



Runway End  
Safety Area 2027

# Welcome to our first public meeting about RESA compliance at Billy Bishop Toronto City Airport

We will begin at 6pm



# Peter MacLeod, Host and moderator

Principal, MASS LBP

We are located on the traditional territory of many nations including the Mississaugas of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee, and the Wendat peoples, and is now home to many diverse First Nations, Inuit and Métis peoples. PortsToronto also recognizes that Toronto is covered by Treaty 13 signed with the Mississaugas of the Credit, and the Williams Treaties signed with multiple Mississaugas and Chippewa bands.

## Our Program for Today

1. Welcome
2. Understanding RESA: Transport Canada's Role
3. Implementing RESA at Billy Bishop Toronto City Airport
4. Conducting the environmental assessment
5. The role of the City of Toronto's Waterfront Secretariat

## Open House and Questions

*Please feel free to visit a discussion station to share your perspective and visit our display boards where staff will be able to answer your questions*

# Welcome and thank you for coming

Warren Askew  
Vice President, Airport

PortsToronto

# About PortsToronto

PortsToronto is a financially self-sufficient government business enterprise which operates in accordance with the Canada Marine Act and is accountable to the Federal government through Transport Canada. It is guided by a Board of Directors with representation from all three levels of government.

PortsToronto is responsible for overseeing the operations and development of several key assets, including:

- Billy Bishop Toronto City Airport
- The Port of Toronto and associated Marine Terminals, which handle bulk cargo such as sugar and salt, as well as a Cruise Ship Terminal for passenger cruise ships.
- Outer Harbour Marina, one of Canada's largest freshwater marinas.

# About Billy Bishop Toronto City Airport

Billy Bishop Airport is Canada's ninth-busiest airport, welcoming 2.8 million business and leisure travellers in 2019. The airport is also Canada's fifth-busiest airport with passenger service to the United States. Offering service to more than 20 cities in Canada and the U.S., with connection opportunities to more than 100 international destinations via our airlines' networks, Billy Bishop Airport is an important international gateway and a key driver of Toronto's economy.

Billy Bishop Toronto City Airport also serves as a base for ORNGE air ambulance services, two Fixed Base Operators, and is home to a personal/general aviation community that includes approximately 50 private planes and one flight school.

# Understanding RESA: Transport Canada's Role

Marcia E. George

Regional Director, Civil Aviation (Ontario Region)  
Transport Canada | Government of Canada





# Runway End Safety Area RESA

Ports Toronto Community Consultation Session  
July 17, 2024



## What is a Runway End Safety Area - RESA

- Runway End Safety Areas (RESA) are compact, level and obstacle-free areas located beyond each end of a runway
  - RESAs act as an extension to the already regulated runway safety area
- RESA is intended to reduce the severity of damage to an aircraft during a runway excursion
  - As a comparison, runway safety areas and RESA are to aircraft what airbags are to cars
- RESA is recognized globally as an effective mitigation measure for runway excursions

## RESA Regulatory Requirements

- The Canadian Aviation Regulations, Part 3, Sub- Part II, Division VI – RESA came into force on Dec. 21, 2021
- RESA Regulations are applicable to airports serving over 325,000 passengers per year, for two consecutive years
- Statistics Canada publishes the passenger numbers in the Airport Activity Survey on an annual basis.

