and will impact these areas. The Natural Heritage Effects Assessment Report in Appendix B provides a comprehensive evaluation of the impacts for all three RESA alternatives. The report outlines potential negative effects on the natural environment and provides specific recommendations for avoidance and mitigation measures. These measures are designed not only to reduce harm but also to enhance and restore the natural areas to the extent possible, ensuring that the development supports environmental conservation and aligns with the "minimize impact" principle. ■ The construction of a RESA is required to comply with the new Canadian Aviation Regulations Part III, Subpart 2, Division VI and as such there is no reasonable alternative to avoid impacts to the City's Natural Heritage System completely. However, RESA 1 has the least impact among the alternatives on Natural Areas.

Official Plan Policy	Policy Requirement	Project Implications and how will be Addressed
Chapter 7, Site and Area Specific Policy 192	■ Delineates the boundary of Toronto Islands, and provides that public transport will be provided to the Toronto Islands all year round.	■ Compliance with RESA requirements will require altering the land boundary in the form of lakefills to the east and west island to accommodate the landmass/ breakwater structure, RESA, turf/grooved asphalt, and airside perimeter roads, and other component depending on the selected RESA alternative. ■ An Official Plan Amendment may be required to alter the land boundary in Site and Area Specific Policy 192.
Chapter 7, Site and Area Specific Policy 194	■ Delineates the boundary of Billy Bishop Toronto City Airport. ■ The City of Toronto supports the continued use of the airport lands for aviation purposes in accordance with the terms of Tripartite Agreement. ■ Site and Area Specific Policy 194 has indicated that the Tripartite Agreement may be revised if the City is satisfied that the improvements can be made without adverse impact on the surrounding residential and recreational environment.	■ Compliance with RESA requirements will require altering the land boundary in the form of lakefills to the east and west island to accommodate the landmass/ breakwater structure, RESA, turf/grooved asphalt, and airside perimeter roads. ■ The Tripartite 2025 Amending Agreement allows a minimal landmass extension to enable construction of a RESA in accordance with the draft site plan and uses as set out in Schedule “A” (the Proposed RESA Design). ■ An Official Plan Amendment may be required for RESA 2 and RESA 3 to alter the Billy Bishop Toronto City Airport boundary.

9.1 October 2024 Council Resolution

For RESA to be implemented, an amendment to the Tripartite Agreement was required to allow for an extended landmass and a longer agreement term. In October 2024, City Council approved a motion to consider the proposed RESA details and negotiate an amendment to the Tripartite Agreement to permit a landmass extension to meet RESA compliance needs, and an extension of the agreement's term, for financing purposes.

City Council on October 9 and 10, 2024, adopted the following (City of Toronto, 2024d):

- “1. City Council authorize the Deputy City Manager, Development and Growth Services, working with the Director, Waterfront Secretariat, to consider the detailed Runway End Safety Areas designs provided by PortsToronto and based on those designs, to negotiate and execute an amendment to the Tripartite Agreement to permit a landmass extension, and subject to Part 2.e. below, an amendment to extend the term end date to the date necessary to secure requisite financing and no later than December 31, 2045, that meets the Runway End Safety Areas compliance requirements consistent with Runway End Safety Areas Option 1 and as substantially outlined in Attachment 2 to the supplementary report (September 27, 2024) from the Deputy City Manager, Development and Growth Services, in a form satisfactory to the City Solicitor.*
- 2. City Council direct that the execution of the amendment to the Tripartite Agreement authorized by Part 1 above be subject to PortsToronto fulfilling the following conditions, to the satisfaction of the Deputy City Manager, Development and Growth Services, working with the Director, Waterfront Secretariat and the City Solicitor:*
 - a. completing the Runway End Safety Areas Environmental Assessment;*
 - b. engaging Toronto and Region Conservation Authority to leverage their shoreline expertise throughout detailed design and implementation and present detailed Runway End Safety Areas designs to Aquatic Habitat Toronto for input and advice on habitat compensations strategies that advance the objectives of the Toronto Waterfront Aquatic Habitat Restoration Strategy;*
 - c. developing a Runway End Safety Areas construction management plan that minimizes community impacts including overnight work;*
 - d. developing a traffic management plan related to construction activities;*
and

- e. *demonstrating a term extension up to no later than December 31, 2045, is necessary to secure the requisite financing for Runway End Safety Areas construction within the existing Tripartite Agreement timeframe, to the satisfaction of the Chief Financial Officer and Treasurer.*

3. City Council direct the City Manager and/or delegate(s) to participate in discussions with PortsToronto and Transport Canada on a process to update the 2018 Airport Master Plan, and take into consideration the City's overall vision for waterfront revitalization, economic development and the City's housing targets.

4. City Council state its commitment to a long-term lease extension and the renegotiation of the Tripartite Agreement to ensure ongoing and future operations of the Billy Bishop Toronto City Airport, and direct the City Manager to represent Council's position in discussions with PortsToronto and Transport Canada following the successful completion of Runway End Safety Area (RESA) obligations."

As noted in **Section 1.2.2**, the Tripartite Agreement was successfully amended on January 28, 2025. The amendment permits a minimal landmass extension to support the construction of the RESA, as outlined in the draft site plan and land uses detailed in Schedule "A" (the Proposed RESA Design), subject to a number of terms and conditions. A copy of 2025 Tripartite Amending Agreement including Schedule "A" is provided in **Appendix Q**.

As part of this amendment, the term of the Tripartite Agreement has also been extended—until December 31, 2045—for financing purposes.

10. Consultation

This section summarizes the consultation efforts undertaken for the Project. A record of consultation is provided in **Appendix O** of this Report, and includes detailed correspondence records, feedback, and comments received up to October 29, 2024.

10.1 Overview of the Consultation and Engagement Process

To facilitate the consultation process, the Project team implemented the following engagement and consultation activities to reach Indigenous communities, members of the public, community groups, and federal/provincial/municipal agencies. Opportunities to submit comments and feedback for consideration by the Project team were provided at key Project milestones.

- Project website (<https://www.safecleanquiet.ca/>).
- Emails via the Project Team email address (info@safecleanquiet.ca).
- Mailings/notifications (via physical mail or email).
- Newspaper advertisements.
- Public Meeting and Open House #1 held in-person on July 17, 2024, with two sessions: at 2:00 p.m. and 6:00 p.m. at George Brown College – Waterfront Campus.
- Public Meeting and Open House #2 held in-person on October 15, 2024, with two sessions: at 2:00 p.m. and 6:00 p.m. at the Westin Harbour Castle Conference Centre.
- Correspondence and meetings with federal, provincial and municipal agencies.
- Outreach regarding engagement and consultation with Indigenous communities outlined in **Section 10.3**.
- Correspondence and meetings with Technical Advisory Committee.
- Draft Environmental Assessment Study Report consultation process.

10.1.1 Record of Consultation

Key questions, comments, issues, and concerns raised by stakeholders and the public, along with the Project Team's responses, were addressed either directly via email or posted on the Project website for the broader community.

10.2 Project Notices

The Project Team published notices via local newspapers and the Project website (safecleanquiet.ca) to inform members of the public and Project stakeholders of Project milestones and consultation events.

10.2.1 Notice of Commencement of Environmental Assessment and Public Meeting and Open House #1

On July 7, 2024, the Project Team published a Notice of Commencement of Environmental Assessment with Public Meeting and Open House to inform members of the public, community groups, agencies and Indigenous communities of the start of the Project and provide an overview of the Project. The notice also encouraged any interested party to attend Public Meeting and Open House #1 and provided the date and location of the consultation event. The Project Team also provided the option to attend the meetings virtually. The notice was published in the Toronto Star and L'Express, and on the Project website.

10.2.2 Notice of Public Meeting and Open House #2

On October 5, 2024, the Project Team published a Notice of Public Meeting and Open House #2 to encourage members of the public, community groups, agencies and Indigenous communities to attend the upcoming public consultation event. The notice provided the date and location of Public Meeting and Open House #2. The Project Team also provided the option to attend the meetings virtually. The notice was published in the Toronto Star and L'Express, and on the Project website.

10.2.3 Notice of Completion of the Environmental Assessment

On June 2, 2025, the Project Team published a Notice of Completion of Draft Environmental Assessment Study Report. The Draft EA Study Report was made available for public review period, from June 2 to July 7, 2025, through the Project website at www.safecleanquiet.ca. During this period, agencies, Indigenous communities, stakeholders, and members of the public were invited to review the document and provide written comments on the proposed undertaking, the Environmental Assessment findings, and mitigation measures. Comments were submitted directly to PortsToronto via the online feedback form provided at www.safecleanquiet.ca/ea-comments.

Notice of Study Completion was also published in the Toronto Star (June 6, 2025), and L'Express (June 7, 2025).

10.3 Indigenous Community Consultation and Engagement

PortsToronto recognizes its duty to consult as an essential part of responsible project planning and implementation. As such, comprehensive Indigenous community engagement and consultation were undertaken to support the planning process, establish a clear understanding of existing conditions, identify potential impacts, and incorporate feedback on proposed mitigation measures.

In alignment with advice from Transport Canada's Indigenous Relations team, PortsToronto engaged with the following Indigenous communities with recognized treaty rights and interests within the Project Study Area:

- Mississaugas of the Credit First Nation.
- Huron-Wendat Nation.
- Six Nations of the Grand River.

Table 10-1 summarizes the record of consultation activities between PortsToronto and these Indigenous communities.

It is important to highlight that Indigenous community engagement related to the implementation of the RESA was established from 2017, during the preparation of Billy Bishop Toronto City Airport's 2018 Master Plan.

