# The Six Ideas

## Toronto Noise Mitigation Initiatives

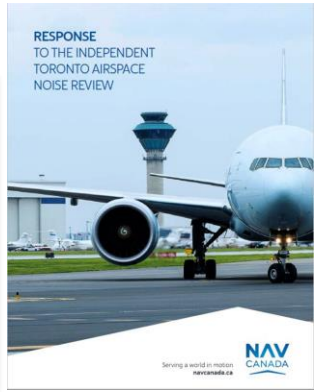
Presented by NAV CANADA & GTAA

The GTAA and NAV CANADA are working to reduce aircraft noise for residents.

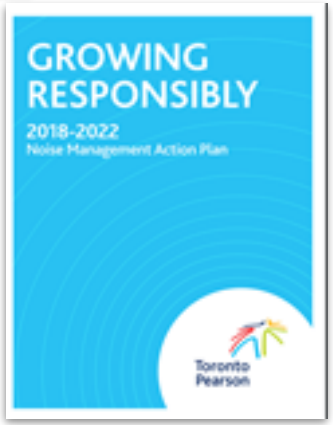
# Progress in Noise Mitigation

➔ **2017-2018**

- GTAA releases report **Toronto Pearson Residents' Reference Panel on Airport Growth and Noise Fairness**
- Final report of the **Independent Toronto Airspace Noise Review** and **NAV CANADA response**
- GTAA launches **2018-2022 Noise Management Action Plan** incorporating recommendations from **the Noise Management Best Practices report**
- GTAA and NAV CANADA complete technical analysis of **the Six Ideas**

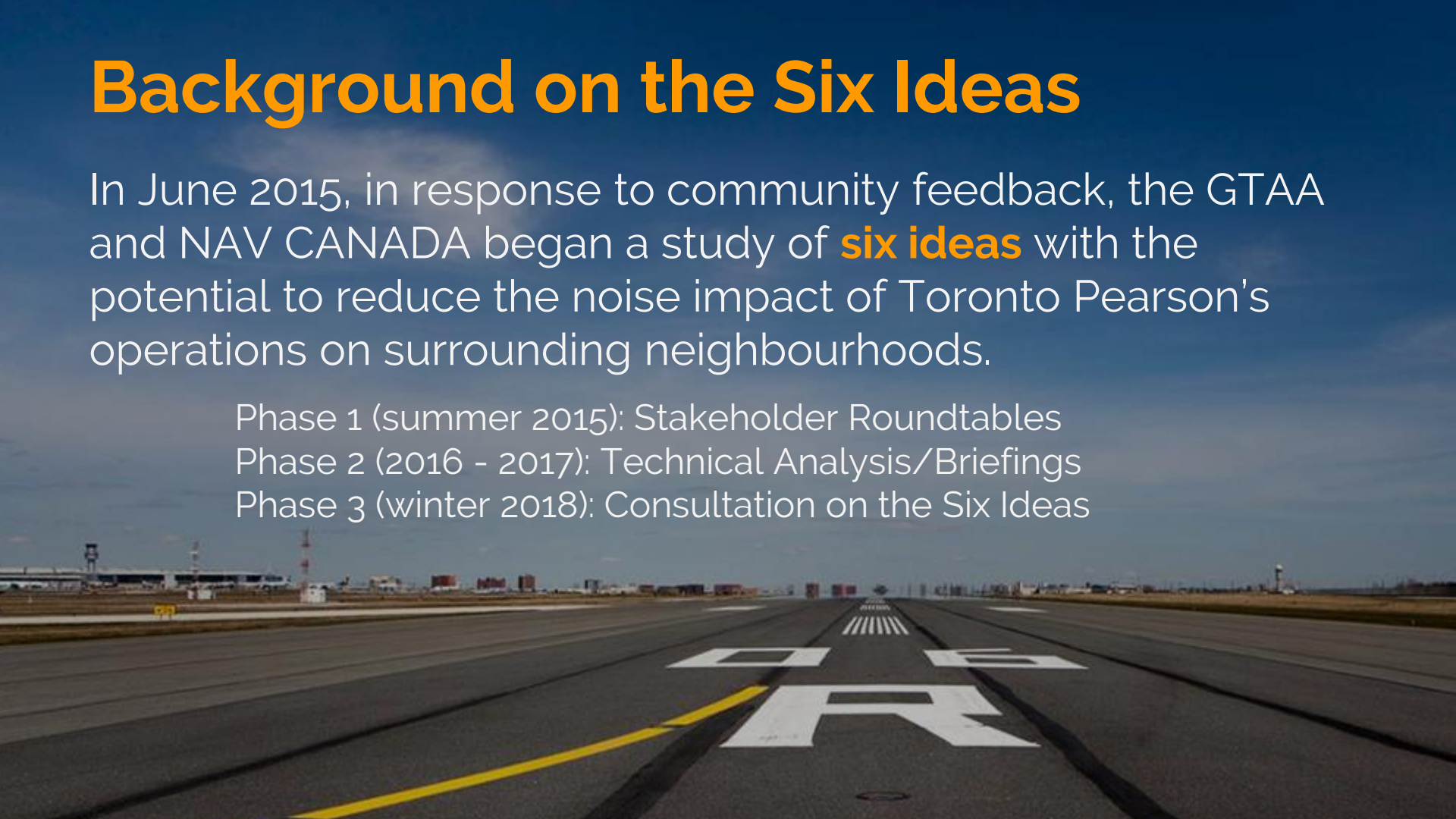


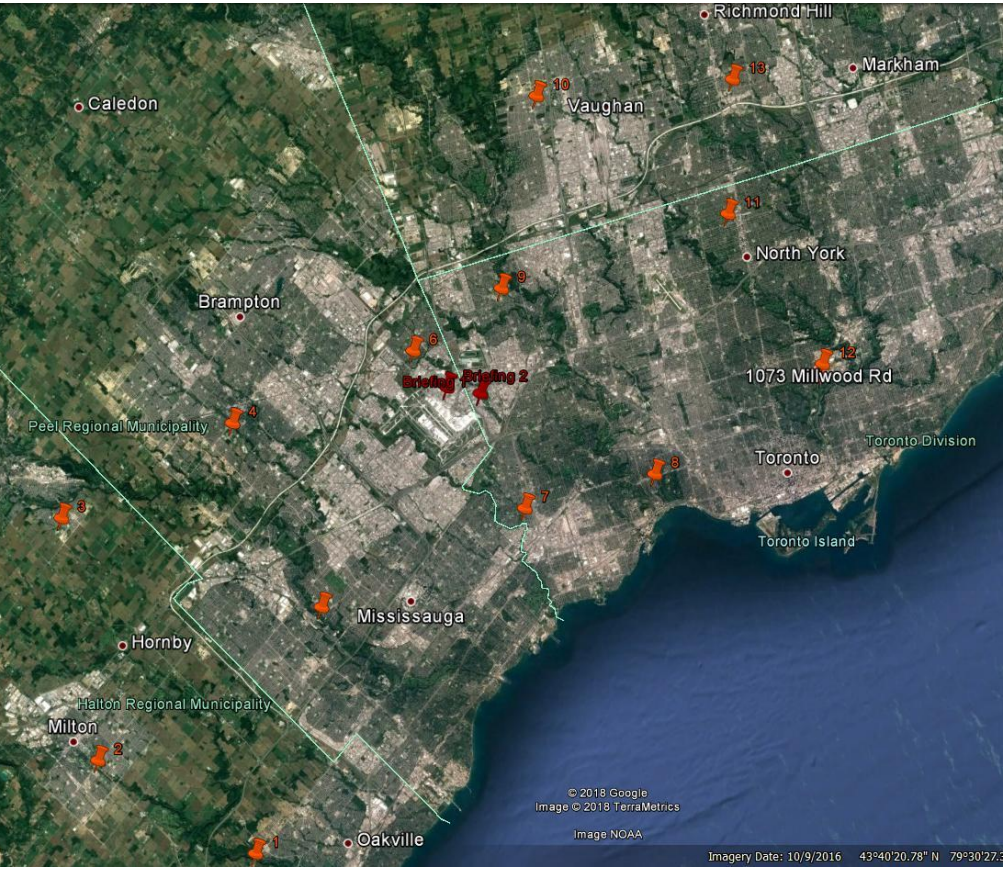


# Background on the Six Ideas

In June 2015, in response to community feedback, the GTAA and NAV CANADA began a study of **six ideas** with the potential to reduce the noise impact of Toronto Pearson's operations on surrounding neighbourhoods.

Phase 1 (summer 2015): Stakeholder Roundtables
Phase 2 (2016 - 2017): Technical Analysis/Briefings
Phase 3 (winter 2018): Consultation on the Six Ideas






# What's Next?

1. **Technical briefings - elected officials**
   Feb 26 & 27

1. **Technical briefings - community stakeholders**
   Feb 28 - March 1

1. **Webpages launched**
   March 2

1. **Public Consultations**
   March 3 - April 12

1. **Comment period closes**
   April 20

# How we're communicating

**About the consultations, content and opportunities for feedback.**

- **Print Ads**
  Ads announcing the upcoming consultation were included community newspapers and Toronto Star Feb 15-17. Second set of ads scheduled for March 22-24.

