



Toronto Pearson
Neighbourhood Table
Webinar Session

May 6th, 2020



Welcome + Introductions

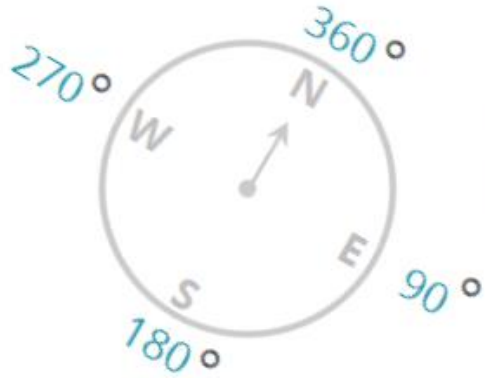
Agenda

- Airport Operations 101
- NAV CANADA Update

Airport Operations 101

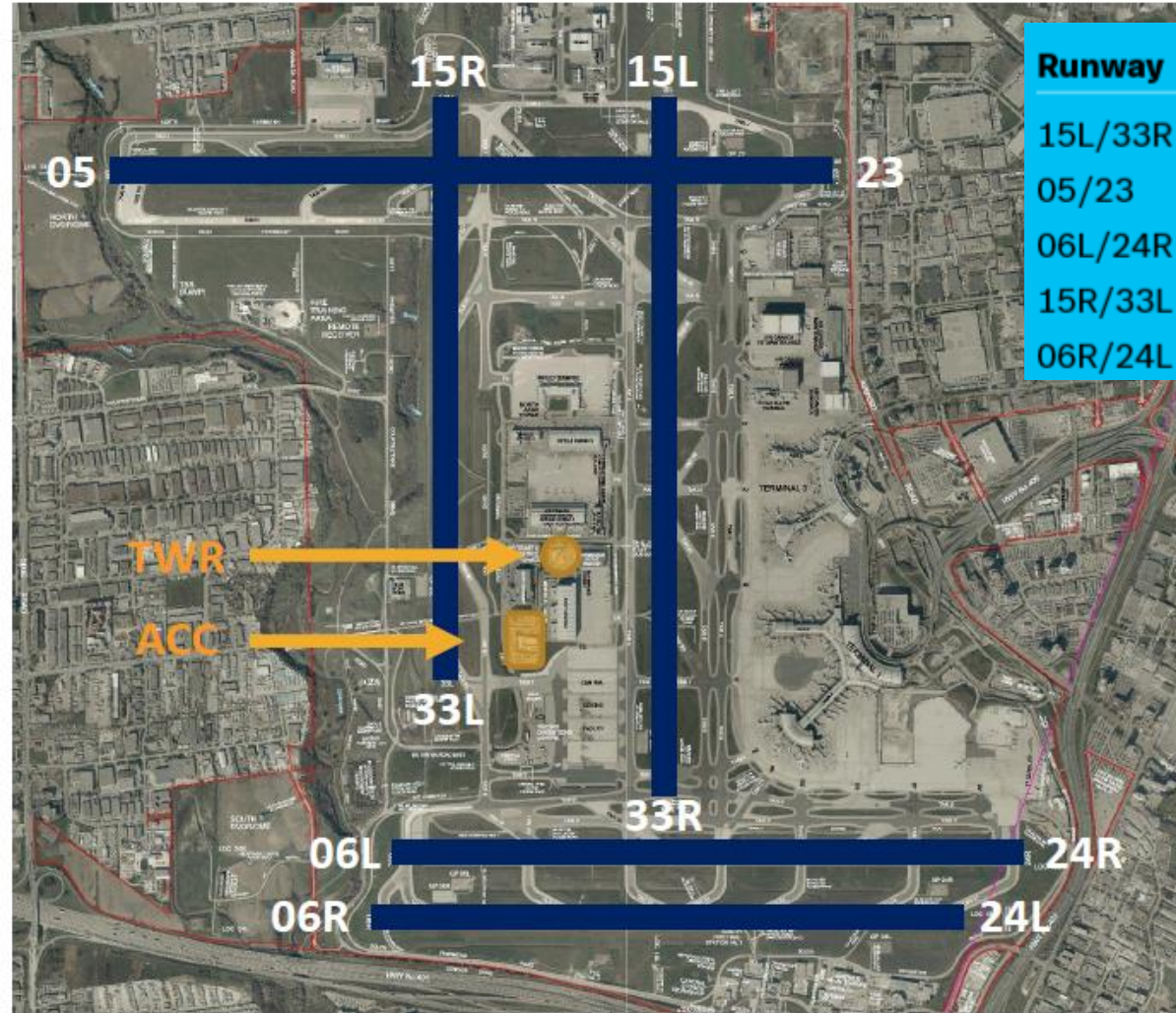


Runway Layout



When planning an airfield, runway orientation is located to accommodate for 95% of traffic.

For Toronto Pearson that meant a predominant East/West orientation.



Runway	Year constructed
15L/33R	1937
05/23	1960
06L/24R	1961
15R/33L	1997
06R/24L	2002

How Runways are Selected

NAV CANADA assigns runways based on the following considerations:

- Winds
 - Predominant wind direction, wind speed, crosswinds (wind measured at 90 degrees to the runway, inclusive of wind gusting)
- Runway surface conditions
 - Wet, dry, contaminated (accumulation of precipitation)
- Runway Length
 - Pilots can request a specific runway based on operational requirements. Runway 15L/33R (a north/south runway) is the longest and can be requested at times by long haul (heavy) aircraft
- Runway availability
 - Maintenance or other factors that make one of the five runways temporarily unavailable
- Traffic Demand & Capacity
 - Traffic levels vary throughout the day. Weekend and overnight can mean lower traffic so more configuration options
- Time of Day
 - At nighttime, Toronto Pearson uses a preferential runway system to direct planes over the fewest residents (12:00am – 6:30am)