10.3.1 Meetings with Indigenous Communities

PortsToronto worked closely with Indigenous communities through meetings held throughout the course of the Project. **Table 10-2** provides a summary of these meetings with three above noted Indigenous communities.

Table 10-1: Summary of Correspondence with Indigenous Communities

Indigenous Community	Correspondence Date	Description
Mississaugas of the Credit First Nation	July 12, 2024	PortsToronto offered to formally engage Mississaugas of the Credit First Nation on the archaeological and cultural heritage assessments as part of the Project.
Huron-Wendat Nation	July 26, 2024	PortsToronto offered to formally engage Huron-Wendat Nation on the archaeological and cultural heritage assessments as part of the Project.
Mississaugas of the Credit First Nation	August 8, 2024	PortsToronto shared the Stage 1 Terrestrial Archaeology Report and the Ministry of Citizenship and Multiculturalism clearance letter issued in 2016, which covers an area similar to the Project Study Area.
Huron-Wendat Nation	August 8, 2024	PortsToronto followed up on the offer to formally engage Huron-Wendat Nation on the archaeological and cultural heritage assessments as part of the Project.
Huron-Wendat Nation	August 12, 2024	PortsToronto followed up on the offer to formally engage Huron-Wendat Nation on the archaeological and cultural heritage assessments as part of the Project.
Mississaugas of the Credit First Nation	August 12, 2024	Mississaugas of the Credit First Nation informed PortsToronto that there is no Field Liaison Representative available for the Project. Mississaugas of the Credit First Nation provided a contact should PortsToronto makes any discoveries during archaeological field work.
Six Nations of the Grand River	August 16, 2024	PortsToronto requested to meet with the Six Nations of the Grand River to determine their interests in relation to the Project.
Six Nations of the Grand River	August 26 and 27, 2024	PortsToronto followed up on their request to meet with the Six Nations of the Grand River to determine their interests in relation to the Project.
Huron-Wendat Nation	August 27, 2024	PortsToronto informed Huron-Wendat Nation of the schedule and timing of the Project's marine archaeology survey.
Huron-Wendat Nation	August 30, 2024	PortsToronto followed up to request Huron-Wendat Nation's participation and engagement in field survey work and marine archaeological assessment work.
Huron-Wendat Nation	August 30, 2024	- Huron-Wendat Nation confirmed receipt of PortsToronto's offers of engagement and stated they will be unable to join the Project field work. - Huron-Wendat Nation expressed that they would be interested in receiving a copy of the report to review and provide comments. - Huron-Wendat Nation requested that PortsToronto's provide a quote for their participation on the Project. - PortsToronto's confirmed that they would provide Huron-Wendat Nation with the Archaeological Assessment Report and Environmental Assessment Study Report for review and provided a quote for Huron-Wendat Nation's participation.
Six Nations of the Grand River	September 12, 2024	PortsToronto's followed up on their request to meet with the Six Nations of the Grand River to determine their interests in relation to the Project.
Six Nations of the Grand River	October 29, 2024	The Project Team provided the PowerPoint presentation, updates on the Project and PortsToronto's contact at Fisheries and Oceans Canada, based on the meeting with the Six Nations of the Grand River on October 4, 2024.
Mississaugas of the Credit First Nation	December 20, 2025	PortsToronto shared a copy of the draft Marine Archaeology, Terrestrial Archaeology, and Cultural Heritage Assessment Reports with the Mississaugas of the Credit First Nation for review.
Six Nations of the Grand River	December 20, 2025	PortsToronto shared a copy of the draft Marine Archaeology, Terrestrial Archaeology, and Cultural Heritage Assessment Reports with the Six Nations of the Grand River for review.
Huron-Wendat Nation	December 20, 2025	PortsToronto shared a copy of the draft Marine Archaeology and Terrestrial Archaeology Reports with the Huron-Wendat Nation for review.
Six Nations of the Grand River	January 2, 2025	Six Nations of the Grand River provided comments on Cultural Heritage Assessment Report.
Six Nations of the Grand River	May 1, 2025	The Project Team addressed the Six Nations of the Grand River comments on the Cultural Heritage Assessment Report.
Mississaugas of the Credit First Nation	June 6, 2025	PortsToronto shared the Draft Environmental Assessment Study Report and Technical Appendices for review and comments.
Huron-Wendat Nation	June 7, 2025	PortsToronto shared the Draft Environmental Assessment Study Report and Technical Appendices for review and comments.
Six Nations of the Grand River	June 8, 2025	PortsToronto shared the Draft Environmental Assessment Study Report and Technical Appendices for review and comments.
Mississaugas of the Credit First Nation	June 19, 2025	Mississaugas of the Credit First Nation provided comments on the Draft Environmental Assessment Study Report, inquiring about the creation of buffer zones, consideration of adjacent future developments, mitigation of cumulative effects of habitat loss, climate-related effects on the runway, and proposed compensation measures for aquatic and terrestrial habitats.
Mississaugas of the Credit First Nation	July 25, 2025	PortsToronto provided responses to Mississaugas of the Credit First Nation questions.
Mississaugas of the Credit First Nation	October 2, 2025	PortsToronto provided an update on the RESA Project and invited the Mississaugas of the Credit First Nation to a meeting to discuss the next phases.
Six Nations of the Grand River	October 2, 2025	PortsToronto provided an update on the RESA Project and invited the Six Nations of the Grand River to a meeting to discuss the next phases.
Six Nations of the Grand River	October 2, 2025	Six Nations of the Grand River acknowledged receipt of the information and inquired whether the Project area would be subject to an archaeological assessment.
Six Nations of the Grand River	October 2, 2025	PortsToronto provided responses to the Six Nations of the Grand River inquiry about the Project's archaeological assessments.
Huron-Wendat Nation	October 2, 2025	PortsToronto provided an update on the RESA Project and invited the Huron-Wendat Nation to a meeting to discuss the next phases.

Table 10-2: Summary of Meetings with Indigenous Communities

Meeting Date	Meeting Attendees	Meeting Summary
July 14, 2017	- Mississaugas of the Credit First Nation - PortsToronto	PortsToronto met with Mississaugas of the Credit First Nation as part of the consultation and engagement process for the 2018 Airport Master Plan, and committed to keeping Mississaugas of the Credit First Nation up to date on the RESA.
February 28, 2018	- Mississaugas of the Credit First Nation - PortsToronto	PortsToronto met with Mississaugas of the Credit First Nation to discuss the 2018 Airport Master Plan, the RESA and transportation connections to the Port Lands.
August 22, 2018	- Mississaugas of the Credit First Nation - PortsToronto	PortsToronto met with Mississaugas of the Credit First Nation in advance of the Airport Master Plan Public Meeting to provide updates on the RESA and Airport Master Plan recommendations.
December 13, 2018	- Mississaugas of the Credit First Nation - PortsToronto	PortsToronto met with Mississaugas of the Credit First Nation as part of their quarterly update meetings to provide updates on the progress of Transport Canada’s regulatory requirements towards RESA compliance.
August 22, 2023	- Mississaugas of the Credit First Nation - PortsToronto	PortsToronto met with Mississaugas of the Credit First Nation as part of their quarterly update meetings to provide a status update on the Project and other capital projects at Billy Bishop Toronto City Airport.
November 10, 2023	- Six Nations of the Grand River - PortsToronto - RESA Project Team	PortsToronto met with the Six Nations of the Grand River to provide an introduction to the RESA and outline the scope of work.
November 17, 2023	- Mississaugas of the Credit First Nation - Transport Canada - City of Toronto - PortsToronto - RESA Project Team	- PortsToronto hosted a meeting to understand the City of Toronto’s approach to Urban Indigenous consultation and engagement. - The attendees discussed the Indigenous communities and other groups that should be consulted by PortsToronto for implementation of RESA.
November 22, 2023	- Mississaugas of the Credit First Nation - PortsToronto - RESA Project Team	- PortsToronto met with Mississaugas of the Credit First Nation to provide an introduction to the Project and explain its connection to the 2018 Airport Master Plan. - PortsToronto presented the concepts that were part of the 2021 Airport Critical Infrastructure Program funding application. - PortsToronto confirmed that a request for proposal was being assembled for the implementation of the RESA and an Environmental Assessment would be completed.
December 5, 2023	- Mississaugas of the Credit First Nation - Transport Canada - City of Toronto - PortsToronto - RESA Project Team	PortsToronto hosted a meeting to finalize the plan for Project consultation with urban Indigenous communities.
June 4, 2024	- Mississaugas of the Credit First Nation - PortsToronto - RESA Project Team	PortsToronto met with Mississaugas of the Credit First Nation to provide briefing on the Project based on Transport Canada regulatory requirements.
June 7, 2024	- Mississaugas of the Credit First Nation - PortsToronto - Nieuport Aviation - RESA Project Team	PortsToronto met with Mississaugas of the Credit First Nation to provide additional information to the RESA Project briefing meeting that occurred on June 4, 2024.
August 21, 2024	- Mississaugas of the Credit First Nation - PortsToronto - RESA Project Team	PortsToronto met with Mississaugas of the Credit First Nation to provide an update on the RESA Environmental Assessment work being completed including natural heritage, archaeological and environmental technical work.
October 4, 2024	- Six Nations of the Grand River - PortsToronto - RESA Project Team	- PortsToronto met with the Six Nations of the Grand River to provide an update on the status of the Project, why the Project is needed to enhance safety per the Canadian Aviation Regulations. - Six Nations of the Grand River requested a copy of the draft Environmental Assessment Study Report once complete. - Six Nations of the Grand River requested to see the Archaeological and Cultural Heritage Assessments once complete. - Six Nations of the Grand River requested a contact at the Fisheries and Oceans Canada to arrange a meeting. - Six Nations of the Grand River indicated they were interested in reviewing an environmental impacts mitigation plan.