- **Community e-newsletter (list of +17000)**
  We have already announced the dates/locations of the consultations using Checking In. We will continue to provide updates on the consultation using this vehicle.

- **Elected Officials Briefings and Engaged Stakeholders**

  Briefings with Elected Officials and engaged stakeholder groups about consultation and technical analysis.

- **Website**
  Webpages will include information about consultations, technical analysis, opportunity for feedback,

- **Social Media**
  We will tweet about the consultations and link to webpages

# Technical Briefing

## The Six Ideas.

# The Six Ideas

**Idea 1** - New approach procedures for nighttime operations

**Idea 2** - New departure procedures for nighttime operations

**Idea 3** - Increased downwind arrival speeds

**Idea 4** - New technology to reduce the need for low altitude levelling by arriving aircraft

**Idea 5** - Summer Weekend runway alternation

**Idea 6** - Review of nighttime Preferential Runway System

# Benefits/Impacts

- Reduced impacts from nighttime air traffic
- Predictable respite from air traffic for some communities on summer weekends
- Keeping aircraft at higher altitudes in portions of the approach path whenever possible

- Overflight of some new areas in order to reduce number of people overflown
- Balanced east/west operations on summer weekends means higher traffic for some areas, lower traffic for others
- Some concentration related to new procedures

# Idea 1 - New nighttime arrivals

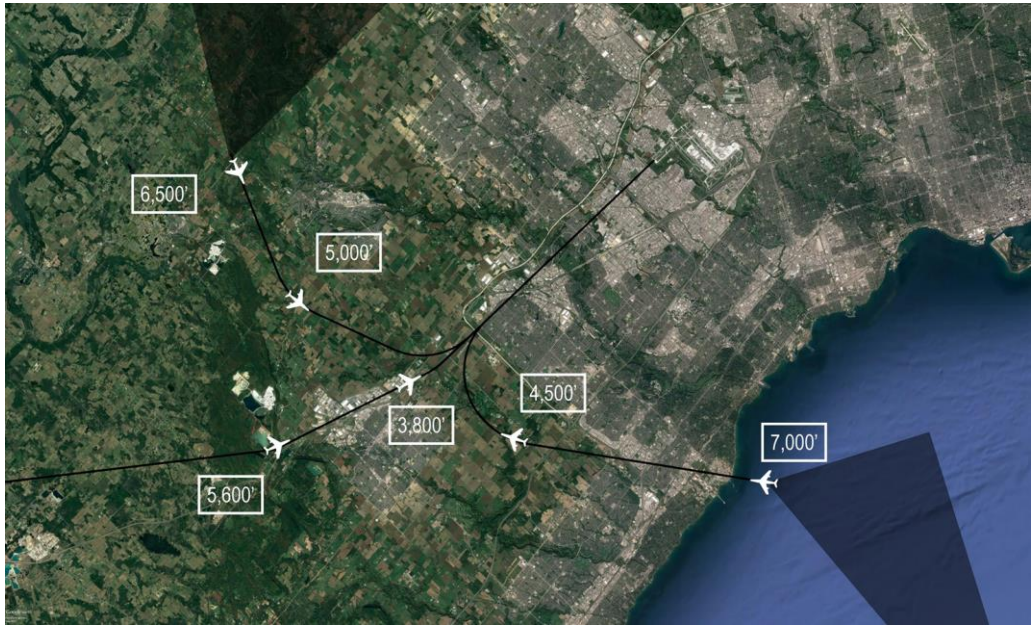
- **What we studied**

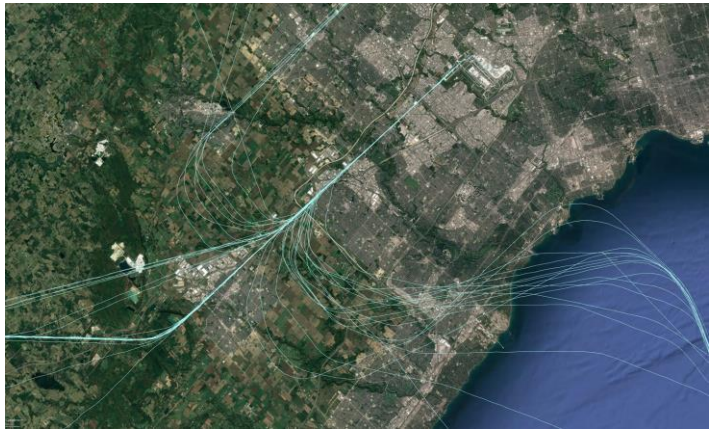
  New RNAV approaches, specifically constructed where possible to fly over fewer residential areas. The new approaches would provide for continuous descent and enable aircraft to be higher in portions of the flight path.

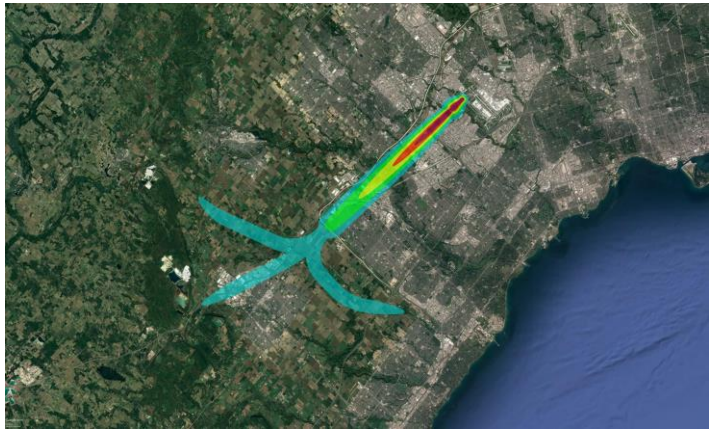
- **What we are seeking feedback on**

  New flight path designs to each runway. The new approaches would be used between 12:30 and 6:30 am. If possible, usage would start earlier, however use will be limited to very low traffic periods overnight.

# Runway 05 nighttime arrivals

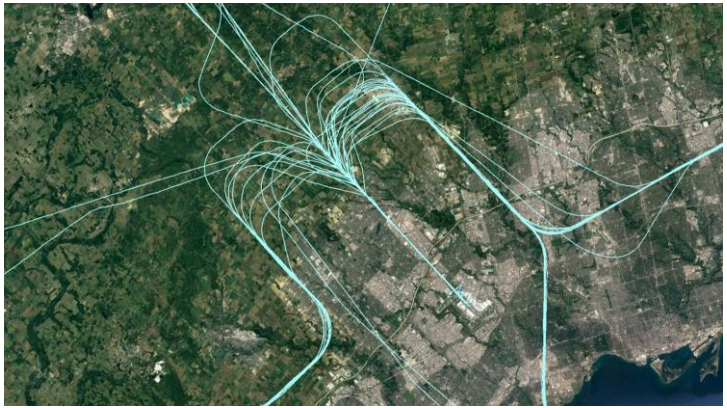


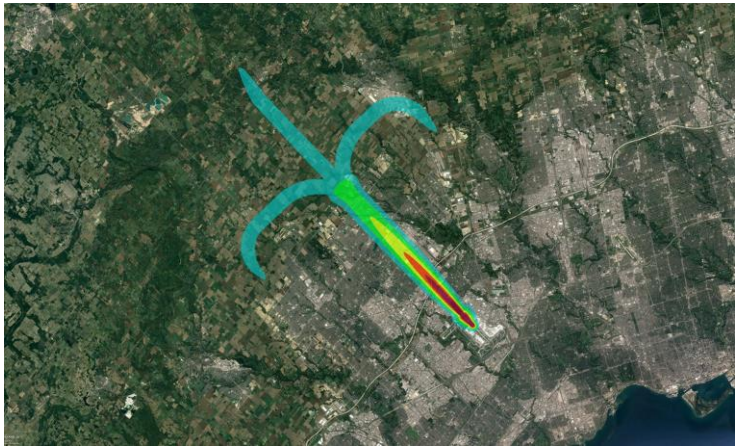





Noise analysis suggests that **29,000 fewer** people will be affected by noise levels >60dBA from overnight flights when Runway 05 is in use. This represents a reduction by as much as 22 percent depending on transition flown.