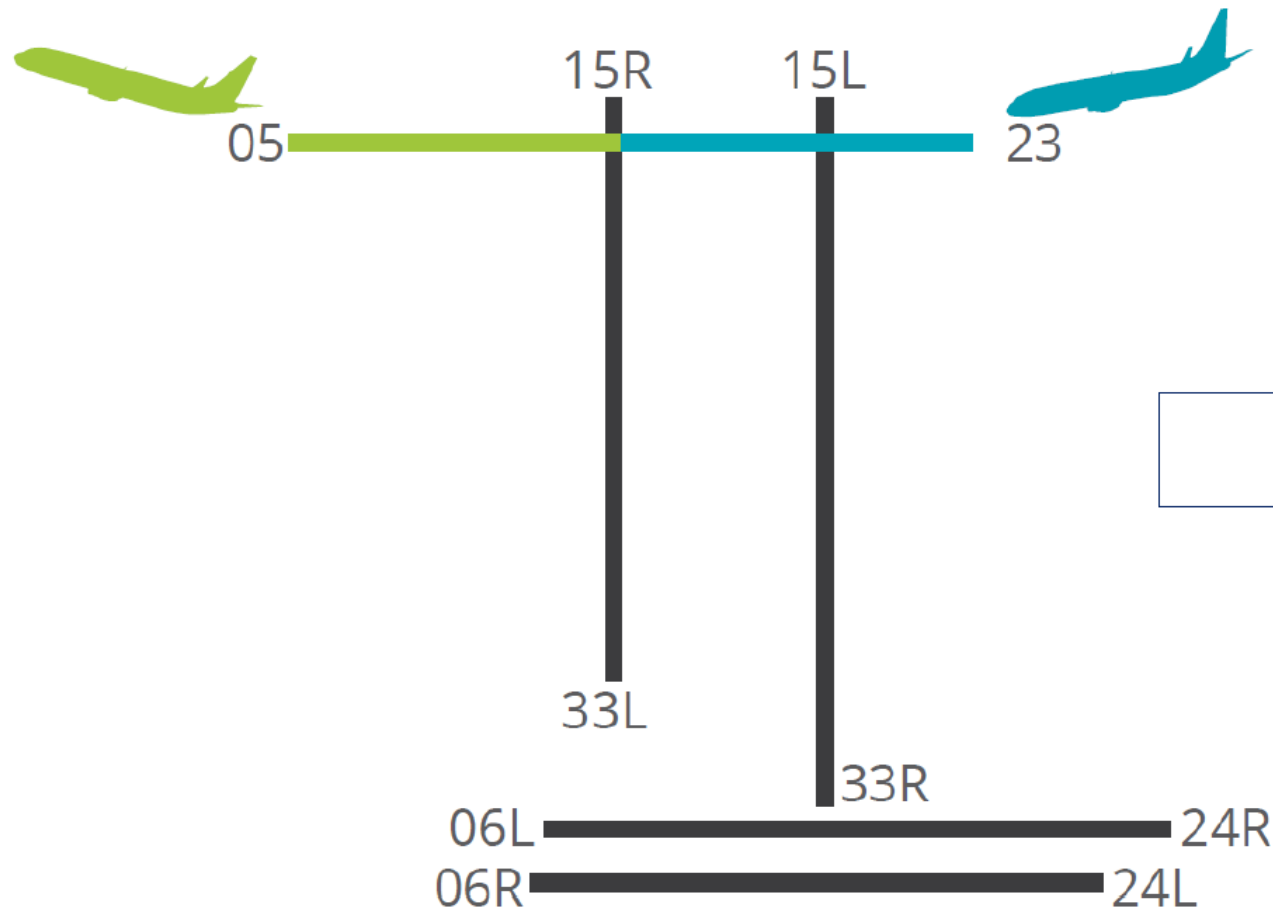
Runway Usage

- The east – west runways are used most of the time:
 - The most prominent winds are from the west and the east
 - These runways can accommodate the highest traffic levels

In 2019:

- 96% of our total operations used the east-west runways
- 4% of our total operations used the north-south runways