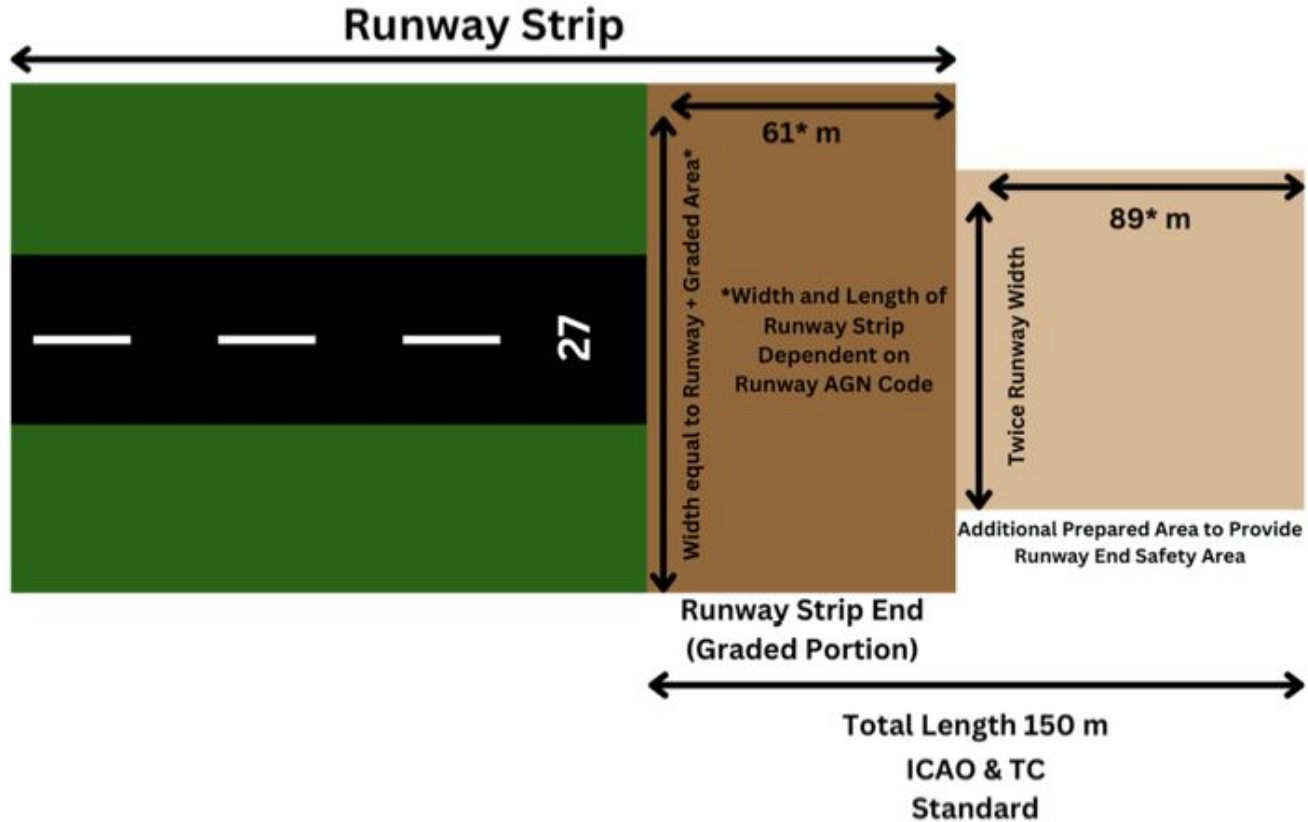
## RESA Compliance Options

There are three options to meet RESA requirements:

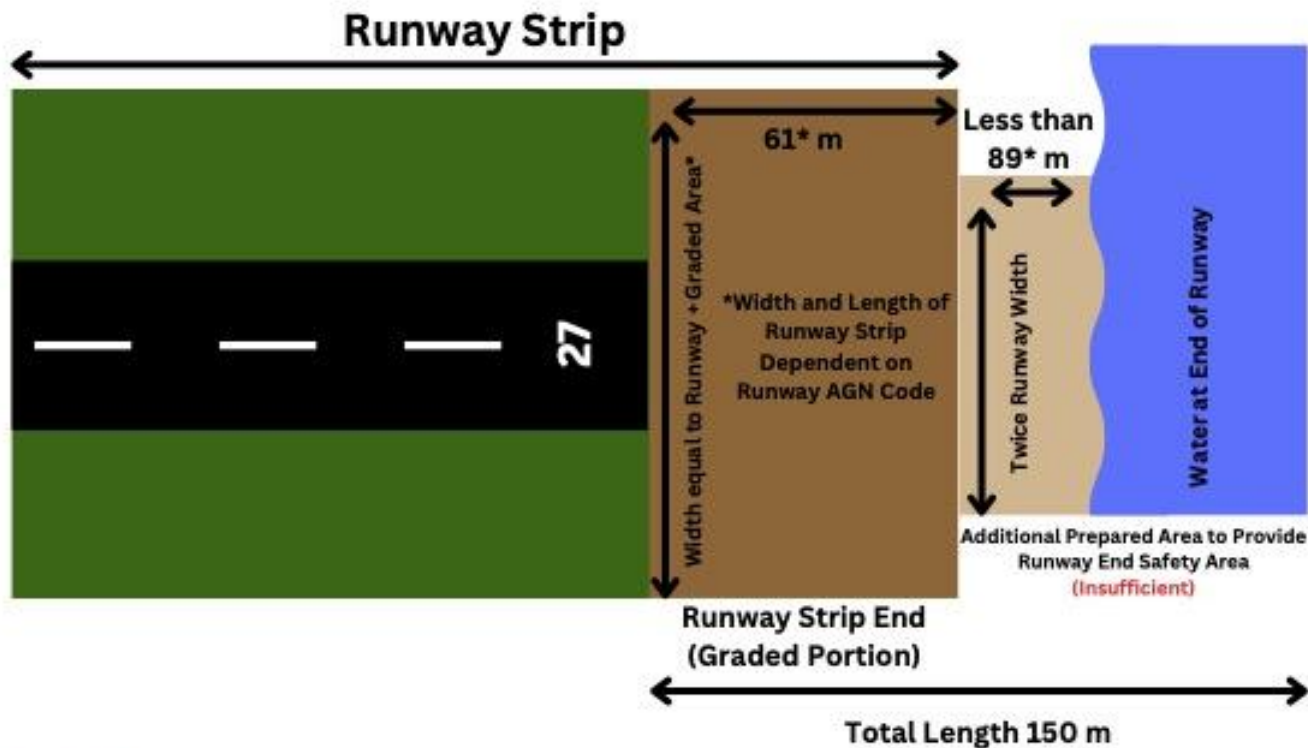
- Prepare natural compacted open areas (i.e., soil or grass)
- Installation of an arresting system designed to decelerate an aircraft (i.e., Engineering Material Arresting System (EMAS))
- Adjusting the runway's declared distance (shortening the runway distance)



# RESA – What It Looks Like



# RESA - What It Looks Like at Billy Bishop



Transport  
Canada

Transports  
Canada

ICAO & TC  
Standard

# Implementing RESA at Billy Bishop Toronto City Airport

Warren Askew  
Vice President, Airport  
PortsToronto



# Context and options

Commissioned Avia NG to study how RESA could be implemented at Billy Bishop Airport

Avia NG assessed six initial options – three of which we believe are not well suited to our operational needs.