10.4 Engagement with Technical Stakeholders

As part of the consultation process for the Project, a Technical Advisory Committee was established, consisting of senior representatives from the City of Toronto, Transport Canada, Toronto and Region Conservation Authority and the Project team, including PortsToronto and its consultants. The purpose of Technical Advisory Committee meetings was to provide an opportunity for key stakeholders to share their perspective and offer advice to the Project Team at key points throughout the Environmental Assessment process. The Technical Advisory Committee meetings are structured around the following milestones:

- Project Kickoff: Confirming the initial Environmental Assessment work plan and aligning all stakeholders on the Project objectives.
- Completion of Gap Analysis: Presenting the findings, redefining the scope of work, and outlining next steps.
- Evaluation of RESA Alternatives: Introducing the Preliminary Preferred Alternative.
- Effects Assessment: Reviewing the comprehensive assessment of the Project’s effects.
- Draft and Final Environmental Assessment Study Report: Presenting the Environmental Assessment Study Report detailing the findings and conclusions of the Environmental Assessment.

Table 10-3 summarizes the Technical Advisory Committee meetings conducted as part the Project. To date, four meetings have been held on June 20, 2024; July 30, 2024; October 9, 2024; and November 25, 2024. Meeting materials with Technical Advisory Committee members are included in **Appendix O** of this Report.

Table 10-3: Summary of Technical Advisory Committee Meetings

Meeting	Meeting Summary
Technical Advisory Committee #1	■ The Project Team outlined the Technical Advisory Committee's purpose, provided Project background, introduced the current phase and scope, discussed proposed RESA alternatives, and presented consultation, the external review process, and next steps. ■ The City of Toronto noted that a Human Health Assessment is not expected for the Project but emphasized the need for clear communication to the public. ■ The City of Toronto requested full visibility on the agreement between Toronto and Region Conservation Authority and PortsToronto regarding Toronto and Region Conservation Authority's scope of work, which PortsToronto agreed to provide in writing.
Technical Advisory Committee #2	■ The Project Team summarized Technical Advisory Committee Meeting #1, action items, Public Meetings and Open House #1, an overview of the RESA Environmental Assessment process and Gap Analysis phase, the RESA Environmental Assessment schedule, and next steps. ■ The City of Toronto inquired about the list of the stakeholders to be consulted as part of the socio-economic baseline conditions and effects assessment. The Project team provided a list of interviewees and the rationale for their selection. ■ The City of Toronto asked about the marine archaeology work plan. The Project Team confirmed that Archaeological Research Associated Limited has been retained for the work and that results will be shared with the City for review. ■ The Project Team will share the RESA Gap Analysis Memorandum with the City of Toronto and Transport Canada for feedback. ■ The City of Toronto agreed to update the Technical Advisory Committee on the City's public engagement work plan and potential amendments to the City's Official Plan and their implications for the Project. ■ The Project Team and the City of Toronto agreed to co-ordinate a separate meeting to discuss the City's Official Plan and align consultation programs.
Technical Advisory Committee #3	■ The RESA Project Team summarized Technical Advisory Committee Meeting #2, action items, components of the Environmental Assessment Study, the evaluation of RESA alternatives, and next steps for the Technical Advisory Committee. ■ The City of Toronto inquired if natural hazard elements and off-site impacts, including the risk of increased flooding, had been considered. The Project team confirmed that these concerns will be addressed in the Environmental Assessment Study Report and shared with the Technical Advisory Committee. ■ The City of Toronto asked if the effects of construction equipment transporting lake infill material were considered. The Project Team confirmed that construction impacts were included in the evaluation of RESA alternatives. ■ The City of Toronto noted that RESA 2 and 3 are subject to the Official Plan Amendment process due to lake infill. The Project team confirmed that pre-application consultation with City Planning is scheduled to determine Amendment requirements. ■ The City of Toronto inquired if carbon-embodied construction materials had been considered. The Project Team confirmed that most lake infill material is expected to be natural quarried material.
Technical Advisory Committee #4	■ The Project team provided a summary of Technical Advisory Committee #3 and action items, a summary of Public Meeting and Open House #2, an overview of the effects assessment for RESA 3, and next steps for the Technical Advisory Committee. ■ The effects assessment process was discussed, and it was mentioned that RESA 3 had been selected as the preferred alternative in the Environmental Assessment report. ■ Findings from the detailed effects assessment conducted for RESA 3 were presented by the Project Team. ■ The City inquired whether opportunities for enhancement of habitat conditions have been identified for terrestrial habitats. The Project Team indicated that temporarily disturbed areas will be restored to baseline conditions by reintroducing native plants. The restoration plan is outlined as a recommendation in the Environmental Assessment Study Report. ■ The City inquired whether construction noise impacts were considered in the detailed effects assessment. The Project Team confirmed that a quantitative construction noise impacts assessment was completed as part of the RESA Environmental Assessment study. ■ The City questioned the approach taken for the air quality impacts assessment. The Project Team confirmed that in response to numerous requests from the public during Public Meeting #2, the quantitative air quality assessment for the RESA project has been expanded to include both the operational and construction phases of the preferred RESA alternative. ■ The City inquired whether other pollutants besides greenhouse gases were assessed. The Project Team mentioned that air quality impacts during both the construction phase and the operational phase were assessed. For the construction phase, pollutants expected from fuel combustion, material handling and road dust were included in the assessment. For the operational phase, the Project will not alter the number of flights or aircraft types, thus no additional air emissions from taxiway operations are expected. The improvements to taxiways and the creation of an airside perimeter road in RESA 3 are anticipated to reduce vehicle emissions and greenhouse gasses compared with other alternatives by increasing efficiency and minimizing idling times. ■ The City noted that policy analysis should extend beyond lakefilling provisions within Section 3.4.17 of the Official Plan, and should also encompass policies related to the Natural Heritage System, Environmentally Significant Areas, and other potentially significant natural heritage features. The Project Team acknowledged that additional policies apply, and that these would be captured in the Environmental Assessment Study Report.

10.5 Public Consultation

10.5.1 Public Meeting and Open House # 1

Public Meeting and Open House #1 was held in-person at George Brown College, with virtual participation options available, on July 17, 2024. The event was conducted in two sessions, at 2:00 p.m. and 6:00 p.m., and attended by members of the public, representatives from the City of Toronto, elected officials, Transport Canada, and the Project Team.

The purpose of Public Meeting and Open House #1 was to provide background on PortsToronto's role in the Project, the need for the Project, the proposed RESA alternatives, the Environmental Assessment process, the role of the City of Toronto's Waterfront Secretariat, and the next steps for the Project. The summary report for the Public Meeting and Open House #1, prepared by MASS LBP¹³, is included in

Appendix O.

A total of 44 people attended the 2:00 p.m. session in-person and seven connected virtually. A total of 26 people attended the 6:00 p.m. session in-person and five connected virtually.

The Project Team received 52 comments generated through conversations with the facilitators of Public Meeting and Open House #1 and 33 comment cards with questions or feedback. The responses from Public Meeting and Open House #1 predominantly raised concerns about the following issues:

- Environmental impacts including the extent of lakefilling and its impact on marine environment, shoreline, and local communities.
- Feasibility of other alternatives.
- Safety concerns.
- Tripartite Agreement extension.
- The airport future.
- Cost and funding.

A few participants expressed strong support for Billy Bishop Toronto City Airport, emphasizing its continued importance to Toronto. One respondent appreciated the focus on the safety benefits of the Project and suggested that this could be further emphasized.

13. MASS LBP is a third party consultant retained by PortsToronto to undertake the consultation process for the Project.

Public Meeting and Open House #1 materials including presentation slides deck and records of feedback received and the Project Team's response are included in **Appendix O** of this Report.

10.5.2 Public Meeting and Open House # 2

Public Meeting and Open House #2 took place on October 15, 2024, at the Westin Harbour Castle Conference Centre, offering both in-person and virtual participation options. The event was held in two sessions, at 2:00 p.m. and 6:00 p.m., and was attended by members of the public, City of Toronto representatives, elected officials, Transport Canada, and the Project team.

The purpose of the meeting was to share updates on the implementation of the RESA at Billy Bishop Toronto City Airport, present the findings of the Environmental Assessment, including the Preferred RESA Alternative, outline PortsToronto's RESA strategy, and discuss the next steps for the Project. The summary report for the Public Meeting and Open House #2, prepared by MASS LBP, is included in **Appendix O**.

A total of 88 people attended the 2:00 p.m. session in-person and 35 connected virtually. A total of 65 people attended the 6:00 p.m. session in-person and 50 connected virtually.

The Project team received 110 comments generated through conversations with the facilitators of Public Meeting and Open House #2 and 17 comment cards with questions or feedback. The responses elicited from Public Meeting and Open House #2 were most prominently concerns regarding the following concerns:

- Environmental concerns including disruption to lake ecosystems, impact on shoreline health, local beaches, water flow, and air pollution.
- Perceived lack of meaningful consultation with queer communities.
- Safety concerns.
- Tripartite Agreement extension.
- The future of Billy Bishop Toronto City Airport.
- Cost and funding.
- Transparency.

However, there was also positive feedback, noting that:

- The level of engagement was excellent.
- The quality of information provided was great.
- Presentations were clear and effective.

Public Meeting and Open House #2 materials including presentation slides deck and records of feedback received and the Project Team's response are included in **Appendix O** of this Report.