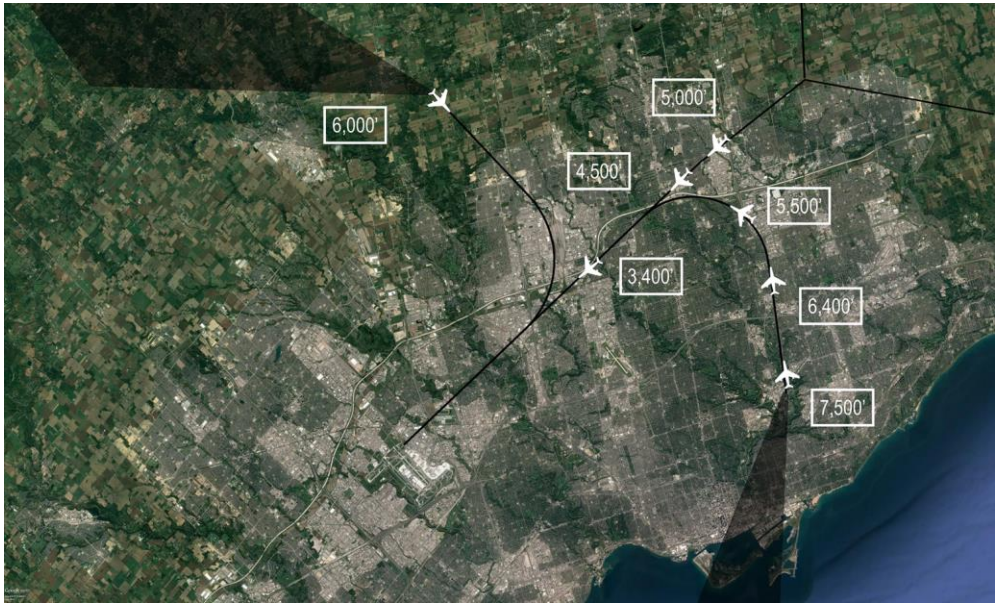
# Runway 15L nighttime arrivals

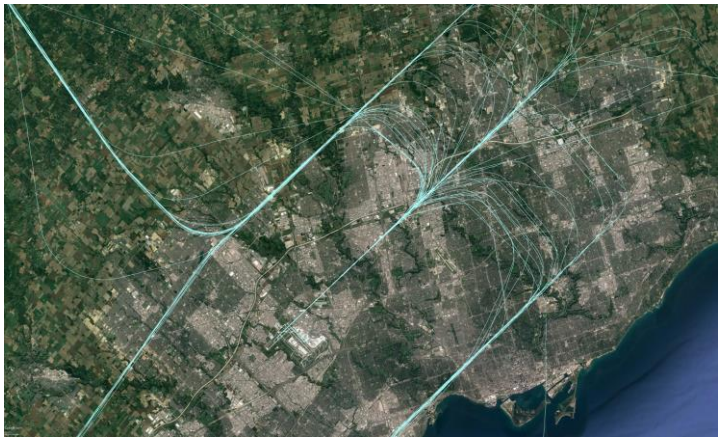



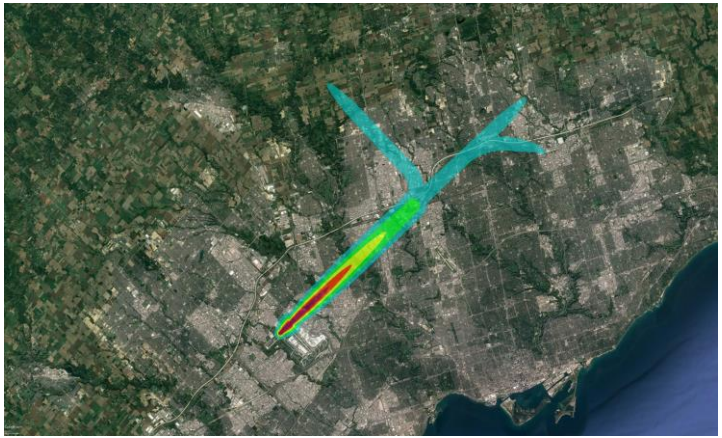


New RNAV approaches will provide for higher altitudes on the same flight path. Noise analysis suggests that over **27,000** fewer people will be exposed to >60 dBA from nighttime arrivals when Runway 15L is in use.

# Runway 23 nighttime arrivals

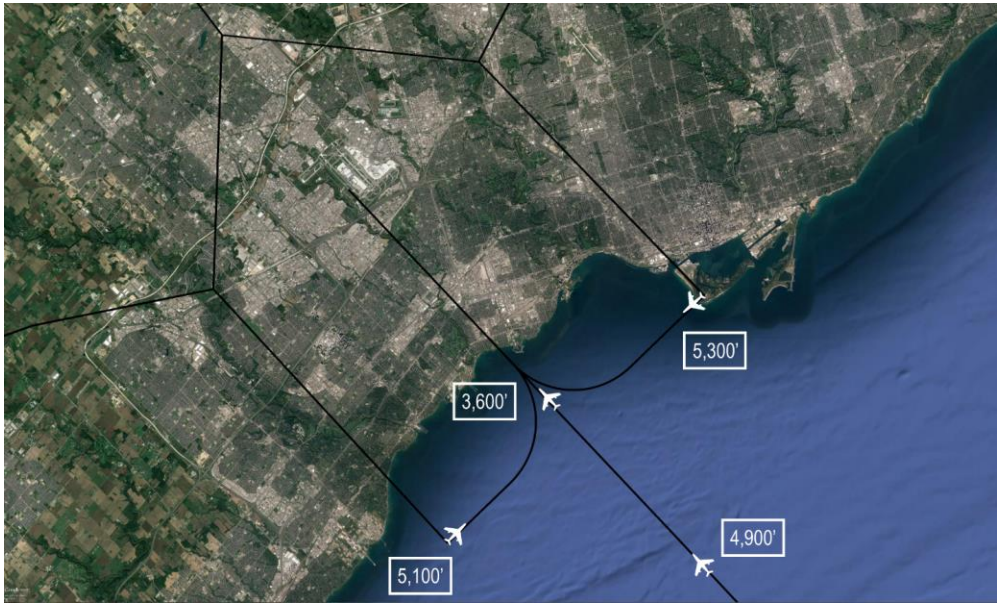


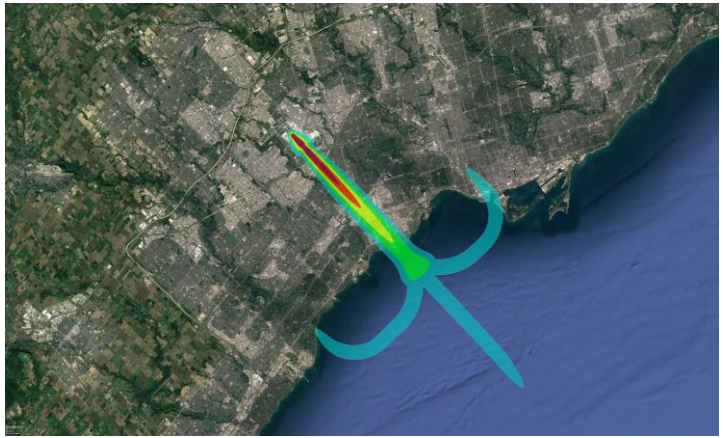





Noise analysis suggests **112,000 fewer** people will be exposed to noise >60dBA from overnight flights when Runway 23 is in use. This represents a reduction of as much as 44 percent depending on the transition flown.

# Runway 33 nighttime arrivals



Noise analysis suggests **30,000 fewer** people will be exposed to noise >60dBA from overnight flights when Runway 33 is in use. This represents a reduction of as much as 24 percent depending on the transition flown.

# Idea 2 - New nighttime departures

➔ **What we studied**

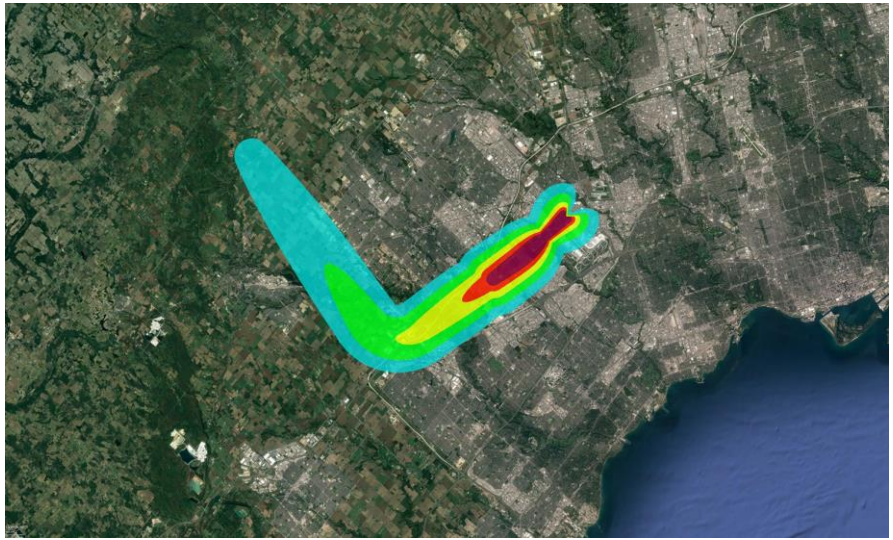
A mix of strategies to reduce residential impacts, including changing the location where aircraft turn or altering current headings.