**The project is not intended to address runway extensions or have any effect on current runway operations, runway capacity, or aircraft types using the runway.**

**The Design Aircraft for this study is the Q400.**

We are focussed now on assessing three options: RESA 1, 2 and 3

# All new airfield elements to comply with latest Transport Canada Aerodrome Design Standards per TP312 5<sup>th</sup> edition including new RESAs and Taxiways

Existing facilities including Runway 08/26 subject to grandfathering provisions

AC 302-018-Grandfathering at Airports Pursuant to Canadian Aviation Regulation (CAR) 302.07

## **Preserve Runway 08/26 utility and efficiency:**

- **NO** reduction in declared distances
- **NO** lengthening of the runway
- **NO** reduction in level of service
- **NO** impact on utility of poor weather instrument approaches
- **NO** runway closures for construction outside 11:00 pm -6:45 am window

## Options

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- A Reduction in useable runway length

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  - B Reconfigured Thresholds/Pre-Threshold Area

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  - C Engineered Materials Arresting System (EMAS)

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  - D RESA 1: Minimum Landmass

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  - E RESA 2: Taxiway Improvements

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  - F RESA 3: Airside Roads, Sound Barrier +  
Underground Utility Corridor
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## Options

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- A Reduction in useable runway length
  - B Reconfigured Thresholds/Pre-Threshold Area
  - C Engineered Materials Arresting System (EMAS)
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RESA 1: Minimum Landmass

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RESA 2: Taxiway Improvements

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RESA 3: Airside Roads, Sound Barrier +  
Underground Utility Corridor

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## Option A: Reduction in useable runway length

This alternative does not meet the key guiding principle to **preserve Runway 08/26 utility and efficiency.**

Commercial air service would no longer be viable.

**This alternative was not considered a viable solution**

## Option B: Reconfigured Thresholds/ Pre-Threshold Area

This alternative does not meet the key guiding principle to **preserve Runway 08/26 utility and efficiency.**

Commercial air service would no longer be viable.

**This alternative was not considered a viable solution**

## Option C: EMAS

Marine environment impacts (west end) require breakwater construction

Special equipment required for snow and maintenance of EMAS

Additional ongoing airport operational costs for inspections, maintenance, and 20 year life expectancy

Would be the first and only EMAS installation in Canada; the only manufacturer based in USA

Damaged EMAS due to aircraft or equipment excursions will require repairs and notices published to aviation community. Risk of runway closure or major reduction in length if not repaired within 45 days.

## Overwater Decking Options

Pier and Deck Option was explored:

Significantly more expensive than rock fills

Would require closure of the only commercial runway for an extended period in order to construct

Specialized contractors (likely international)

East end (inner harbour) ice conditions makes this option not practical to maintain

West end high-water level and wave actions make this option not practical to maintain