10.5.3 Public Review of the Draft Environmental Assessment Study Report

Further to the publication of the Draft Environmental Assessment Study Report to the Project website on June 2, 2025, the public review and comment period continued through to July 7, 2025. Members of the public were invited to review the Environmental Assessment Study Report and provide comments. 38 public comments were received via the Project website, and the Project team responded to each individual comment via the Project email address.

Public comments primarily focused on the following issues:

- Community impacts during construction including noise, air quality, lighting, and traffic.
- Air quality assessment.
- Noise assessment.
- Impact on aquatic habitat.
- Consideration of other RESA Alternatives.
- The airport future.
- Cost and funding.
- Impacts on marine navigation and lake users.
- Climate change impacts.
- Health impacts.
- Public consultation.
- Potential impacts on wildlife and their habitat including species at risk.

Some members of the public acknowledged the importance of implementing RESAs to meet Transport Canada's safety requirements and supported the airport's efforts to improve safety and infrastructure. A few respondents expressed support for RESA 3, recognizing its potential benefits for operational efficiency and emissions reduction.

Records of the public comments and the Project team responses are included in **Appendix O**.

10.6 Consultation with Agencies

Table 10-4 provides a comprehensive summary of consultation activities with key agencies throughout the Project. The following agencies have been engaged in the consultation process:

- Consultation with the Impact Assessment Agency of Canada regarding requirements of the Impact Assessment Act and its applicability to the Project.
- Consultation with Transport Canada regarding compliance with the Canadian Aviation Regulations, Environmental Assessment process, obligations under Section 82 of the Impact Assessment Act, Environmental Assessment Study Report, and permitting under the Navigation Protection Program. The consultations will be continued throughout detailed design and construction.
- Consultation with the City of Toronto regarding the Environmental Assessment Study, including the Gap Analysis, the Environmental Assessment process, continued discussions regarding the Environmental Assessment Study Report, and comments on the Draft Environmental Study Report. Engagement will continue throughout detailed design and construction.
- Consultation with Toronto and Region Conservation Authority pertaining to aquatic data collection and monitoring, opportunities for enhancing aquatic habitat, consultation with Fisheries and Oceans Canada, and exploring potential off-site compensation sites. Discussions will continue through detailed design and construction.
- Consultation with the Ministry of the Environment, Conservation and Parks regarding requirements under the Environmental Assessment Act, and its applicability to the Project.
- Ongoing consultation with the Ministry of the Environment, Conservation and Parks regarding aquatic and terrestrial Species at Risk through the submission of an Information Gathering Form.
- Ongoing consultation with Fisheries and Oceans Canada regarding fish and fish habitat through the submission of a Request for Review.
- Consultation with the Natural Heritage Information Centre to obtain supplementary data on Species at Risk within or near the Project Study Area.
- Consultation with the Ministry of Natural Resources to confirm the Project requirements under Public Land Act, and Lakes and Rivers Improvement Act.

- Consultation with the Ministry of Citizenship and Multiculturalism for compliance with the ministry's requirements for archaeological field work and reporting.
- Consultation with Environment and Climate Change Canada pertaining to species at risk permitting.
- Consultation with Aquatic Habitat Toronto to provide updates on the Project.

Interactions between the Tripartite partners have been multifaceted to allow PortsToronto to undertake the necessary steps to deliver RESA within the timeframe mandated by the Canadian Aviation Regulations. As co-signatories to the Tripartite Agreement, Transport Canada, the City of Toronto, and PortsToronto have been actively engaging through working group meetings to identify a path forward for the various components associated with the Project.

All materials and records from agency meetings to-date are provided in **Appendix O** of this Report.

10.7 Project Website

To facilitate consultation with members of the public, the Project team developed a Project website (<https://www.safecleanquiet.ca/>). The Project website included an overview of the Project, the work completed to date, Project related news, notifications, previous consultation events, and frequently asked questions and answers. The Project website also included contact information for the Project Team to allow for effective two-way dialogue. Additionally, prior to public consultation events, the Project website included links to pre-register for public meetings and open houses and receive links to attend the meetings virtually. As mentioned above, the Draft Environmental Study Report was published to the Project website on June 2, 2025 and members of the public and stakeholders were invited to review and comment via the website until July 7, 2025.

10.8 Draft Environmental Assessment Study Report Public Consultation and Review Period

Following the publication of the Draft Environmental Assessment Study Report on June 2, 2025, a public review period took place, ending on July 7, 2025. Following this period, the Project Team took all comments received into consideration and incorporated necessary revisions to the final report based on the feedback received from Project stakeholders. The report includes a summary of the comments received along with the Project Team's responses (refer to **Appendix O**).

Table 10-4: Summary of Agency Consultation and Correspondence

Agency	Date	Correspondence
Transport Canada	July 12, 2024	Transport Canada sent a letter to PortsToronto pertaining to the efforts to ensure compliance with the Canadian Aviation Regulations and regulatory obligations related to the RESA over the next three years.
Transport Canada	November 27, 2024	PortsToronto met with Transport Canada to confirm the Project requirements under Section 82 of the Impact Assessment Act. To meet their joint requirements under Section 82 of the Impact Assessment Act, PortsToronto and Transport Canada completed an Environmental Effects Evaluation to determine if the Project components on Transport Canada’s land could cause adverse environmental effects.
Transport Canada	January 21, 2025	Transport Canada provided comments on the draft Environmental Assessment Study Report.
Transport Canada	January 27, 2025	Transport Canada and PortsToronto issued a Notice of Determination, stating that the Project is unlikely to cause significant adverse environmental effects on federal land.
Transport Canada	January 29, February 4 and February 10, 2025	The Project Team contacted Transport Canada -Navigation Protection Program for details and clarifications on permitting requirements under Navigable Water Act.
Transport Canada	January 31, February 5, and February 20 2025	Transport Canada provided clarifications on the permitting requirements for the Navigation Protection Program under Navigable Water Act.
Transport Canada	July 15, 2025	A Canadian Navigable Waters Act Application for the proposed lake infill for the RESA project has been submitted to the Navigation Protection Program. The application is currently under review by Transport Canada.
Impact Assessment Agency of Canada	July 16, 2024	PortsToronto submitted a letter to Impact Assessment Agency of Canada requesting formal confirmation that the Project is not a designated Project as defined in the Physical Activities Regulation of the Impact Assessment Act, and there are no requirements at the federal level for PortsToronto to undergo an Impact Assessment Act process.
Impact Assessment Agency of Canada	October 09, 2024	Impact Assessment Agency of Canada provided a response to PortsToronto request confirming that the Project is not a designated project under Impact Assessment Act, and an Initial Project Description is not required.
Impact Assessment Agency of Canada	November 14, 2024	Minister of Environment and Climate Change received a request from the community group, Parks not Planes, to designate the Project under Section 9 (1) of Impact Assessment Act.
Impact Assessment Agency of Canada	December 9, 2024	Impact Assessment Agency of Canada sent a letter to PortsToronto notifying them of the designation request and requesting information on the proposed Project.
Impact Assessment Agency of Canada	December 23, 2024	PortsToronto responded to Impact Assessment Agency of Canada’s information requests on December 23, 2024, providing details on the Project, the proposed design and its potential effects.
Impact Assessment Agency of Canada	January 24, 2025	PortsToronto received a letter from Impact Assessment Agency of Canada indicating that the Agency conducted a review, and the president of the Impact Assessment Agency of Canada made the decision not to designate the Project pursuant to Section 9 of the Impact Assessment Act.
Environment and Climate Change Canada	April 2, 2025	The Project Team submitted a letter to Environment and Climate Change Canada – Canadian Wildlife Service to confirm the proposed works are not in contravention of Species At Risk Act for Piping Plover and therefore a permit under Section 73 is not required.
Environment and Climate Change Canada	October 10, 2025	The Project Team confirmed with Environment and Climate Change Canada that Species At Risk Act is not applicable to RESA 1; as there will be no impact on a federal species at risk habitat.
Ministry of Citizenship and Multiculturalism	September 10, 2025	The Ministry of Citizenship and Multiculturalism completed their review of the Terrestrial Archaeological Assessment Report (Appendix K), and deemed the report compliant with ministry requirements for archaeological fieldwork and reporting. The report has been entered into the Ontario Public Register of Archaeological Reports.
Ministry of Citizenship and Multiculturalism	September 12, 2025	The Ministry of Citizenship and Multiculturalism completed their review of the Marine Archaeological Assessment Report (Appendix J), and deemed the report compliant with ministry requirements for archaeological fieldwork and reporting. The report has been entered into the Ontario Public Register of Archaeological Reports.
Ministry of the Environment Conservation, and Parks	July 16, 2024	PortsToronto submitted a letter to the Ministry of the Environment, Conservation and Parks to confirm the understanding that the Project does not trigger the requirements of the provincial Environmental Assessment Act.
Ministry of the Environment Conservation, and Parks	December 18, 2024	Ministry of the Environment, Conservation and Parks confirmed that the Project does not trigger the requirements of the provincial Environmental Assessment Act.