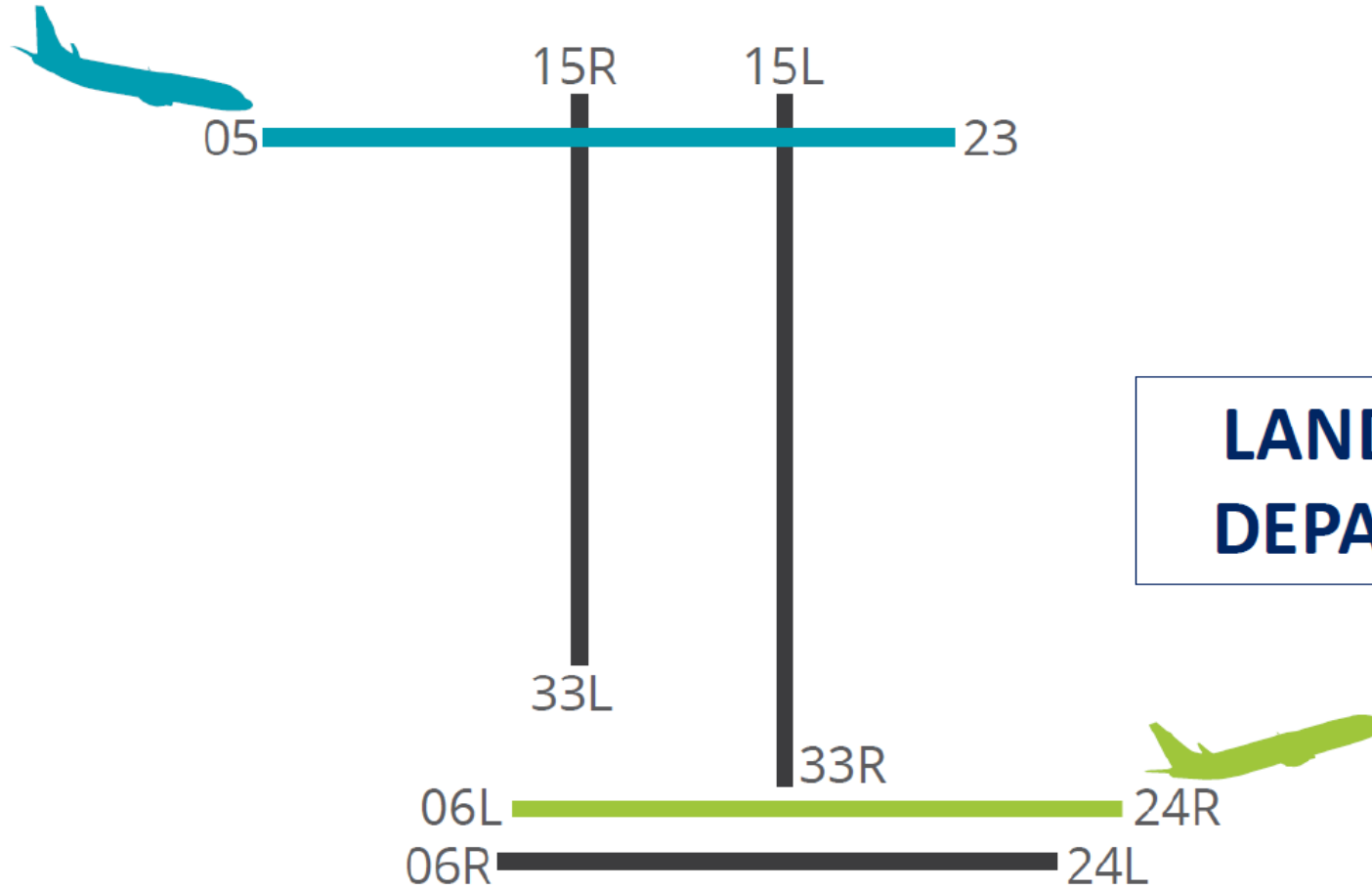
Runway Configurations



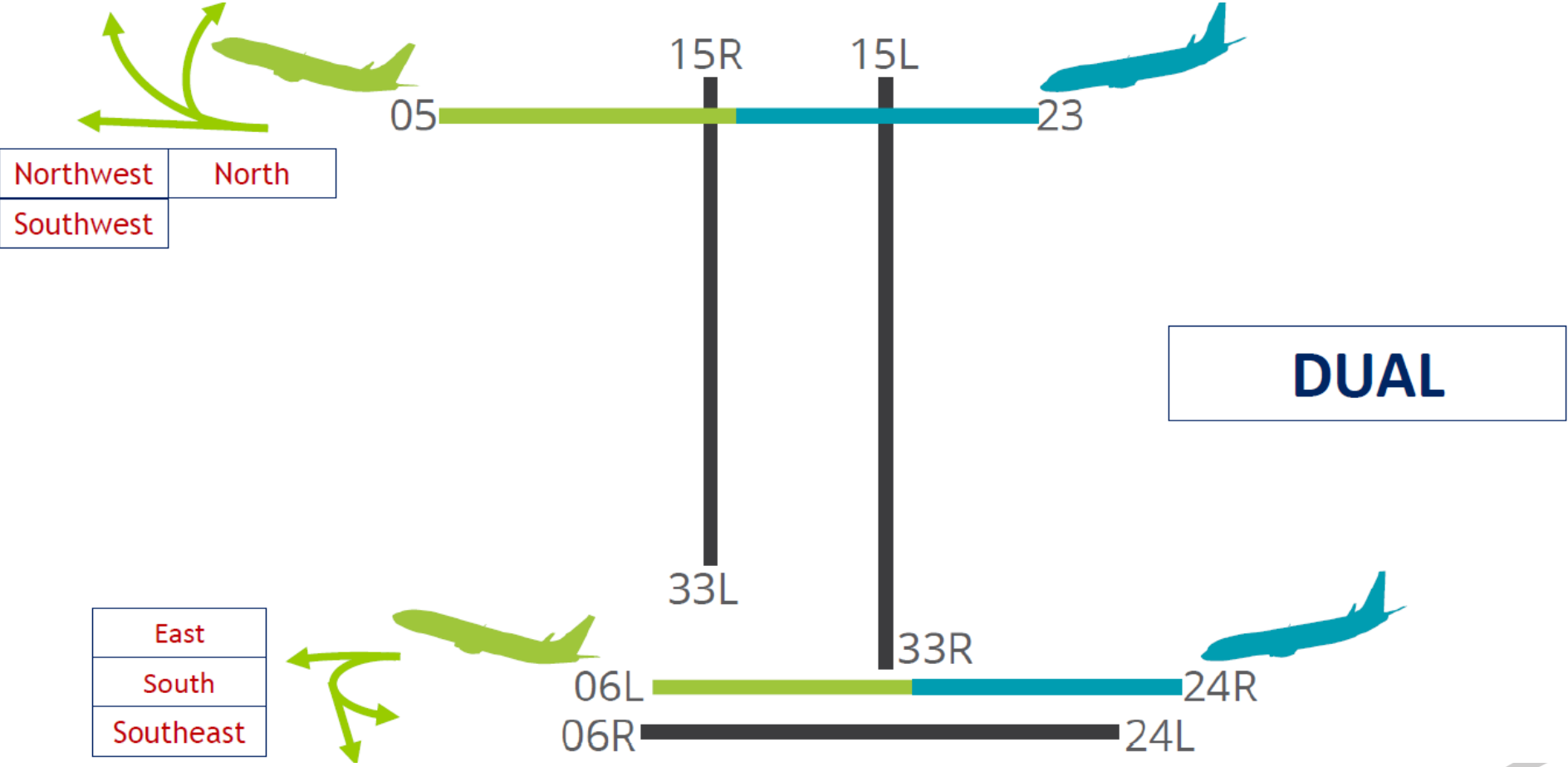
SINGLE



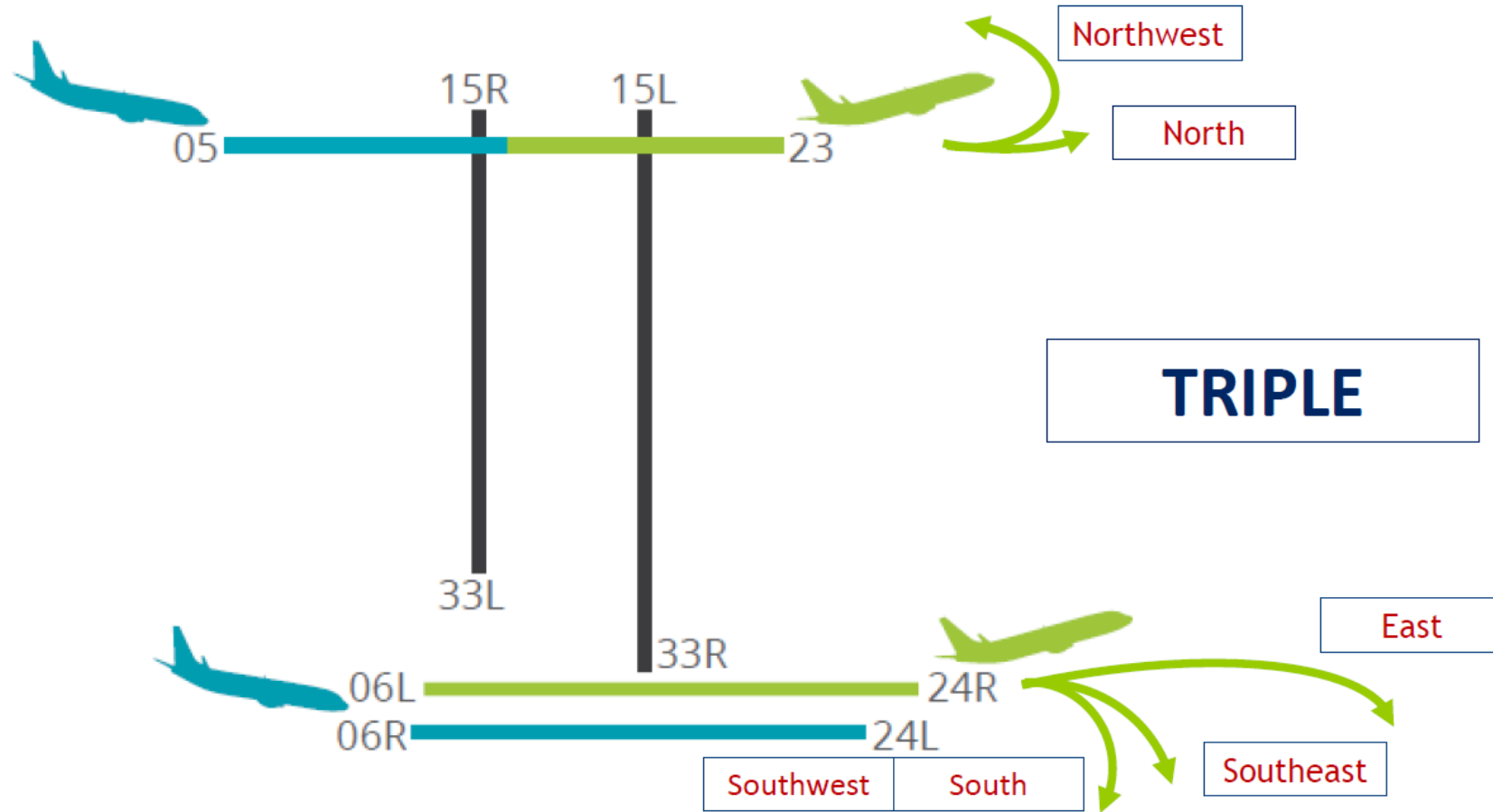