## Short Listed Options

RESA 1:  
Minimum  
Landmass

RESA 2:  
Taxiway  
Improvements

RESA 3:  
Airside Roads,  
Sound Barrier +  
Underground  
Utility Corridor

# RESA 1: Minimum Landmass

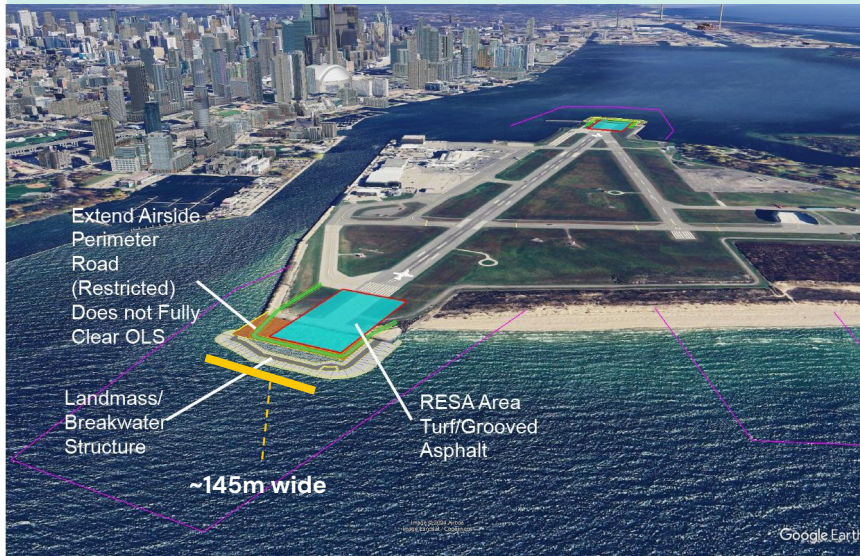


# RESA 1: Minimum Land Mass

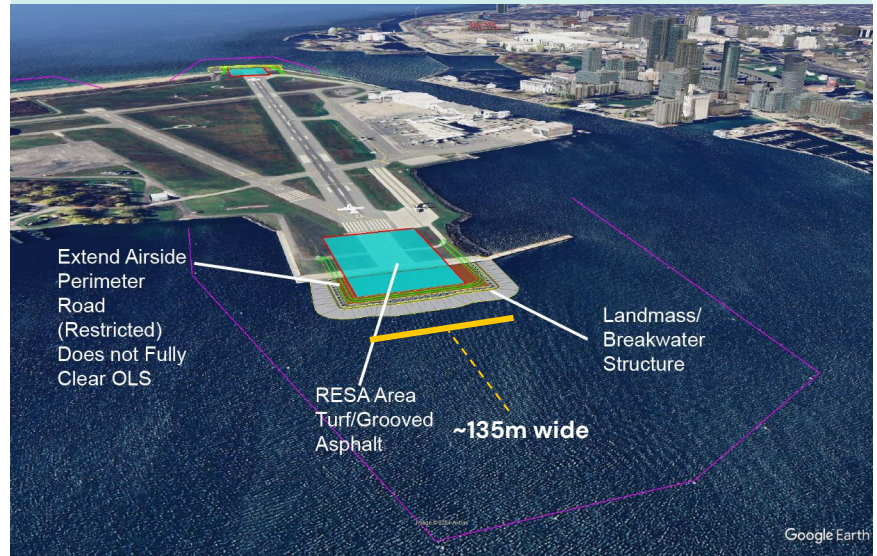


# RESA 1: Minimum Land Mass

## West End



## East End



## RESA 1: Minimum Land Mass

### West End Features

7,850m<sup>2</sup>

Landmass extension (54m from seawall)

Breakwater to control water spray/waves  
and ice accretion on RESA

Airside road extension (restricted access only)

Requires control tower approval to cross runway  
approach

### East End Features

6,100m<sup>2</sup>

Landmass extension (54m from seawall)

Breakwater to control water spray/waves  
and ice accretion on RESA

Airside road extension (restricted access only)

Requires control tower approval to cross runway  
approach



### Attributes

Compliant with TP312 5th edition

No impact on airfield efficiency and MEZ

Addresses ice accretion on west end

Anticipated implementation schedule similar to Option C (EMAS): 2 – 2.5 years

Similar level of maintenance to existing conditions off runway ends

### Constraints

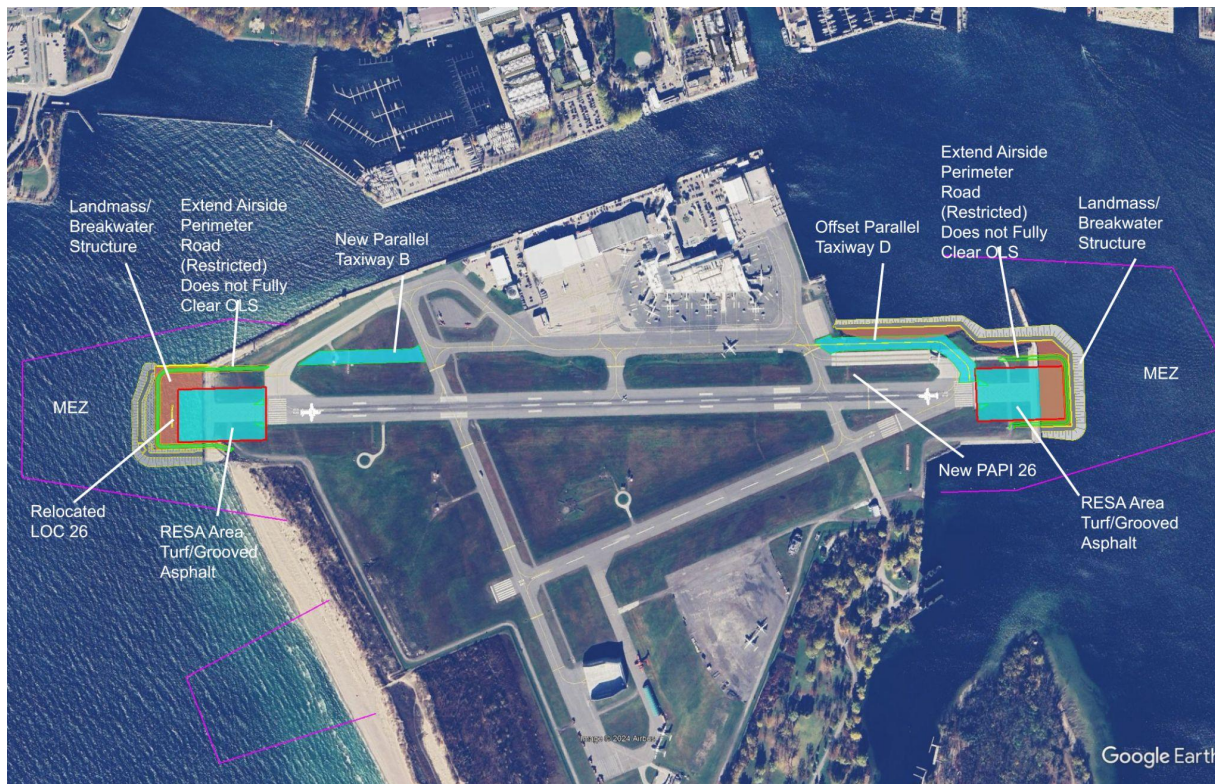
More significant marine environment impacts (west end and east end) than Option C (EMAS) due to landmass expansion