Agency	Date	Correspondence
Ministry of the Environment Conservation, and Parks	July 18, 2025	The Project Team submitted an Information Gathering Form for aquatic and terrestrial Species at Risk identified during the Environmental Assessment process.
Ministry of the Environment Conservation, and Parks	August 21, 2025	Ministry of Environment, Conservation and Parks confirmed that a permit is recommended under the amended Endangered Species at Risk, for American Eel habitat on the east RESA, as the only Species At Risk anticipated to be impacted.
Fisheries and Oceans Canada	June 13, 2025	The Project Team submitted a Request for Review for anticipated impacts to fish and fish habitat below the normal high-water mark of Lake Ontario. The Request for Review is currently under review by Fisheries and Oceans Canada.
Ministry of Natural Resources	March 20 and April 7, 2025	The Project Team submitted a letter to clarify the Project permitting requirements under the Public Lands Act.
Ministry of Natural Resources	March 31 and April 8, 2025	The Ministry of Natural Resources responded to the Project Team confirming that the lands owned by PortsToronto are considered private lands, and would not require a permit under the Public Lands Act.
Ministry of Natural Resources	September 22, 2025	Project Team confirmed with the Ministry of Natural Resources that Lakes and Rivers Improvements Act would not apply to the Project.
Toronto and Region Conservation Authority	July 8, 2024	- Toronto and Region Conservation Authority requested additional information on the RESAs construction concepts, specifically related to barging operations, the lakefill process, and timing and phasing of work at both runway ends. - Toronto and Region Conservation Authority agreed with the Project team’s recommended approach to build the perimeter breakwater first and then import fill into the lagoon at both ends of the runway simultaneously within approved periods of the year. Approval will be required from the Fisheries and Oceans Canada. - The Project Team agreed to provide Toronto and Region Conservation Authority with an updated plan outlining the extent of disturbances caused by the construction of the RESAs. The Project Team requested Toronto and Region Conservation Authority’s fish community surveys data and fish telemetry date, and lakebed substrate and vegetation surveys. Toronto and Region Conservation Authority confirmed that the data will be collected in the summer 2024.
Toronto and Region Conservation Authority	February 28, 2025	The Project Team met with Toronto and Region Conservation Authority to discuss maximizing aquatic habitat opportunities, as well as exploring potential off-site compensation sites.
Toronto and Region Conservation Authority	February 6 and June 5 2025	The Project Team met with Aquatic Habitat Toronto to provide an update on the Project.
City of Toronto	September 13, 2024	City of Toronto provided comments on the proposed scope of work for Gap Analysis and Environmental Assessment at Billy Bishop Toronto City Airport.
City of Toronto	November 1, 2024	City of Toronto provided comments on the Environmental Assessment Study, including the Gap Analysis, subjects requiring clarification in the Draft Environmental Assessment, and public involvement.
City of Toronto	December 19, 2024	The Project Team provided responses to the City’s comments.
City of Toronto	January 21, 2025	City of Toronto provided comments on the Draft Environmental Assessment Study Report.
City of Toronto	February 28, 2025	The City of Toronto engaged a peer reviewer to review the Natural Heritage Effects Assessment. The Project Team met with the City of Toronto and their consultant to discuss the comments on the Environmental Assessment Study Report specifically the Natural Heritage Effects Assessment. The City of Toronto and their consultant’s comments were addressed by the Project team.
City of Toronto	July 4, 2025	City of Toronto provided comments on the Draft Environmental Assessment Study Report.
City of Toronto	October 20, 2025	The Project Team provided response to the City’s comments.

11. Commitments for Future Work

11.1 Commitments to Future Work

This Environmental Assessment Study Report identifies specific items to be reviewed and confirmed during the detailed design and construction phases of the Project. Items to be addressed are included in **Table 11-1** below.

Table 11-1: Commitments to Future Work

Category	Project Phase	Commitments to Future Work
Technical and Engineering –Utilities	Detailed Design and Construction	RESA 1, RESA 2 and RESA 3 ■ Building upon the utility locates conducted during the preliminary design, the detailed design phase shall finalize any necessary utility relocation or protection measures to prevent conflicts with the Project footprint. ■ The designer and/or contractor shall be aware of and consider the existing 2400 mm Toronto Water transmission watermain located under the breakwater footprint at the east RESA. ■ The designer and/or contractor shall consult with Toronto Water regarding the potential impacts on nearby water and wastewater infrastructure, including any utilities requiring infrastructure protection, rehabilitation, or relocation. ■ Close co-ordination with utility companies shall be maintained throughout the design and construction to ensure the seamless integration of utilities within the Project.
Technical and Engineering –Topographic Survey	Detailed Design	RESA 1, RESA 2 and RESA 3 ■ A detailed topographic survey shall be completed; as required, to meet specific design requirements, including addressing any changes or updates to site conditions identified since the preliminary design survey.
Technical and Engineering –Construction Plan	Detailed Design	RESA 1, RESA 2 and RESA 3 ■ A detailed Construction Management Plan, including a comprehensive schedule, shall be developed during the detailed design phase. This plan shall identify key milestones, co-ordinate contractor requirements, and determine critical path activities to ensure timely and efficient project delivery. The plan shall require proactive consultation with the community and local businesses on anticipated works and must make best efforts to minimize community impacts. ■ The Construction Management Plan will be shared with the community in advance of construction and will be updated, when required.
Technical and Engineering –Plan of Construction Operations	Detailed Design	RESA 1, RESA 2 and RESA 3 ■ The Project will require a Plan of Construction Operations, as mandated by aviation regulations. The Plan of Construction Operations shall describe temporary physical and operational changes to the airfield during construction and include mitigation measures, compliance with aeronautical standards, and risk assessment or safety case provisions.
Natural Environment-Vegetation, Terrestrial Species and Habitat	Detailed Design	RESA 1, RESA 2 and RESA 3 ■ Compensation, enhancement, and restoration measures shall be developed in consultation with the City of Toronto, Toronto and Region Conservation Authority and/or other regulatory agencies during detailed design, and should cover an area equal in size or impact for each RESA alternative as follows: – RESA 1: 575 square metres. – RESA 2: 2,935 square metres. – RESA 3: 4,480 square metres total, of which at least 1,810 square metres of enhancements/restoration must occur within the Cottonwood Treed Dune and Mineral Open Beach Bar. ■ Details of enhancement and restoration measures shall be confirmed during detailed design and to the satisfaction of the City of Toronto; acting reasonably, but must also comply with all applicable airport safety regulations, ensuring that these measures do not inadvertently attract wildlife or pose bird hazard risks to airport operations. RESA 3 ■ A tree and regionally rare plants inventory shall be conducted to quantify the number of trees and/or plants lost or removed, informing compensation and enhancement/restoration measures. ■ A Beach and Dune Edge Management and Monitoring Plan shall be prepared, which will identify the planting of native dune grasses and other measures to stabilize sand, reduce soil erosion, and mitigate other edge effects, to be implemented during and post-construction.
Natural Environment-Vegetation, Terrestrial Species and Habitat	Construction	RESA 1, RESA 2 and RESA 3 ■ Vegetation removal shall be restricted outside of the bird nesting period (April 1 to August 31) to avoid incidental take and prevent contravention of the Migratory Birds Convention Act (1994).
Natural Environment-Aquatic Species and Habitat	Detailed Design	RESA 1, RESA 2 and RESA 3 ■ Consultation with regulatory agencies (Fisheries and Oceans Canada, and the Ministry of Environment, Conservation and Parks) shall be conducted to determine the potential offsetting and / or compensation requirements needed to remain compliant with the applicable federal and provincial legislations. ■ Enhancement and / or restoration measures shall be developed during detailed design in consultation with regulatory agencies and in partnership with the Toronto and Region Conservation Authority, Aquatic Habitat Toronto, and other stewardship groups (as appropriate) and shall cover an area equal in size or impact for each RESA alternative as follows: – RESA 1: 35,996 square metres. – RESA 2: 58,855 square metres. – RESA 3: 88,253 square metres. ■ Details of enhancement and restoration measures shall be confirmed during detailed design and to the satisfaction of the City of Toronto; acting reasonably, but must also comply with all applicable airport safety regulations, including adherence to restricted areas (e.g., the Marine Exclusion Zone).