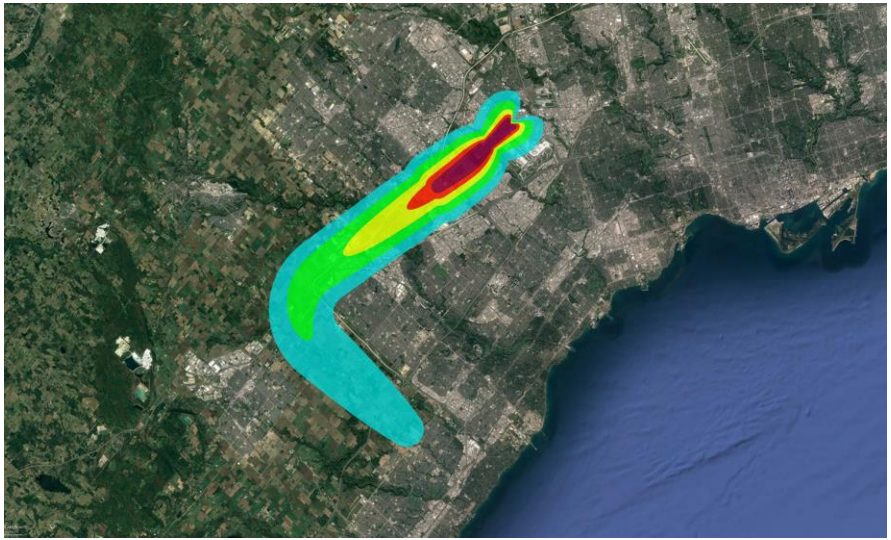
➔ **What we are seeking feedback on**

New nighttime departures routes that would be used between 12:30 and 6:30 am. If possible, usage would start earlier in the evening, but use is limited to low traffic periods.

# New nighttime departures

Runway 23 departures would depart at 10 degree heading and climb until they pass the boundaries of communities before turning towards destination. Noise analysis suggest that as many as **221,000 fewer people** will be exposed to noise levels >60 dBA. This represents a reduction by as much as 67 percent depending on direction.



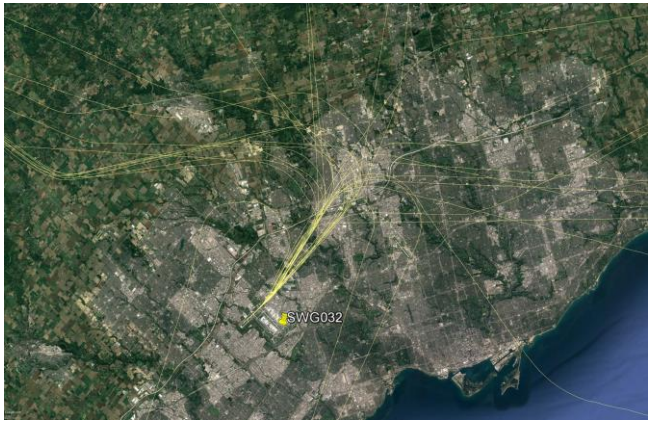


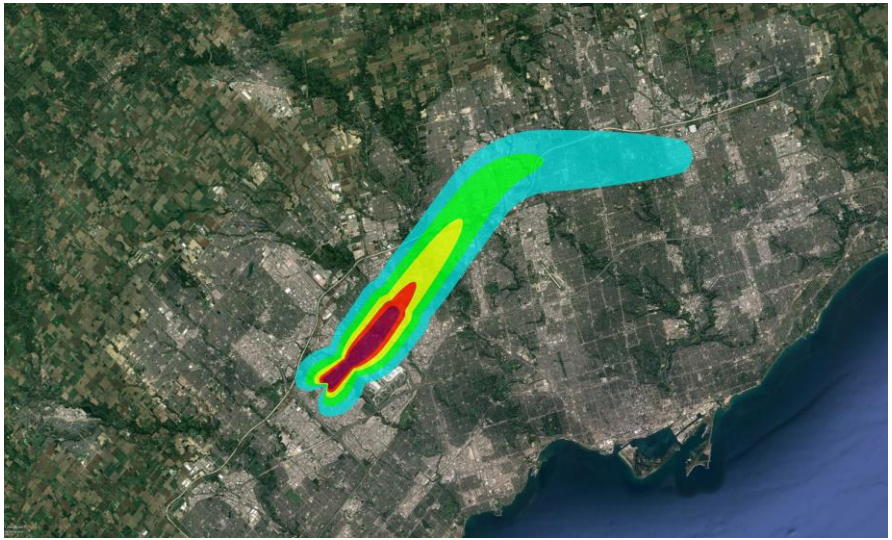
# New nighttime departures

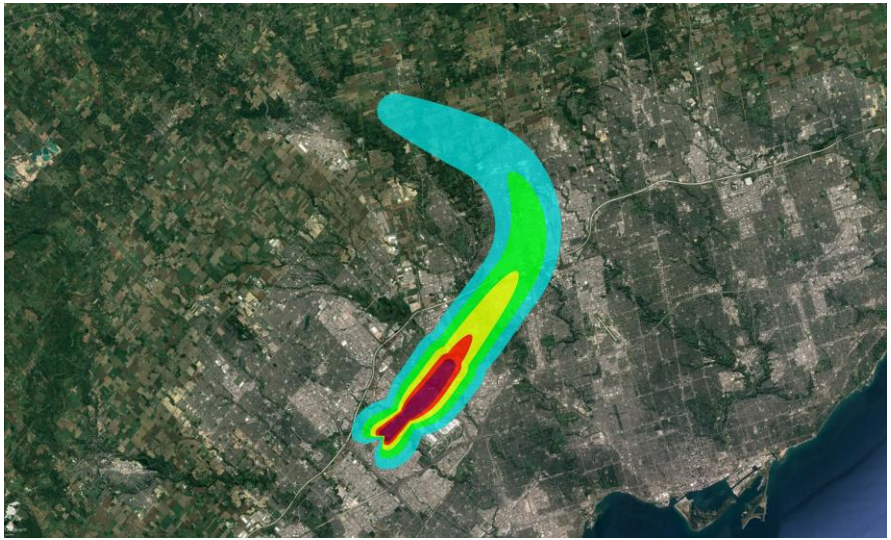
Radar screen markers.


# New nighttime departures

Runway 05 departures would depart at 10 degree heading and climb to 5,000 ft before turning towards destination. Noise analysis suggest that as many as **172,000 fewer people** will be exposed to noise levels >60 dBA depending on direction.





# Idea 3 - Increased downwind arrival speeds

➔ **What was proposed**

Changes to the published speeds on the “downwind” portion of the arrival flight path from 200 knots to 210 knots.

➔ **What are the benefits**

A potential reduction in the need for flaps to be deployed by pilots of certain aircraft types in order to slow their speed on the downwind. Reducing flap use may reduce airframe noise.

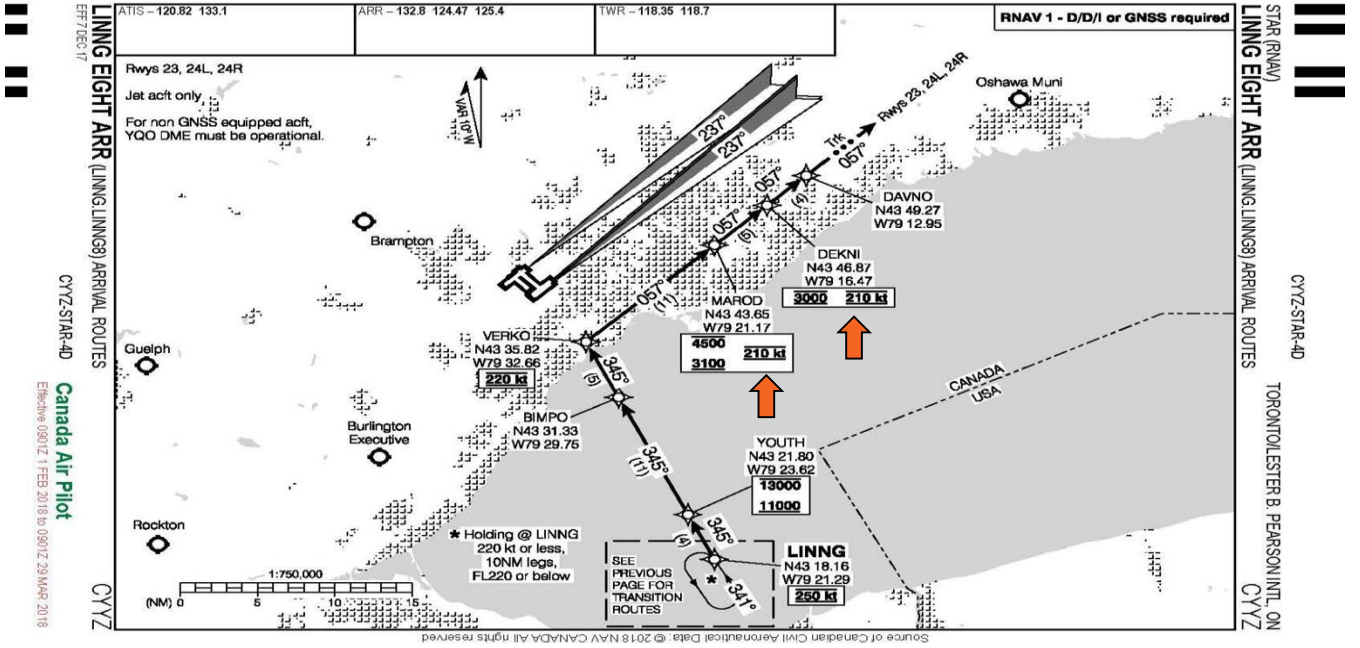
➔ **What has happened**

The change to the published speed was implemented effective **April 27, 2017** via an amendment to the Canada Air Pilot, the aeronautical publication used by pilots.