No ancillary airport operational safety and efficiency improvements enabled

No operational efficiency improvements

# RESA 2: Taxiway Improvements

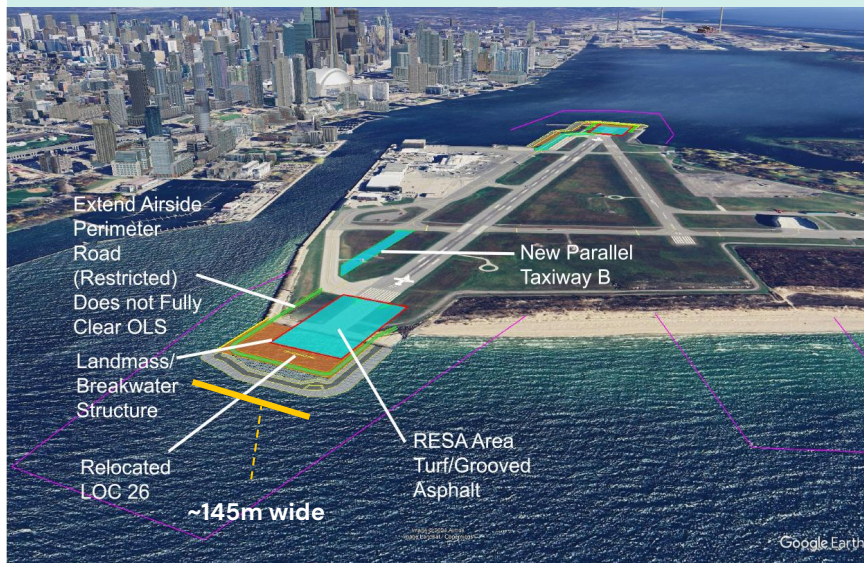
## RESA 2: Taxiway Improvements



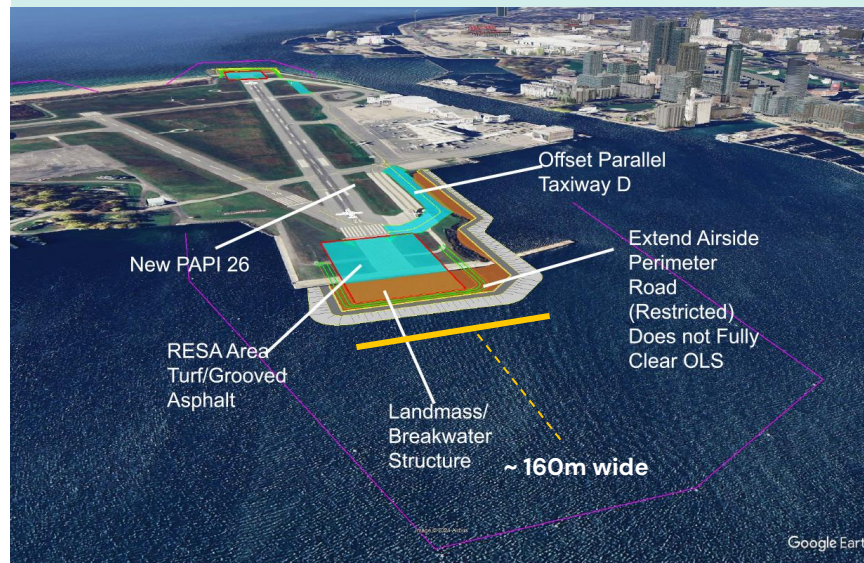


## RESA 2: Taxiway Improvements

### West End



### East End



## RESA 2: Taxiway Improvements

### West End Features

11,800m<sup>2</sup>

Landmass extension (82m from seawall)

Breakwater to control water spray/waves and ice accretion on RESA

Airside road extension (restricted access only - requires control tower approval to cross runway approach)

Relocated LOC 26 (Navigational Aid) enables new parallel Taxiway B which shortens taxi distance

### East End Features

11,300m<sup>2</sup>

Landmass extension (52m from seawall)

Breakwater to control water spray/waves and ice accretion on RESA

Airside road extension (restricted access only - requires control tower approval to cross runway approach)

Relocated Taxiway D enables new PAPI 26 (visual approach guidance system) and improves safety