Category	Project Phase	Commitments to Future Work
Natural Environment- Species At Risk	Detailed Design	RESA 1, RESA 2 and RESA 3 ■ Potential Species at Risk presence/absence surveys shall be conducted during detailed design, following the Ministry of Environment, Conservation and Parks approved protocols and guidelines. These surveys shall reflect any updates to the Species at Risk habitat screening and design-related impacts to suitable Species at Risk. ■ The necessary permits and approvals shall be obtained under the Fisheries Act and Endangered Species Act, as applicable.
Natural Environment- Aquatic Species and Habitat	Construction	RESA 1, RESA 2 and RESA 3 ■ The applicable construction timing windows (works permitted from July 16 – August 31 of any given year) for in-water work shall be followed. Should the Project regulatory compliance timeline require construction outside this timing window, authorization from Fisheries and Oceans Canada will be required.
Natural Environment – Water Circulation and Quality	Detailed Design	RESA 1, RESA 2 and RESA 3 ■ City of Toronto shall be engaged to update their current water quality modelling of the harbour to confirm that there are no concerns related to the RESA in the context of long-term water quality in the Inner Harbour.
Storm Drainage / Stormwater Management	Detailed Design	RESA 1, RESA 2 and RESA 3 ■ A worksite isolation plan shall be developed for the proposed undertaking.
	Detailed Design/ Prior to Construction	RESA 1, RESA 2 and RESA 3 ■ An Erosion and Sediment Control Plan shall be developed during the detailed design stages, prior to the start of construction and implemented during construction to mitigate the risk of potentially contaminated runoff through containment measures, preventative construction techniques, and site stabilization mechanisms.
Soil and Sediment	Construction	RESA 1, RESA 2 and RESA 3 ■ A Soil Management Plan shall be developed to outline procedures for handling, storing, and disposing of excess soil, ensuring compliance with environmental regulations and minimizing potential environmental impacts.
Socio-Economic – Air Quality	Detailed Design and Construction	RESA 1, RESA 2 and RESA 3 ■ A Construction Air Quality Management Plan shall be developed and implemented for the duration of the construction phase, which shall include practices to minimize combustion emissions and fine particulate release from mobile equipment, materials handling, and wind erosion. The Air Quality Management Plan will be shared with the community in advance of construction and will be updated, when required.
Socio-Economic – Noise	Detailed Design and Construction	RESA 1, RESA 2 and RESA 3 ■ A Construction Noise Management Plan shall be developed and implemented for the duration of the construction phase, which shall include efforts to minimize community impacts by employing ‘best practices’ for noise and sound-induced vibration mitigation. The Noise Management Plan will be shared with the community in advance of construction and will be updated, when required.
Socio-Economic- Land use and Built Form	Detailed Design and Construction	RESA 2 and RESA 3 ■ A site-specific Official Plan Amendment shall be completed if the Project does not comply with the City of Toronto Official Plan Policies due to lakefilling and expansion of the boundary of the airport.
Socio-Economic- Land use and Built Form	Detailed Design	RESA 1, RESA 2 and RESA 3 ■ Should the airspace operations requirements change impacting the Airport Zoning Regulations, additional reviews and updates will be required.
Socio-Economic- Traffic	Detailed Design and Construction	RESA 1, RESA 2 and RESA 3 ■ A detailed assessment of potential traffic disruptions shall be completed, including measures to minimize disruptions to existing traffic and pedestrian flows. ■ A Construction Traffic Management Plan will be developed during detailed design, in consultation with the City, relevant agencies and stakeholders, and to the satisfaction of the City, acting reasonably. The Traffic Management Plan will be shared with the community in advance of construction and will be updated, when required. ■ Mitigation measures shall be developed in consultation with essential service providers, including the Toronto Police Marine Unit, ORNGE, water taxi and ferry services, and the Toronto Transit Commission, to minimize disruption of access to public services and institutions or barriers to emergency services on land or in the water during or after construction.
Cultural Environment- Cultural Heritage Resources	Detailed Design	RESA 1, RESA 2 and RESA 3 ■ A Heritage Impact Assessment shall be completed for the Toronto Island Airport Terminal ‘A’ Building and the Ned Hanlan Memorial, identifying any potential impacts (if any) and providing mitigation measures for these listed resources. The assessments shall be conducted by a qualified person(s).
Consultation	Detailed Design/ Construction	RESA 1, RESA 2 and RESA 3 ■ Continuous public consultation shall be maintained to minimize disruptions related to noise, air quality, traffic and navigation disruptions during construction. ■ Consultation with Hanlan ferry operators is required in order to obtain input on how the RESA extensions could affect their operations.

11.2 Permits and Approvals

A list of federal and provincial legislation, and other jurisdictional permits and/or approvals applicable or potentially applicable to the Project are summarized in **Table 11-2**.

Table 11-2: Anticipated Key Permits and Approvals

Permit/Approval/Legislation	Regulator	Description
Federal		
Federal Fisheries Act Authorization	Fisheries and Oceans Canada	■ A Request for Review form will be required to be submitted to Fisheries and Oceans Canada as works below the normal high-water mark and lake infilling are anticipated. ■ Following review by a Fisheries and Oceans Canada biologist, a Letter of Advice may be provided which outlines recommended mitigation measures to be considered for implementation to avoid contravention of the federal Fisheries Act. ■ During their review, should Fisheries and Oceans Canada determine that the proposed works are likely to result in the death of fish or a harmful alteration, disruption, or destruction of fish habitat, the Project may be required to apply for an authorization under the <i>Fisheries Act</i>. As part of the application for authorization, an offsetting plan must be developed, typically in consultation with Fisheries and Oceans Canada, which describes measures that the Project will undertake to compensate for the anticipated Project impacts. Given the anticipated area of impact associated with lake infill, an authorization under the Federal Fisheries Act will likely be required for the Project.
Navigation Protection Program Approval under Canadian Navigable Waters Act	Transport Canada	■ Since Lake Ontario is found on the Schedule to the Canadian Navigable Waters Act, approval from Transport Canada under the Navigation Protection Program might be required. An application for an approval should be submitted to Transport Canada.
Migratory Birds Protection under Migratory Birds Convention Act and Migratory Bird Regulation 2022	Environment and Climate Change Canada	■ An airport permit is issued under subparagraph 12(1)(c) of the Migratory Birds Regulations 2022 if a migratory bird is considered to pose a danger to aircraft operation. The permit holder must comply with the Species at Risk Act when undertaking any actions affecting Migratory Birds Convention Act protected bird species that are also listed as Threatened, Endangered or Extirpated under Schedule 1 of the Species at Risk Act. Furthermore, an airport permit does not authorize the removal or destruction of a migratory bird eggs or nests or actions related to migratory birds that are causing serious damage or danger to people or other property or structures. A different damage or danger permit may be required to authorize these activities if needed.
Federal Species at Risk protection under Species at Risk Act, 2002	Environment and Climate Change Canada	■ No permit is anticipated for terrestrial Species at Risk. ■ Permitting for aquatic Species at Risk (Shortnose Cisco) is unlikely given the habitat preferences of the species and general lack of recorded occurrences within the aquatic study area.
Provincial		
Endangered Species Act Permit or Authorization under Endangered Species Act	Ministry of the Environment Conservation, and Parks	■ Permits under the Endangered Species Act may be required; although unlikely, for removal of Piping Plover habitat. General habitat protection does not include an area where the species formerly occurred or has the potential to be reintroduced unless members of the species depend on that area to carry out their life cycle processes (Ministry of the Environment Conservation, and Parks, 2021). This species does not come back to Hanlan’s Point Beach each year and therefore, consultation with the Ministry of the Environment, Conservation and Parks is required to confirm if general habitat protections apply and if permits are required under the Endangered Species Act. ■ As American Eel has been identified as potentially occurring within the aquatic study area, and potentially suitable habitat has also been noted in this location and could be impacted by the Project. An Overall Benefit Permit under the Endangered Species Act may be required. ■ An Information Gathering Form will be submitted to the Ministry of the Environment, Conservation and Parks to initiate consultation and determine whether further permitting may be required. ■ Should an Endangered Species Act permit (i.e., Overall Benefit Permit) be required, an official Permit Application Form will be prepared and submitted to the Ministry of the Environment, Conservation, and Parks.
Fish and Wildlife Conservation Act	Ministry of Natural Resources	■ During construction, a Licence to Collect Fish for Scientific Purposes will be required to relocate fish and mussels outside of the isolated work area. ■ A Wildlife Scientific Collector’s Authorization will be required in the event that wildlife will need to be relocated outside of the construction work area. ■ No wildlife will be kept in captivity. Any wildlife that needs to be relocated, or injured will be released in nearby suitable habitat outside of the construction area or transported to a wildlife rehabilitation centre. ■ There were no nests of specially protected raptors (e.g., hawks, eagles, owls) or birds (e.g., jays, blackbirds, kingfisher), dens of furbearing mammals or beaver dams identified within the aquatic or terrestrial study areas. Should any of these appear during construction that require removal, the Ministry of Natural Resources should be contacted for next steps and appropriate authorizations, as required.
Archaeological and Cultural Heritage Clearances	Ontario Heritage Act/ Ministry of Citizenship and Multiculturalism	■ Ministry of Citizenship and Multiculturalism’s concurrence of the Stage 1 Terrestrial Archaeology Report and Marine Archaeology Assessment Reports is required.
Ontario Regulation 406/19: On-Site and Excess Soil Management	Environmental Protection Act / Ministry of the Environment, Conservation, and Parks	■ Ontario Regulation 406/19: On-Site and Excess Soil Management may be triggered should the results of lakebed soil testing (ongoing) indicate that dredging and removal is required.

Permit/Approval/Legislation	Regulator	Description
Ontario Regulation 63/16: Water Taking	Environmental Protection Act / Ministry of the Environment Conservation, and Parks	Any local dewatering must comply with Ministry of the Environment, Conservation and Parks water taking permits and approvals in accordance with the Ministry of the Environment, Conservation and Parks Permit to Take Water and meet regulatory requirements for daily volumes.
Regional		
Ontario Regulation 41/24: Prohibited Activities, Exemptions and Permits	Conservation Authorities Act /Toronto and Region Conservation Authority	The Project is located within the Toronto Waterfront Screening Area and projects within this area are exempt from Toronto and Region Conservation Authority’s Regulatory approval process. As such, a permit under the Conservation Act is not required. In the absence of the formal permitting process. PortsToronto may voluntarily request Toronto and Region Conservation Authority to review and comment on detailed design activities with Project construction, maintenance or emergency activities within these areas along the shoreline.
Municipal		
City of Toronto Approvals	City of Toronto Official Plan Toronto Water	- Subject to consultation with the City of Toronto, an Official Plan Amendment may be required for lakefilling and to alter the current delineated boundary of Billy Bishop Toronto City Airport and the Toronto Island as per Site and Area Specific Policies 192 and 194. - Depending on the extent of impact of the East RESA footprint to the Toronto Water watermain, it may be subject to approval from the City or the Ministry of the Environment, Conservation and Parks prior to construction, in the event of an alteration to the watermain. An alteration refers to additions, modifications, replacements or extensions to municipal drinking water and sewage infrastructure that is owned by or to be assumed by the City. The City reviews requests for alterations that require approval.