# Increased downwind arrival speeds

In 2012 the speed was increased from 190 to 200 knots. At the time, this was the highest speed allowable by design criteria.

Today the criteria enable **210 knots**.



# Idea 4 - New technology to reduce the need for low altitude levelling by arriving aircraft

- **What we studied**

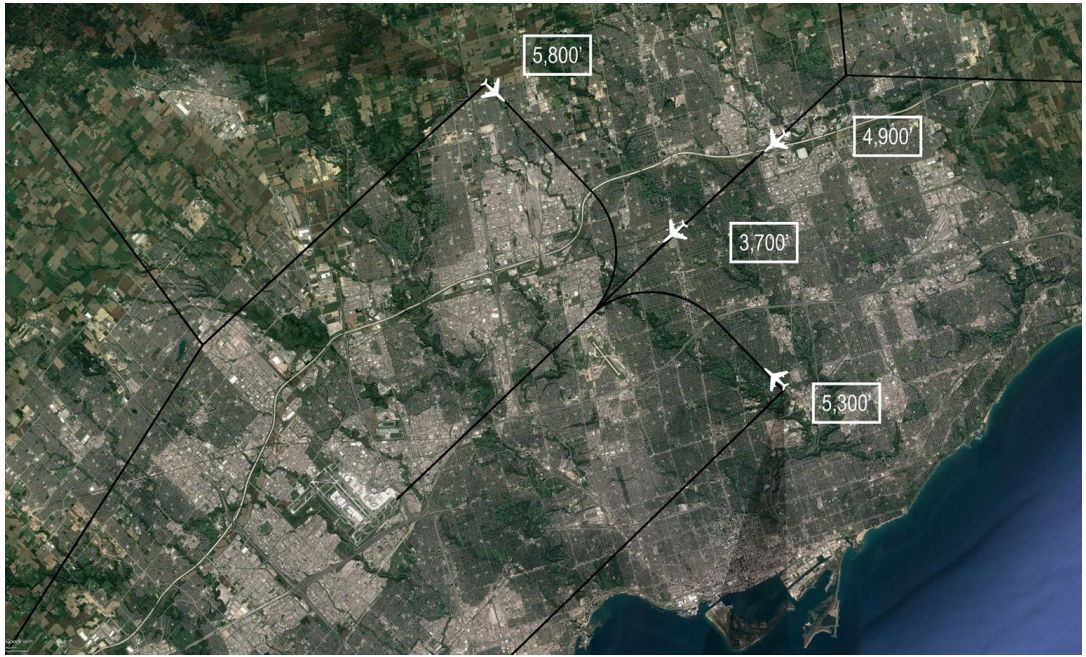
  Use of Performance Based Navigation technology to increase achievement of continuous descent during periods in which the “high low” is not required.

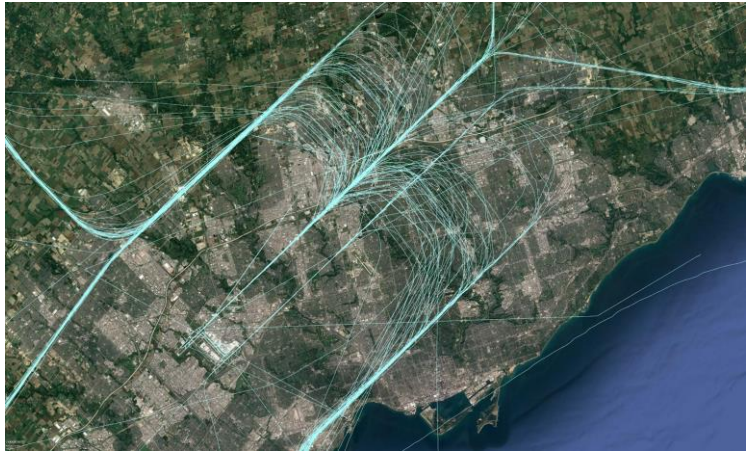
  Ways to reduce use of the downwind during low traffic periods.

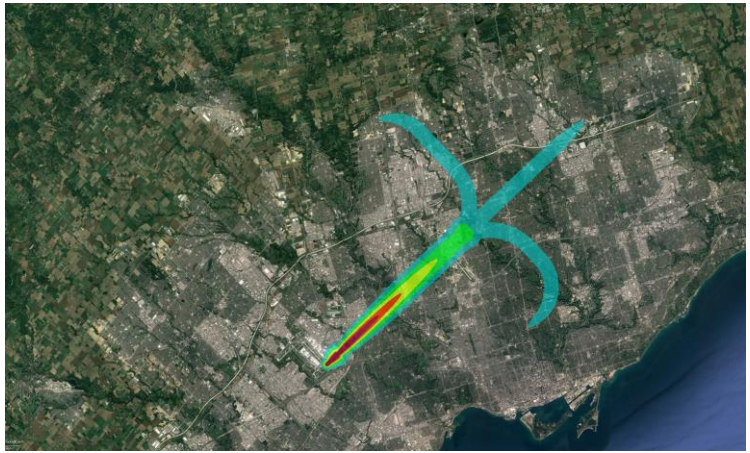
- **What we are seeking feedback on**

  New daytime RNAV approaches that provide pilots with transitions to final approach rather than today’s vectored procedures, and that enable continuous descent through the baseleg.

# Runway 24R RNAV arrivals

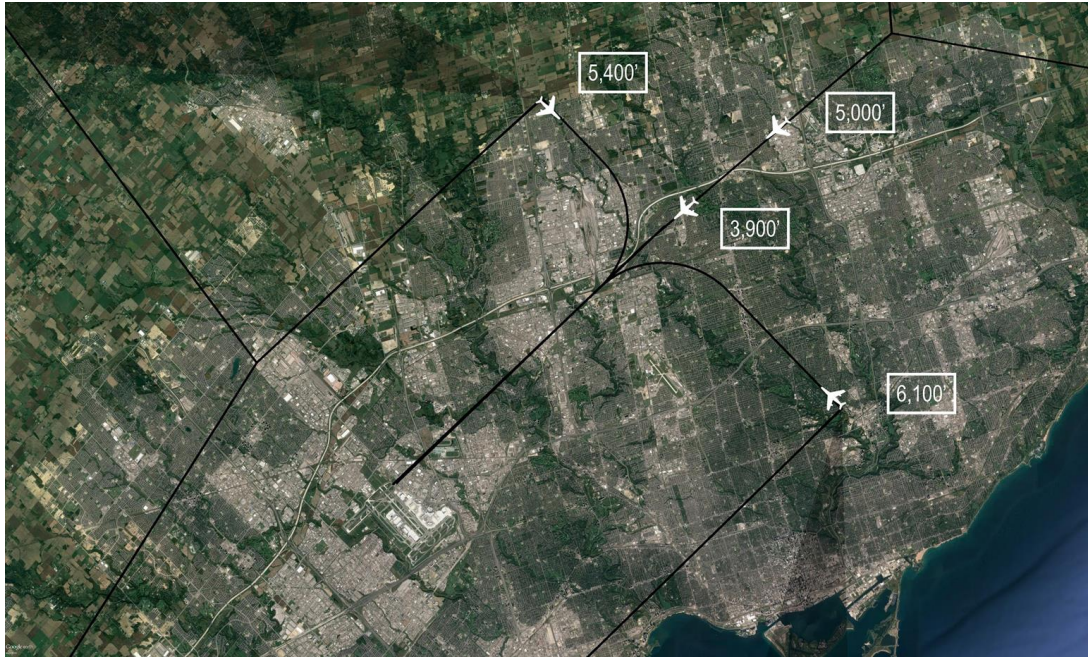


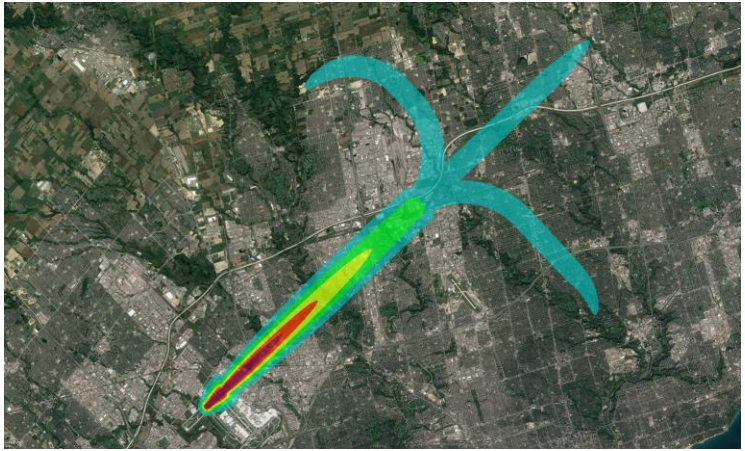





Noise modelling suggests that **80,000 fewer** people will be exposed to noise >60 dBA when the new RNAV approaches to runway 24 are used.