## RESA 2: Attributes and Constraints

### Attributes

Compliant with TP312 5th edition

No impact to MEZ

Improved airfield efficiency, safety and environmental protection: new Taxiway B alignment eliminates need for Taxiway A (eliminate turns); Taxiway D relocated to proper separation from Runway; both changes reduce taxi times and associated noise and emissions

Improves Runway 26 approach safety with new visual approach guidance system (PAPI)

Addresses ice accretion on west end

Similar level of maintenance to existing conditions off runway ends

Opportunities to repurpose land north of realigned Taxiway B (e.g. new ARFF/Maintenance building)

### Constraints

More significant marine environment impacts (west end and east end) than Option C (EMAS) and RESA 1

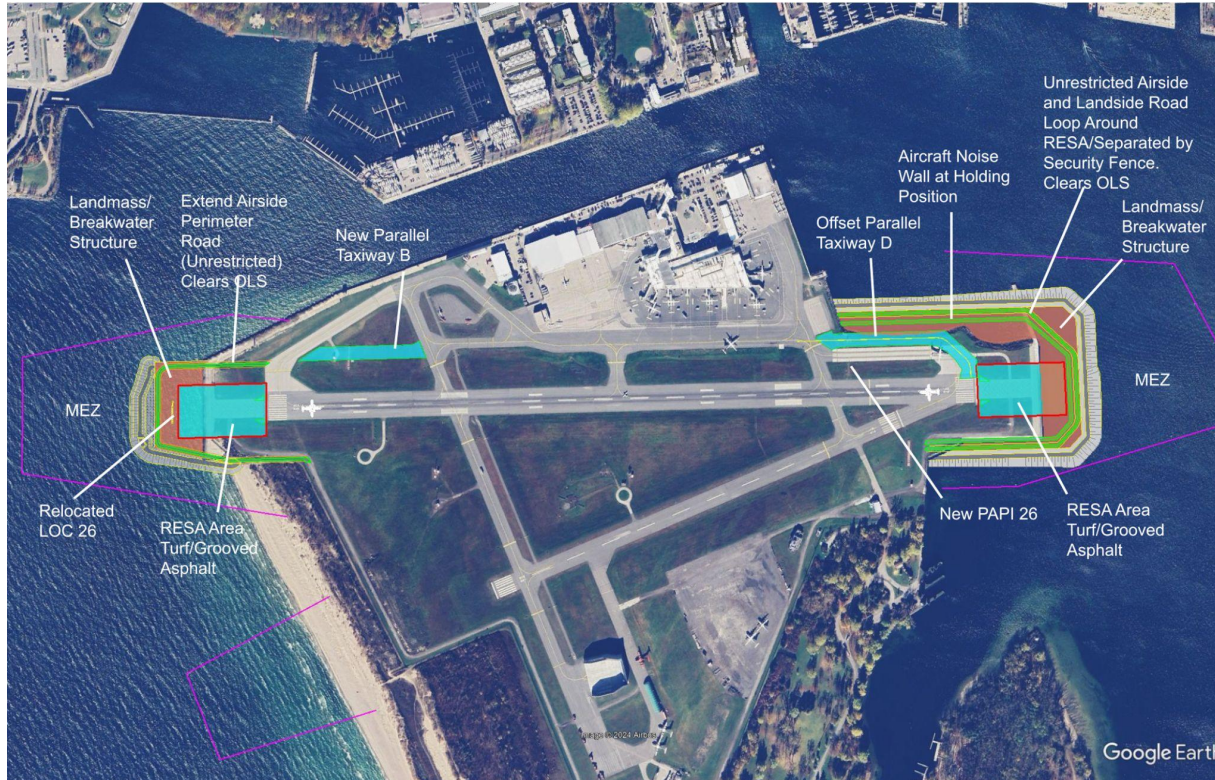
Not all ancillary airport operational safety and efficiency improvements enabled (e.g. no noise wall and no unrestricted airside roads access)

3 to 3.5 years implementation schedule

Development opportunities for south airfield still limited due to access road restrictions

RESA 3:  
Airside Roads,  
Sound Barrier +  
Underground  
Utility Corridor

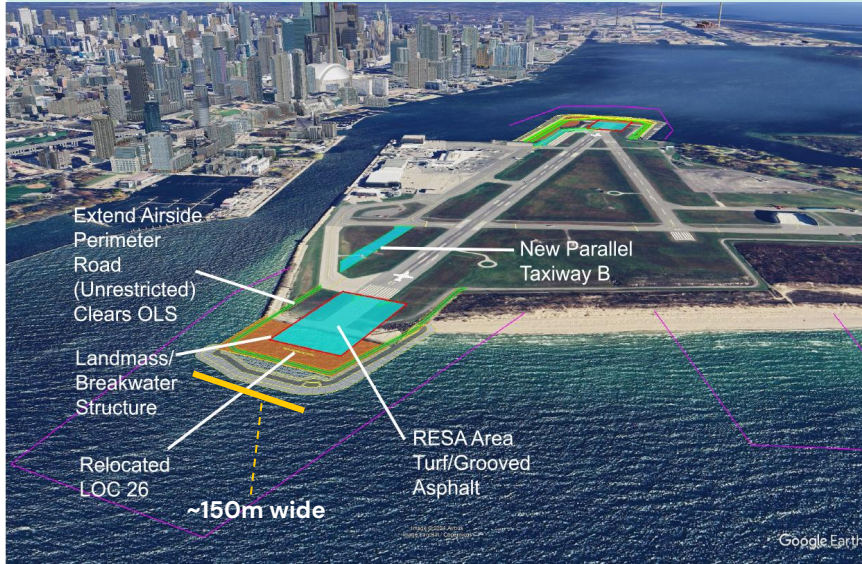
# RESA 3: Airside Roads, Sound Barrier + Underground Utility Corridor