Runway Configurations

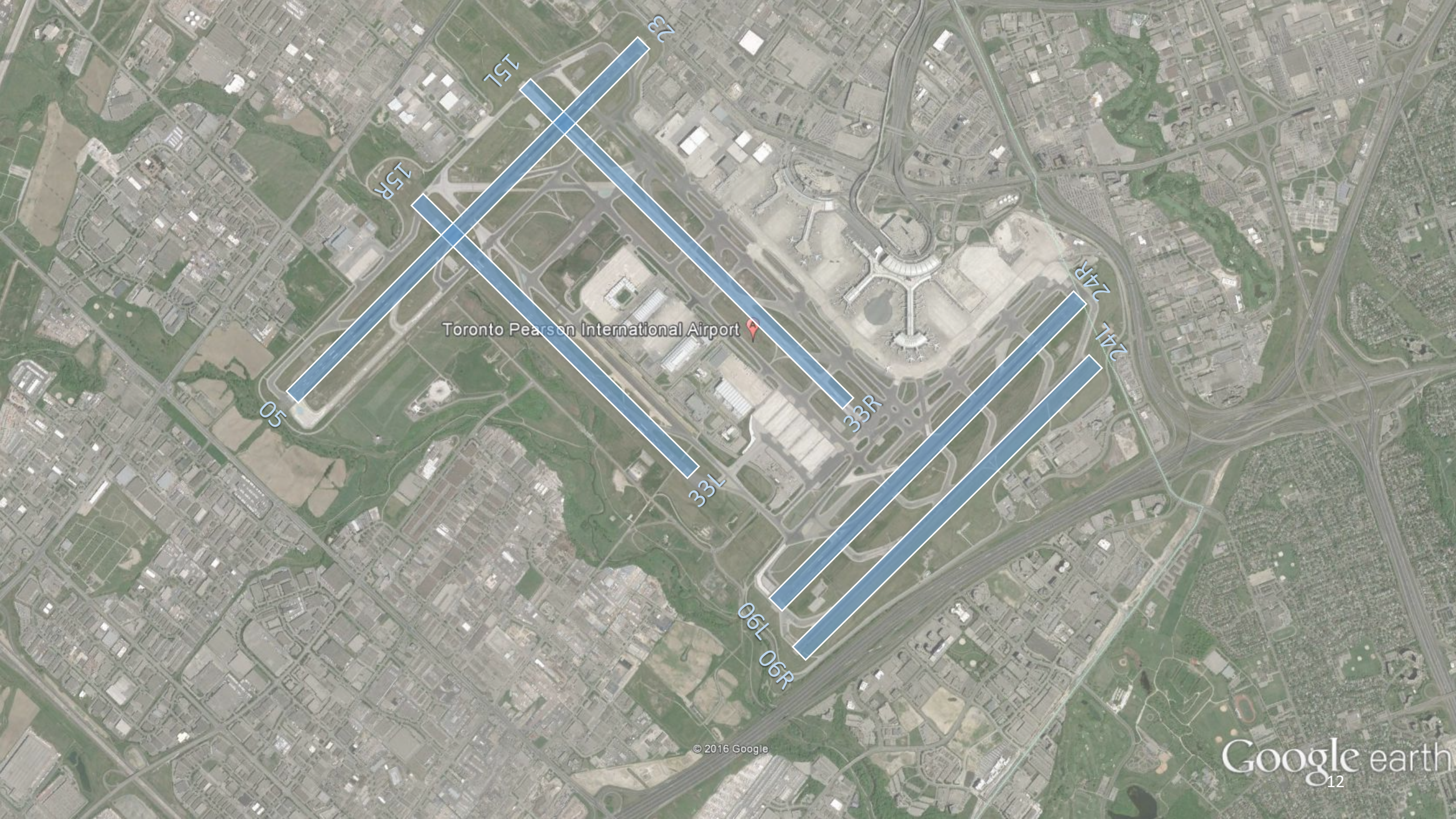


Runway Configurations



Runway Configurations