11.3 Next Steps

Following the publication of the Environmental Assessment Study Report, the Project is expected to advance through the following key activities and milestones:

- Detailed Design and Permitting Approvals: Anticipated from May 2025 through early 2026, focusing on refining technical aspects and securing necessary regulatory clearances.
- Stakeholder Consultation: Engagement will continue during subsequent phases as required to address feedback, inform stakeholders, and meet regulatory and community expectations.
- Phase 1 Construction: Scheduled for completion by July 2027, this phase will prioritize critical works, including breakwater construction and RESA development, ensuring the airport is compliant with Transport Canada's July 2027 RESA operational deadline.
- Phase 2 Construction: Following RESA operational completion, remaining Project elements will be undertaken. These include remaining infill and airfield construction not required for RESA compliance.

This phased approach ensures systematic progression while maintaining operational continuity and minimizing disruptions.

As the owner and operator of Billy Bishop Toronto City Airport, PortsToronto required two key amendments to the Tripartite Agreement:

- Extending the landmass to accommodate RESA.
- Extending the agreement's term to secure financing for this major capital Project.

Despite the outcome of the present Environmental Assessment, a decision was required amongst the Tripartite Partners to amend the Tripartite Agreement, completed on January 28, 2025. The amended agreement provides the conditions required to achieve compliance with Transport Canada mandated RESA. Among the other conditions outlined in the amended agreement, PortsToronto shall develop a RESA Construction Management Plan that minimizes community impacts including overnight work and shall develop a Traffic Management Plan related to construction activities, prior to the commencement of construction, and to the satisfaction of the City, acting reasonably.

PortsToronto will now collaborate with City staff and Transport Canada to implement RESA based on the terms outlined in the January 2025 Tripartite Amending Agreement.

11.4 Project Changes

It is recommended that an addendum to the Environmental Assessment Study Report be prepared if a significant change in the environmental setting occurs or changes to the Project are proposed following the completion of the Environmental Assessment Study that result in new effects or significantly greater effects than what has been assessed. An addendum would ensure that any significant change in environmental setting or modifications to the Project's scope, design, or implementation approach that result in new effects or significantly greater effects beyond what was assessed in this Environmental Assessment are fully evaluated and documented.

Key circumstances that may necessitate an addendum to this Project include significant changes in the environmental setting or adjustments to the Project's footprint, infrastructure, or activities that were not covered in this Environmental Assessment Study, during detailed design.

The extent of proposed changes should be assessed to determine whether an addendum is required. The assessment would consider the following questions:

- Does the change increase the area of lakefilling?
- Are new properties impacted?
- Are there significantly new environmental conditions in the Project Study Area or related new government policies that need to be considered?
- Does the change result in the need for an approval or permit that otherwise wouldn't be required?
- Does the change result in nuisance effects (such as noise and dust) to residents, recreational users, businesses, or other users that were not considered in the Environmental Assessment, or result in a measurable increase to nuisance effects?
- Does the change increase the amount of Significant Wildlife Habitat affected?

If the answer to any of these questions is "yes", then an addendum should be prepared.

The results of the assessment will be reviewed with the City of Toronto and Transport Canada prior to deciding whether an addendum is required. In addition, if the proposed changes are discussed with the affected parties and those parties agree that an addendum is not required, then none is prepared.

If an addendum is required, it should include the following information:

- A description of the Project Study Area.
- The reason for the proposed change.

- The identification and evaluation of alternatives, as appropriate.
- A description of the proposed change.
- The reason for the proposed change.
- The net environmental impacts or the commitments that differ from those documented in the original Environmental Assessment.
- A description of any proposed commitments to future work or measures for mitigating any negative impacts that the proposed change might have on the environment.
- Consultation summary.

Following the publication of the draft addendum report for a 30-day public review period, the Project Team shall make any necessary revisions to the report based on the feedback received from stakeholders and Indigenous communities and publish the final addendum report. A summary of the comments received, and the Project Team's response shall be included in the report.

12. References

AECOM, 2017:

Environmental Assessment of Proposed Runway Extension and Introduction of Jets at Billy Bishop Toronto City Airport Environmental Study Report. Appendix C-1 to C-11. September 2017.

AECOM, 2018:

Modelling to Assess Water Quality Impacts from Runway End Safety Area. April 2018.

AECOM, 2019:

Climate Change and Extreme Weather Vulnerability Assessment of PortsToronto Assets. May 2019.

Airports International, 2024:

Billy Bishop Toronto City Airport has Released its 2023 Environment, Social, and Governance Report. Available at:

<https://www.airportsinternational.com/article/ytz-publishes-latest-esg-report>.

Accessed August 2024.

Aquatic Habitat Toronto, 2003:

The Toronto Waterfront Aquatic Habitat Restoration Strategy. 2003.

ASCE, 2012:

Planning and Design Guidelines for Small Craft Harbours, 3rd Edition, ASCE Manuals and Reports on Engineering Practice. 2012.

Avia NG, 2024:

Runway 08/26 RESA Alternatives Study. PortsToronto/ Billy Bishop Toronto City Airport. April 2024.

Baird & Associates, 2012:

Billy Bishop Toronto City Airport Lakefill Environmental Assessment Screening, Shoreline and Coastal Environment. 2012.

Baird & Associates, 2015:

Gibraltar Point Erosion Control Final Design. 2015.

Baird & Associates, 2018:

Gibraltar Point Erosion Control, Nearshore Reef Design Report. 2018.

Baird & Associates, 2019a:

Toronto Islands Flood Characterization and Risk Assessment Project. Flood Characterization Report. March 2019.

Baird & Associates, 2019b:

Updated Analyses using 2019 Water Levels. September 2019.

Baird, 2010:

Don Mouth Naturalization and Port Lands Flood Protection Project. June 2010.

Billy Bishop Toronto City Airport, 2018:

2018 Airport Master Plan. 2018.

Cadillac Fairview, 2015:

East Harbour. Available at <https://cadillacfairview.com/development/east-harbour>. Accessed March 2025.

Caldwell, 2019:

LEVELnews, Great Lakes - St. Lawrence River Water Levels. Prepared for Meteorological Service Canada Environment and Climate Change Canada. 2019.

City of Toronto, 2003:

City of Toronto Making Waves - Central Waterfront Secondary Plan II. 2003.

City of Toronto, 2011:

Butterflies of Toronto: A Guide to their Remarkable World. Available online at: https://www.toronto.ca/wp-content/uploads/2017/08/969e-Biodiversity_ButterfliesBook-Division-Planning-And-Development.pdf. Accessed August 2024.

City of Toronto, 2012:

Toronto Inner Harbour Water Quality Modelling Report, City of Toronto's Don River and Central Waterfront Project – Class Environmental Assessment Study Report, Modelling Surface Water Limited. 2012.

City of Toronto, 2017a:

City of Toronto Bathurst Quay Neighbourhood Plan. January 2015.

City of Toronto, 2017b:

City of Toronto, The Port Lands Planning Framework. December 2017.

City of Toronto, 2018:

Toronto Pollinator Protection Strategy. April 2018.

City of Toronto, 2022a:

Deep Dive Workshop, Supporting a Dynamic Environment. Accessed August 2024. Available online at: <https://www.toronto.ca/wp-content/uploads/2022/03/9578-toronto-island-park-deep-dive-dynamic-environment-mar-2022.pdf>.

City of Toronto, 2022b:

Next Phase of Waterfront Revitalization. Public and Stakeholder Engagement Summary, June 2022. Available at:

<https://www.toronto.ca/legdocs/mmis/2022/ex/bgrd/backgroundfile-228122.pdf>.

Accessed March 2025.

City of Toronto, 2023a:

Development pipeline. City of Toronto. Available at: <https://www.toronto.ca/city-government/data-research-maps/research-reports/planning-development/development-pipeline>.

Accessed March 2025.

City of Toronto, 2023b:

Next Phase of Waterfront Revitalization – Indigenous Engagement Summary Report. November 2023. Available at: <https://www.toronto.ca/wp-content/uploads/2024/03/977d-CityPlanning-Next-Phase-of-Waterfront-Revitalization-IE-Summary-Report.pdf>.

Accessed March 2025.

City of Toronto, 2024a:

City of Toronto Email Communication with PortsToronto, June 20, 2024.

City of Toronto, 2024b:

City of Toronto Island Park Master Plan. June 2024.

City of Toronto, 2024c:

C: Chapters 1-5. Office Consolidation 2024.

City of Toronto, 2024d:

EX17.5 - Billy Bishop Toronto City Airport - Runway End Safety Areas. Available at <https://secure.toronto.ca/council/agenda-item.do?item=2024.EX17.5>.

Accessed April 2025.

City of Toronto, 2024e:

Summary of Feedback from Public Meeting Held on September 24, 2024.

City of Toronto, 2024f:

Villiers Island Precinct - City-Initiated Official Plan and Zoning By-law Amendment - Decision Report - Approval. City of Toronto. Available at:

<https://www.toronto.ca/legdocs/mmis/2024/cc/bgrd/backgroundfile-246798.pdf>.

Accessed March 2025.

City of Toronto, 2024g:

East Harbour Transit Oriented Communities Proposal: Conclusion of Negotiations and Draft Plan of Subdivision, and Approach to Next Stage.

Available at: <https://www.toronto.ca/legdocs/mmis/2024/ex/bgrd/backgroundfile-246494.pdf>. Accessed October 2024.

City of Toronto, 2025:

Comments on the RESA Environmental Assessment Study Report. *Consolidated City of Toronto comments document circulated by the Waterfront Secretariat (refer to Appendix O)*. January, 2025.

Comfort Ice Engineering Ltd., 2015:

Ice Investigation for the Planned Runway Extensions to Billy Bishop Airport. 2015.

Delphi Group, 2022:

Billy Bishop Toronto City Airport Sustainability Report. 2022.