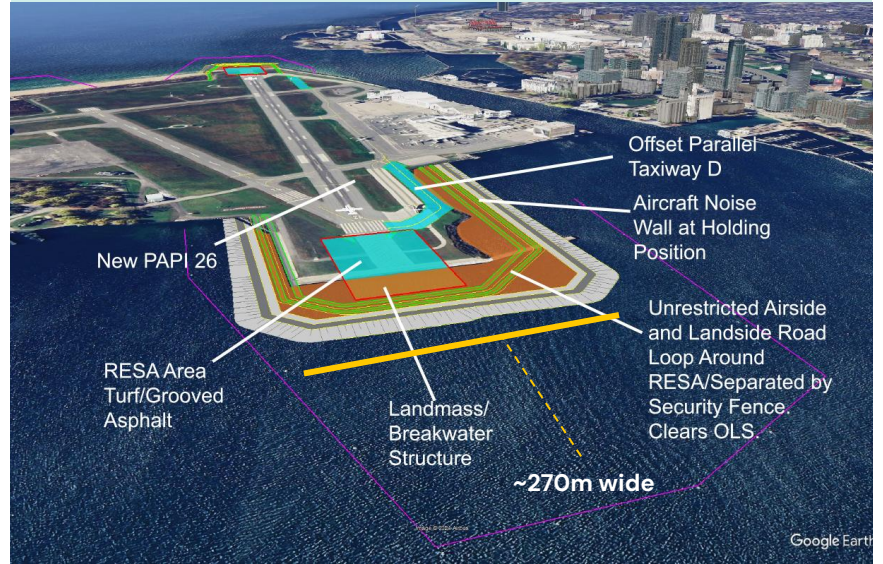


# RESA 3: Airside Roads, Sound Barrier + Underground Utility Corridor

## West End



## East End



## RESA 3: Airside Roads, Sound Barrier + Underground Utility Corridor

### West End Features

12,800m<sup>2</sup>

Landmass extension (82m from seawall)

Breakwater to control water spray/waves and ice accretion on RESA

Airside road extension clears OLS and does not require control tower approval to cross runway approach areas

Relocated LOC 26 (navigational aid) enables new parallel Taxiway B which shortens taxi distances

### East End Features

32,700m<sup>2</sup>

Landmass extension (66m from seawall)

Breakwater to control water spray/waves and ice accretion on RESA

Airside road extension clears OLS and does not require control tower approval to cross runway

Relocated Taxiway D enables new PAPI 26 (visual approach guidance system) and improved safety

Noise wall to mitigate aircraft ground idling noise propagation

Dedicated utility corridor around RESA for servicing Toronto Islands

Flood protection of low lying area of the airport

## RESA 3: Airside Roads, Sound Barrier + Underground Utility Corridor

### Attributes

Compliant with TP312 5th edition

No impact to Marine Exclusion Zone

Improved airfield efficiency, safety and environmental protection: new Taxiway B alignment eliminates need for Taxiway A (eliminate turns); Taxiway D relocated to proper separation from Runway; both changes reduce taxi times and associated noise and emissions

Improves Runway 26 approach safety with new PAPI

Addresses ice accretion on west end

All ancillary airport operational safety and efficiency and community improvements enabled e.g. noise wall, flood risks mitigation

Allows for a new dedicated utility corridor to improve utilities services to the Island

Creates modest development opportunities for south airfield

Possible space allocation for provision of landside perimeter pathway for public use (future consideration)

### Constraints

Most significant marine environment impacts (west end and east end) than all other options

Additional maintenance related to new airside and landside road system on east end

3 to 3.5 years implementation schedule

The highest implementation cost alternative

# Implications for the Tripartite Agreement

We are seeking an extension to the tripartite agreement that will allow PortsToronto to finance construction from the airport improvement fee.

The federal government continues to invest in the infrastructure at Billy Bishop beyond the life of the current agreement, and we continue to plan to maximize those investments past this term.

## Next steps

As studies will proceed, there will be opportunities for comment on the website: **[safecleanquiet.ca](https://safecleanquiet.ca)**

A preliminary preferred option will be identified in the fall and shared at our second public meeting. A date for this meeting will be announced in August.



# Conducting the Environmental Assessment

Karl Grueneis  
Senior Environmental Planner

AECOM

## Study Background

- PortsToronto has undertaken a number of environmental assessments (EAs) for various projects over the years at Billy Bishop Toronto City Airport.