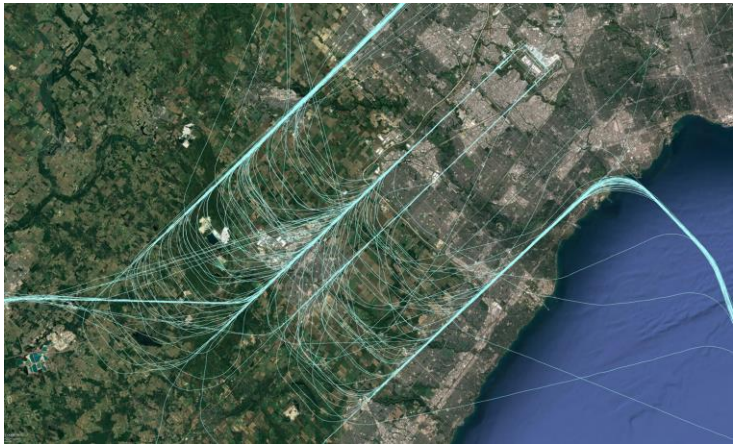
# Runway 23 RNAV arrivals

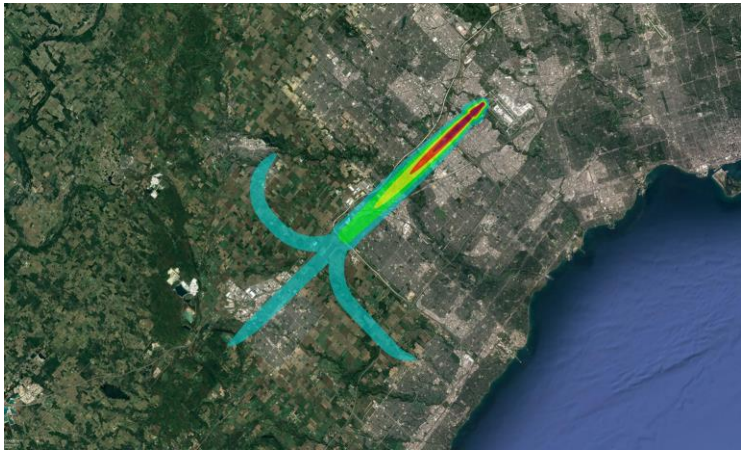


Noise modelling suggests that **22,000 fewer** people will be exposed to noise >60 dBA when the new RNAV approaches to runway 23 are used.

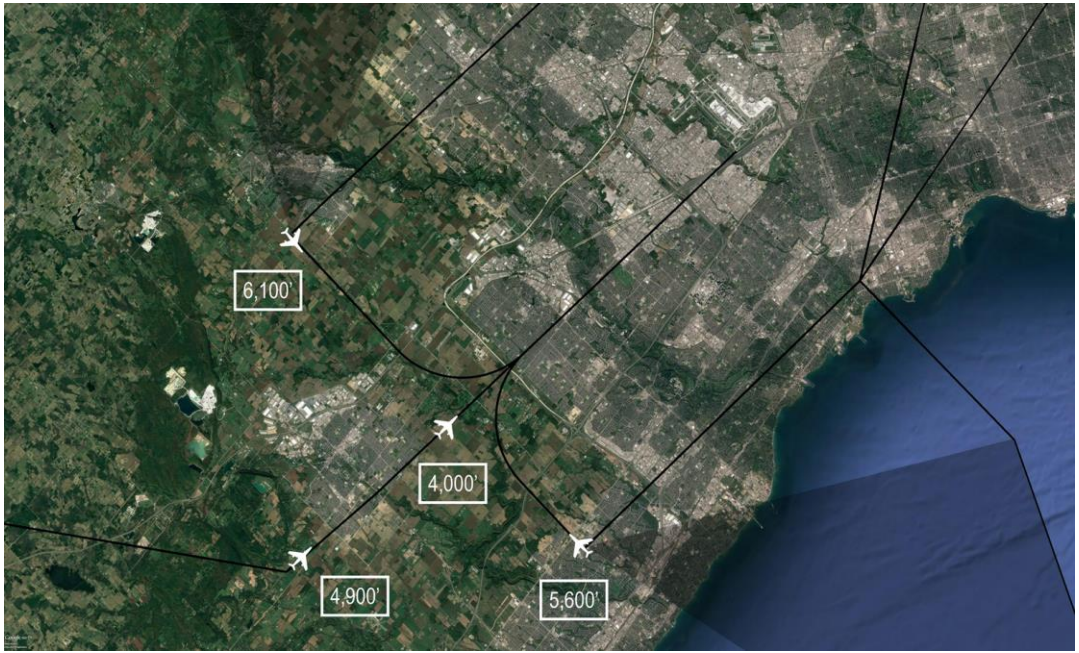
# Runway 05 RNAV arrivals

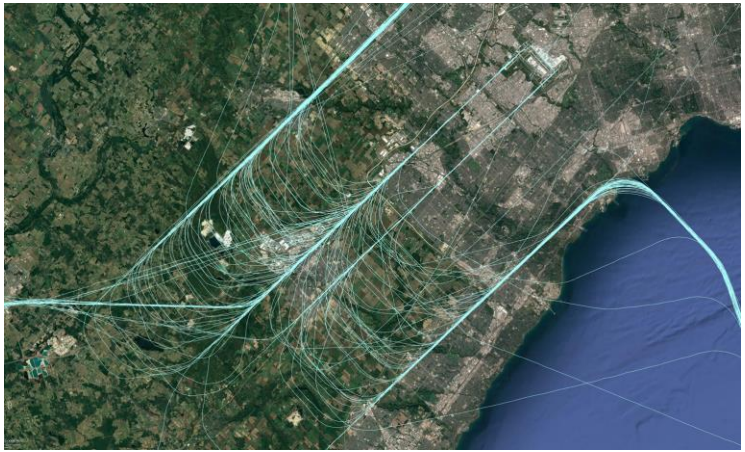



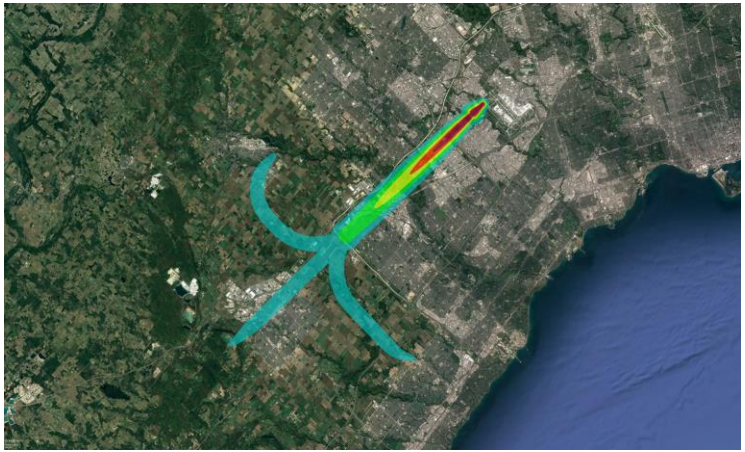


Noise modelling suggests that **7,000 fewer** people will be exposed to noise >60 dBA when the new RNAV approaches to runway 05 are used.

# Runway 06R RNAV arrivals





Noise modelling suggests that **27,000 fewer** people will be exposed to noise >60 dBA when the new RNAV approaches to runway 06R are used.

# Idea 5 - Summer Weekend Runway Alternation

Many top-tier international airports provide residents with predictable relief from aircraft noise by rotating runway usage.

## ➔ What we studied

- Two options for a summer weekend runway alternation program:
  - involving all runways (east/west and north/south)
    - **Not feasible** due to capacity and demand projections
  - involving only the east/west runways.
    - Residents could experience **13 weekends of relief** over the summer months
    - Will provide some predictable respite for residents living under final approach or initial departure paths for these runways
    - Residents living under the downwind would not see respite from this program.

## ➔ What we are proposing

- Summer Weekend runway alternation program involving the three east/west runways
- May to October, inclusive (26 weekends) between 6:30 a.m. and 11:59 p.m.
- A schedule would be published so residents would know in advance what to expect and could plan accordingly

.