Dillon Consulting Limited, 2012:

Lakefill Within Marine Exclusion Zone (Keep-Out Area) - Toronto Harbour Environmental Assessment Report. May 2012.

Environment and Climate Change Canada, 2022:

National Air Pollution Surveillance Program. Available at:

<https://www.canada.ca/en/environment-climate-change/services/air-pollution/monitoring-networks-data/national-air-pollution-program.html>.

Fisheries and Oceans Canada, 2024:

Fisheries and Oceans Canada Aquatic Species at Risk Map. 2024.

GEMTEC, 2023:

Geotechnical Investigation Report, Security Fence Replacement, Billy Bishop Toronto City Centre Airport. GEMTEC. May 2023.

Government of Canada, 1985:

Fisheries Act (R.S.C., 1985, c. F-14), 1985 (last amended 2019). Available at:

[Fisheries Act \(justice.gc.ca\)](https://www.justice.gc.ca/eng/acts/f14/1985.html). Accessed June 2024.

Government of Canada, 1996:

Canadian Aviation Regulations (SOR/96-433), 1996 (last amended in 2023).

Available at [Canadian Aviation Regulations \(justice.gc.ca\)](https://www.justice.gc.ca/eng/acts/car/1996.html). Accessed June 2024.

Government of Canada, 1998:

Canada Marine Act (S.C. 1998, c. 10), 1998 (last amended in 2020). Available at

[Canada Marine Act \(justice.gc.ca\)](https://www.justice.gc.ca/eng/acts/cma/1998.html). Accessed July 2024.

Government of Canada, 2019:

Impact Assessment Act (SC 2019, c28, s.1), 2019. Available at

<https://canlii.ca/t/9hfl>. Accessed June 2024.

Government of Canada, 2024:

Impact Assessment Process Overview, 2024. Available at

<https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/impact-assessment-process-overview.html>). Accessed September 2024.

Government of Ontario, 1990.

Ontario Heritage Act, R.S.O. 1990, C. O.18, 1990. Available at [Ontario Heritage Act, R.S.O. 1990, c. O.18](#). Accessed July 2024.

Government of Ontario, 1990:

Planning Act, RSO 1990, c P.13, 1990. Available at <https://canlii.ca/t/56b3l>. Accessed July 2024.

Halloran, J., H. Anderson and D. Tassie, 2013:

Clean Equipment Protocol for Industry. Peterborough Stewardship Council and Ontario Invasive Plant Council. Peterborough, ON. Updated, 2016.

Infrastructure Ontario, 2025:

East Harbour – Transit-Oriented Community. Available at: <https://www.infrastructureontario.ca/en/what-we-do/projectssearch/east-harbour--transit-oriented-community>. Accessed March 2025.

International Joint Commission (IJC), 2014:

Lake Ontario St. Lawrence River Plan 201: Protecting against extreme water levels, restoring wetlands and preparing for climate change. Accessed June 2014.

InterVistas, 2017:

Billy Bishop Toronto City Airport, 2017 Economic Impact Study. Prepared for PortsToronto. October 2017.

Ministry of Northern Development, Mines, National Resources and Forestry (Ontario), 2021:

Managing Great Lakes water levels, Available at: <https://www.ontario.ca/page/managing-great-lakes-water-levels>.

Modelling Surface Water Limited, 2012:

Class Environmental Assessment Study Report, City of Toronto's Don River and Central Waterfront Project. April 2012.

Morrison Hershfield, 2024:

Natural Environment Review for Runway End Safety Area Treatments at Billy Bishop Toronto City Airport. 2024.

Ministry of Citizenship and Multiculturalism, 2011:

Standards and Guidelines for Consultant Archaeologists, 2011.

Ministry of Natural Resources, 2010:

Natural Heritage Reference Manual. March 2010

Ministry of Natural Resources, 2011:

Ontario Species at Risk Handling Manual: For Endangered Species Act Authorization Holders. Accessed MONTH, YEAR. Available at: https://files.ontario.ca/environment-and-energy/species-at-risk/mnr_sar_tx_sar_hnd_mnl_en.pdf

Ministry of Natural Resources, 2024a:

GeoHub Database. Land Information Ontario. August 2024.

Ministry of Natural Resources, 2024b:

Make a Map: Natural Heritage Areas, Natural Heritage Information Centre. 2024.

Ministry of Municipal Affairs and Housing, 2024:

Provincial Planning Statement, 2024.

Ministry of the Environment, Conservation and Parks, 2024a:

Preparing Environmental Assessment, 2024. Available at (<https://www.ontario.ca/page/preparing-environmental-assessments>). Accessed September 2024.

Ministry of the Environment, Conservation and Parks, 2024b:

Source Protection Information Atlas. October 2024.

N. Barry Lyon Consultants Limited, 2013:

Condominium Market Value Impact Analysis: Billy Bishop Airport. Prepared for the City of Toronto. Appendix to HLT Advisory, 2013. Economic Impact Considerations of an Expanded Billy Bishop Toronto City Airport. 2013.

Parks not Planes, 2024:

Parks not Planes: The Vision. Available at: <https://www.parksnotplanes.com/the-vision>. Accessed March 2025.

Ports Toronto, 2023:

Billy Bishop Toronto City Airport. Environment, Social and Governance Report 2023. Available at: https://www.billybishopairport.com/wp-content/uploads/2024/08/Billy-Bishop-Toronto-City-Airport_Technical-ESG_2023_EN-1.pdf. Accessed August 2024.

R.J. Burnside & Associates Limited, 2019:

PortsToronto Background Noise Monitoring Plan. October 2019.

Richard Florida and the Creative Class Group, 2023:

Toronto's Downtown Airport, A Powerful Economic Asset in the City's Urban Core, Prepared for PortsToronto and Nieuport Aviation. 2023.

RWDI, 2016:

Billy Bishop Toronto City Airport, Environmental Noise Report, RWDI #1402032. November 2016.

Seglenieks, F. and A. Temgoua, 2022:

Future water levels of the Great Lakes under 1.5°C to 3°C warmer climates, Journal of Great Lakes Research, 48, 865-875. 2022.

Shoreplan, 2007:

Gibraltar Point Erosion Control Project Coastal Engineering Component. Unpublished report prepared for Toronto and Region Conservation Authority by Shoreplan Engineering Limited. Final report. December 2007.

Shoreplan, 2024:

Billy Bishop Toronto City Airport Runway End Safety Area (RESA) Preliminary Design Littoral Sediment Transport Overview Shoreplan File 23-3869. Toronto. 2024.

Statistics Canada, 2021a:

Census profile, (2016; 2021) census of population: Spadina-Fort York. Statistics Canada. Available at: <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=FED&Code1=35101&Geo2=PR&Code2=35&SearchText=Spadina--Fort%20York&SearchType=Begin&SearchPR=01&B1=All&GeoLevel=PR&GeoCode=35101&TABID=1&type=0>. Accessed March 2025.

Statistics Canada, 2022:

Census Data (2011; 2016; 2021). Central Waterfront, Toronto. 2022.

STOLport, 2024:

Billy Bishop Airport Booking Portal. 2024.

Toronto and Region Conservation Authority, 2014:

Don Mouth Naturalization and Port Lands Flood Protection Project Environmental Assessment. 2014.

Toronto and Region Conservation Authority, 2018:

Gibraltar Point Erosion Control Project, Addendum Report. March 2018.

Toronto and Region Conservation Authority, 2023a:

Appendix 1: Vegetation Communities for the Entire Toronto and Region Conservation Authority Jurisdiction. 2023.

Toronto and Region Conservation Authority, 2023b:

Floral Species for the Entire Toronto and Region Conservation Authority Jurisdiction. Scoring and Ranking System. 2023.

Toronto and Region Conservation Authority, 2023c:
An Endangered Species in Ontario: The Slippery but Sensitive American Eel.
2023.

Toronto Parks and Recreation, 2020:
Nature on the Toronto Islands: An Explorer's Guide. Available at
https://torontoisland.org/wp-content/uploads/2020/12/TIExplorers_guide.pdf.

Transport Canada, 2013:
Aviation: Land Use In The Vicinity of Aerodromes. Page 6. Available at:
<https://tc.canada.ca/sites/default/files/migrated/tp1247e.pdf>. Accessed July 2024.

University of Toronto, 2024a:
Aircraft Activities and Ultrafine Particle Exposures near a City Airport: Insights
from a Measurement Campaign in Toronto, Report 2. 2024.

University of Toronto, 2024b:
Campus-Community Partnership to Characterize Air Pollution in a
Neighbourhood Impacted by Major Transportation Infrastructure, Report 1. 2024.

US Army Corps of Engineers (n.y.):
Great Lakes Outflows, Available at: <https://www.lrd.usace.army.mil/Water-Information/Water-Management/Great-Lakes-and-Harbours/Outflows-and-Regulation>.

Waterfront Toronto, 2022:
Quayside: From a proposal to a development plan. 2022.

Waterfront Toronto, 2024:
Built for This. Waterfront Toronto Rolling Five-Year Strategic Plan 2023/34.
Available at: https://www.waterfronttoronto.ca/sites/default/files/2023-04/WT-Strategic-Plan-2023-24_FINAL_ua.pdf. Accessed March 2025.

WSP, 2015:
Coastal Environment Study Supporting the Expansion of Billy Bishop Airport.
June 2015.

York Aviation, 2021:
Quantifying the Economic Impact of a Managed Growth Strategy and US Pre-
Clearance facility at Billy Bishop Toronto Airport. A report prepared for Nieuport
Aviation, November 2021.