## Current RESA Compliance Project

- Focuses on the RESA EA and Preliminary Design.
- Will comply with new Canadian Aviation requirements in response to safety recommendations identified by the Transportation Safety Board of Canada.
- Leverages information from prior studies.
- Will not consider runway extensions and not intended to have any effect on present runway operations, runway capacity, or aircraft type using the runway.

## RESA Project Study Area

- Encompasses Airport lands involved in the RESA project area, including the Marine Exclusion Zone (MEZ).
- The MEZ is a buoy-marked area of the lake where vessel entry is prohibited without PortsToronto's authorization.



## Environmental Assessment (EA) Process

- The EA will be carried out as a voluntary, **non-statutory process** established through consultation with federal, provincial and municipal agencies.
- Non-statutory means there are no federal, provincial, and municipal regulatory requirements to complete a mandated EA process.
- Recognizing the need to respect the environment and local community, this voluntary EA is being undertaken to evaluate RESA options in consultation with interested parties, Indigenous communities, and the public, to ensure proper decision-making.

The EA work plan is structured in **Two Phases**:

- **Phase 1 – Gap Analysis:** Determines what is needed relative to what we already know from previous studies. It will identify additional information required to establish environmental baseline conditions.
- **Phase 2 – RESA EA:** Includes a comprehensive evaluation of the RESA options considering the updated baseline and environmental components, followed by documentation of the EA process for public review.

#### Technical Advisory Committee (TAC)



- Comprised of representatives from:
  - Transport Canada.
  - City of Toronto.
  - Toronto and Region Conservation Authority.
  - PortsToronto.
  - RESA Consultants Team.
- Meet at key milestones during the RESA EA process.
- The TAC reviews and provides technical input into Phase 1 and 2 studies and deliverables.

# Gap Analysis and RESA EA Process



June – July 2024

July – December 2024

December 2024 – January 2025

- KEY TASKS**
- Review background studies and identify gaps.
  - Gap Analysis Memorandum.
  - Public Meeting #1.

- KEY TASKS**
- Fill the gaps to establish baseline conditions.
  - Evaluate RESA options.
  - Confirm preferred RESA option and complete Effects Assessment.
  - Public Meeting #2.
  - Climate change assessment.
  - Finalize EA Study Report.

- KEY TASKS**
- Publish the EA Study Report for public review.
  - Address public comments.
  - Final EA Study Report.

**Design-Build Contractor Selection / Mobilization: Mid-2025**

Consultation with interested parties, Indigenous communities, and the public, throughout the process.

The EA will assess the effects to the following components:

- Natural Environment (Terrestrial and Aquatic Ecosystems including Species at Risk)
- Marine Physical Environment
- Water Quality
- Social Environment
- Marine Navigation
- Air Quality
- Noise
- Built Form and Land Use
- Transportation
- Archaeology and Cultural Heritage
- Climate Change Vulnerability



**Each environmental component will consider the appropriate geographic area to assess impacts.**

Investigation pertaining to the above will be undertaken to summarize existing conditions and to identify areas of environmental concerns.

This information will be used to develop evaluation criteria, evaluate the RESA options, assess potential impacts and develop mitigation measures.

## What is the Focus of Environmental Components\*?



### **Terrestrial and Aquatic Ecosystems including Species at Risk**

- Potential effects on natural ecosystems including terrestrial/aquatic species and habitats, and vegetation.



### **Socio-Economic Environment**

- Potential effects on residents, neighbourhoods, businesses, community character, social cohesion, and community features including effects to property, emergency response, and traffic disruptions during construction.



### **Air Quality and Noise**

- Potential effects on air quality and noise levels at noise sensitive land uses (e.g., residential).



### **Marine Physical Environment and Water Quality**

- Potential effects to the physiography and geology of the shoreline, sediment, currents, wave and ice formations, and water levels as well as effects to harbour water quality.

\*Note: These examples represent environmental components and apply to all identified components.



## Consultation

Consultation is a key component of the RESA EA process and will be ongoing throughout this study.



Key Stakeholders for the Project include:


City of Toronto

Transport Canada

TRCA

Provincial and Federal  
Regulatory Agencies

Interested Parties, Indigenous  
Communities, and the Public



Two Public Meetings: Next Public Meeting anticipated Fall 2024.

# What Happens Next?

- Your feedback will be gathered and considered following this meeting.
- We will complete environmental studies and evaluation of RESA options.
- We will post materials for comment on the ***safecleanquiet.ca*** website as they become available.
- At the next public meeting (Fall 2024), we will present findings of environmental studies and recommend the preliminary preferred RESA option.
- EA Study Report will document the planning and decision-making process, including consultation, and will be shared for public review in early winter 2024-2025.

# The role of the City of Toronto's Waterfront Secretariat

Bryan Bowen  
Project Lead, Planning Division

Waterfront Secretariat

# Questions and Open House

Please feel free to visit a discussion station to share your perspective and our display boards where staff will be able to answer your questions.

# Next steps

As studies proceed, we will continue to post material to our website for comment.

Keep informed by following [safecleanquiet.ca](https://safecleanquiet.ca) and join our updates list

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