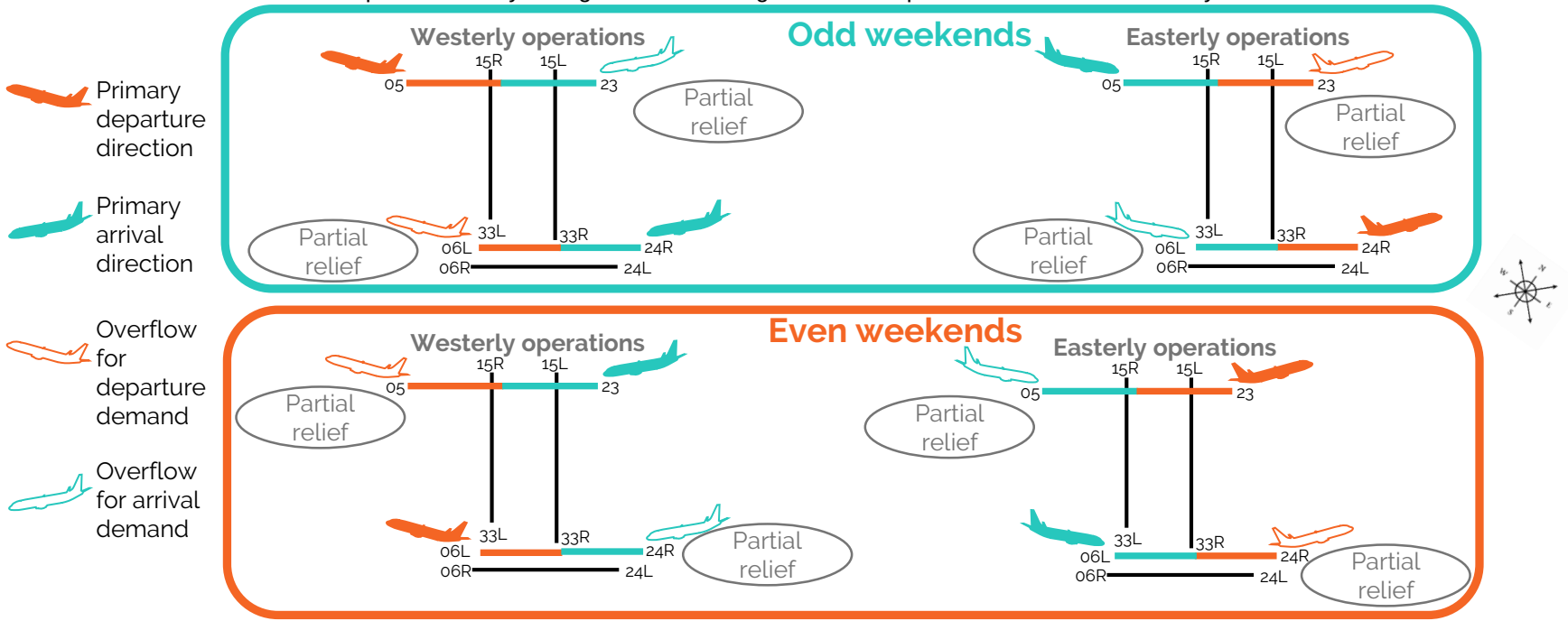
# Idea 5 – Summer Weekend Runway Alternation

## → How it will work

Residents would receive full or partial respite on alternate weekends. Partial respite relates to the "offload" of additional arrivals or departures on a primary runway.

Residents would receive full impact on alternate weekends.

Published schedule of expected runway configurations allowing residents to plan weekends. In effect May-October.

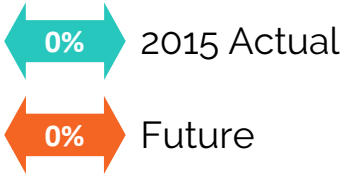


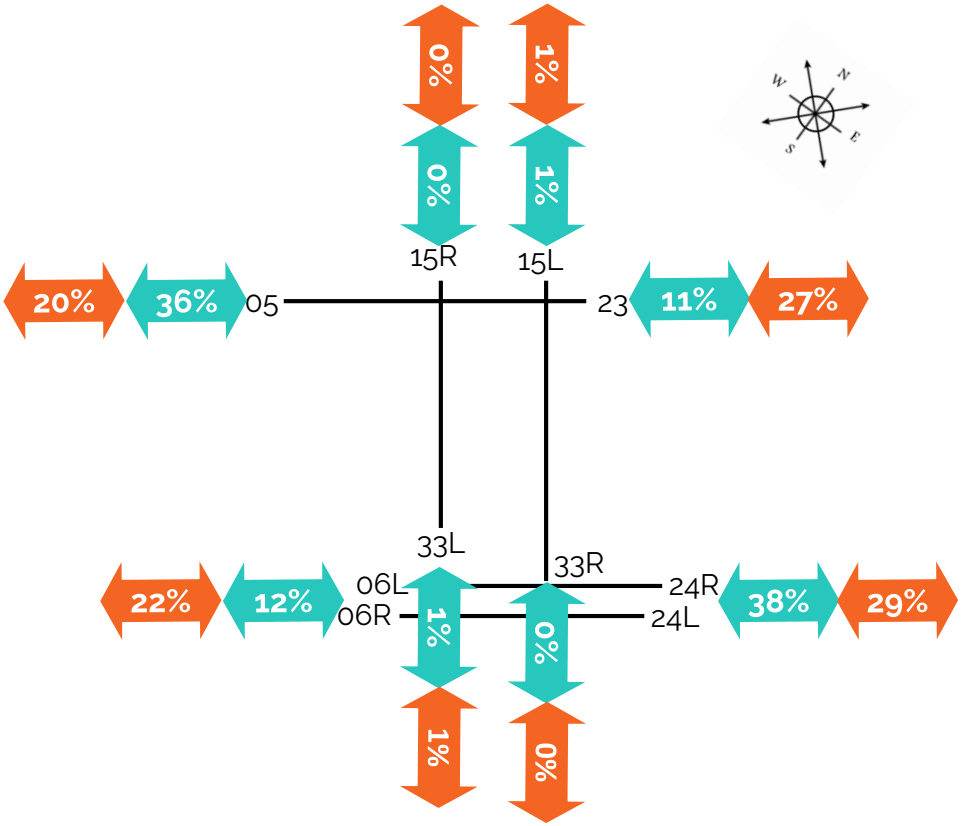
# Idea 5 – Summer Weekend Runway Alternation

## ➔ Status quo versus program

This graphic shows traffic distribution **(arrivals and departures)** over the entire summer period **(26 weekends)**.

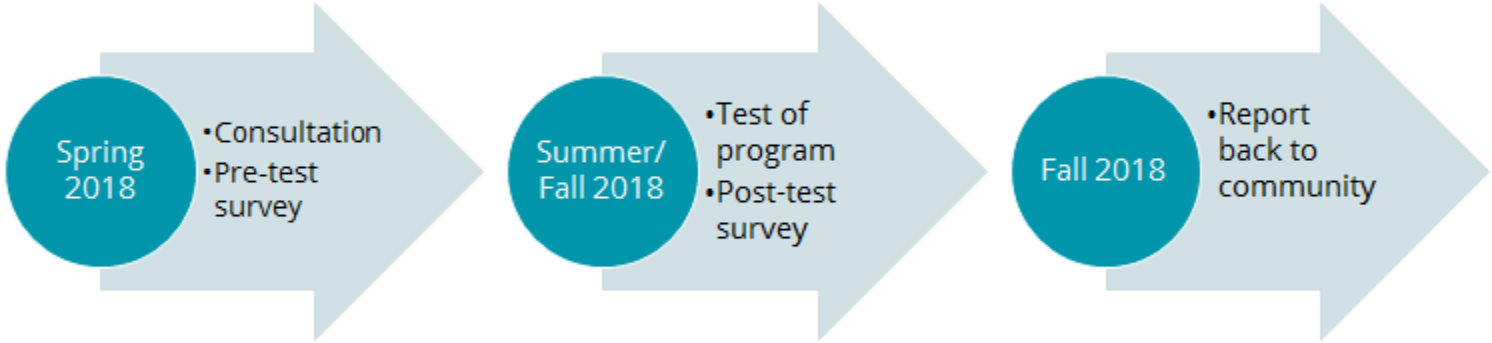
It compares actual **traffic distribution from 2015** against modeled **future traffic distribution.**



# Idea 5 - Summer Weekend Runway Alternation

→ **Next steps**



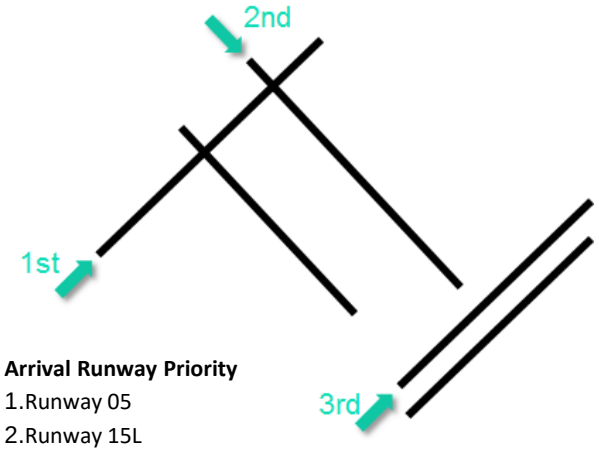
# Idea 6 - Preferential Runway System Review

Toronto Pearson's preferential runway system is intended to minimize the population overflown between midnight and 06:30.