Toronto Pearson International Airport



Toronto Pearson International Airport

An example of using
Runways 23 and 24R



Toronto Pearson International Airport

An example of using
Runways 05 and 06L



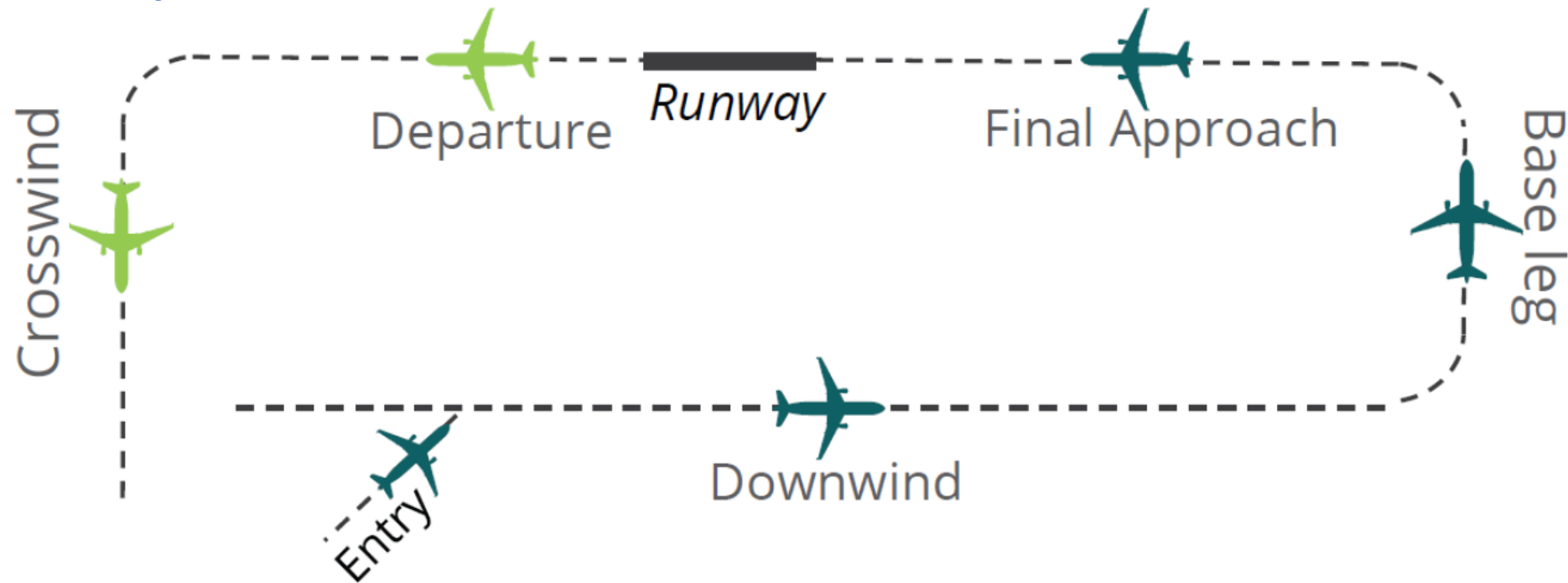
Toronto Pearson International Airport