The current system that was designated in the 1970s. As the population around the airport has changed and additional runways have been built since the system was put in place, it was time to review the system.

## → Current Program

**Arrivals**

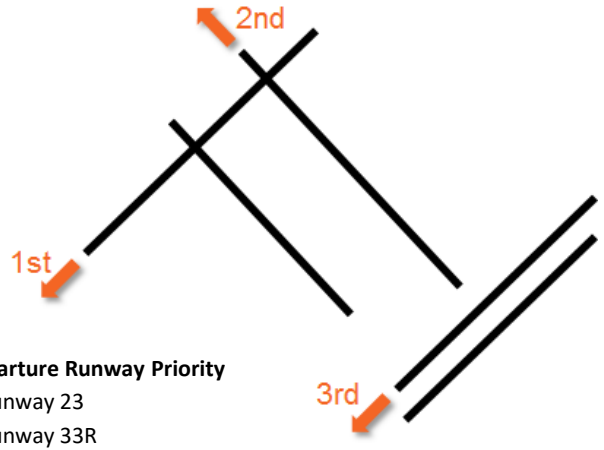



**Arrival Runway Priority**

1.Runway 05
2.Runway 15L
3.Runway 06L

**Consistent with operational safety*

**Departures**




**Departure Runway Priority**

1.Runway 23
2.Runway 33R
3.Runway 24R

**Consistent with operational safety*

# Idea 6 - Preferential Runway System Review

## ➔ What we studied

We looked at our preferential runway system against the objective of flying over the fewest people possible. Our review found that changes need to be made to the current Preferential Runway System to meet this objective, and also to provide more reliable usage of the system.

## ➔ What we are proposing

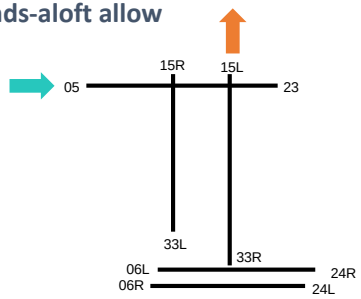
A revised nighttime Preferential Runway System which provides feasible runway pairings that:

- minimizes the total population impacted by aircraft noise of 45dB CNEL or higher between midnight and 6:30 a.m.
- will improve the reliability of the system
- provides alternatives for “into the wind” configurations

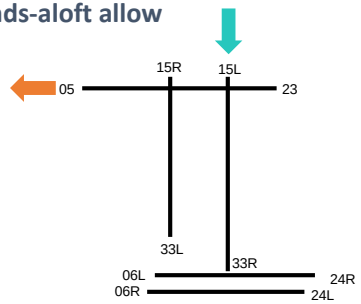
# Idea 6 - Preferential Runway System Review

## → Recommended Night Preferences

**1st Choice - Whenever crosswind, tailwinds & winds-aloft allow**

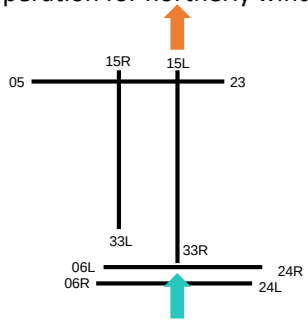



**2nd Choice - Whenever crosswind, tailwinds & winds-aloft allow**

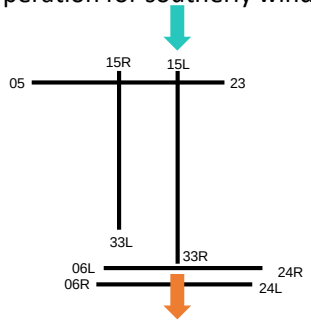



**Selection driven by weather conditions and infrastructure availability when 1st or 2nd choice are not operable. Ultimately any single or pair of runways can be used.**

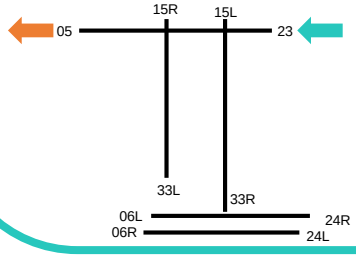
Operation for northerly wind



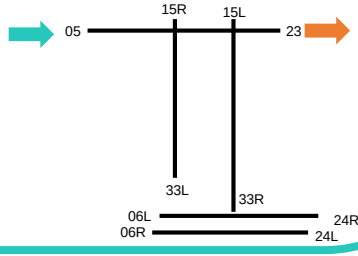

Operation for southerly wind




Operation for westerly wind




Operation for easterly wind



# Idea 6 - Preferential Runway System Review

## ➔ Conclusions & Next steps

The new Preferential Runway System will provide more clarity to NAV CANADA's air traffic controllers about which runways pairings should be used during the Preferential Runway period and will provide options for all weather conditions.

This will ultimately enable us to be more transparent to residents about our nighttime operations.

We anticipate conducting a test of the new preferential runways system which will also allow us to survey residents to see what impacts/benefits of the new system and review noise monitoring data.

# Understanding the Ideas & Providing Feedback

Our consultations will focus on helping residents understand what is being proposed and what it means for them.

Technical experts from both the GTAA and NAV CANADA will be available to provide information and answer questions. In addition, there will be interactive maps that residents can use to see what new procedures and programs look like in relation to their home.

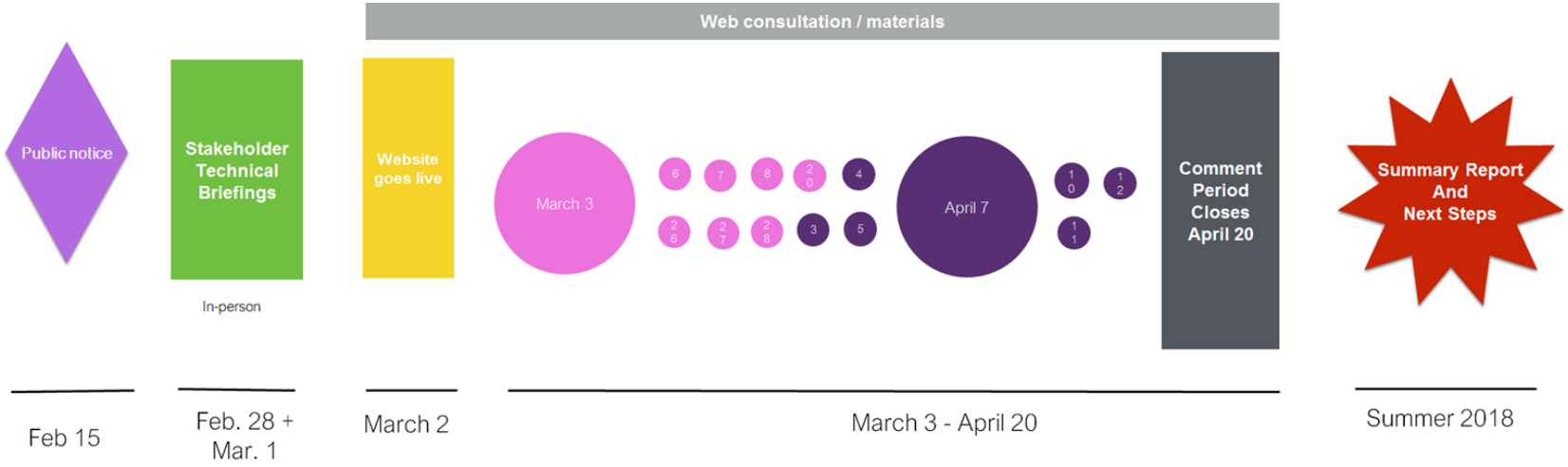
## ➔ Providing Feedback

Residents will have the opportunity to provide their feedback on the six ideas through conversations and surveys. Surveys will be available online and at all consultation events.

## ➔ What we will do with the feedback

Feedback from residents will be used to inform next steps on whether or not to proceed with implementation of ideas, or in the case of ideas 5 & 6, how tests should be run and how to measure their success.

# Timeline


Web consultation / materials
Public notice
Stakeholder Technical Briefings
In-person
Website goes live
March 3
6
7
8
20
4
26
27
28
3
5
April 7
10
12
11
Comment Period Closes April 20
Summary Report And Next Steps
Feb 15
Feb. 28 + Mar. 1
March 2
March 3 - April 20
Summer 2018

# Thank you