An example of using
Runways 33L and 33R



An example of using
Runways 15L and 15R

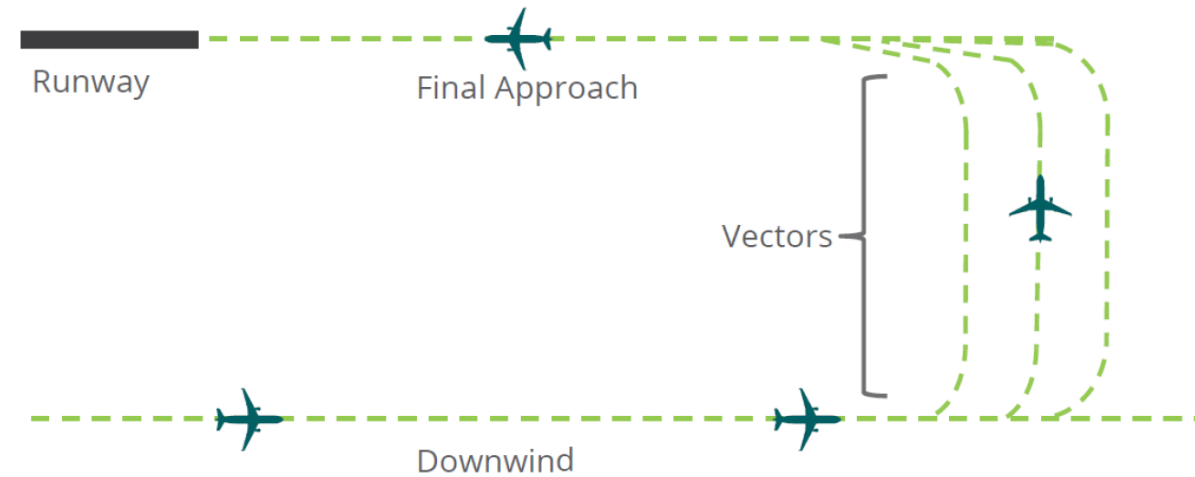
Runway Circuit Pattern

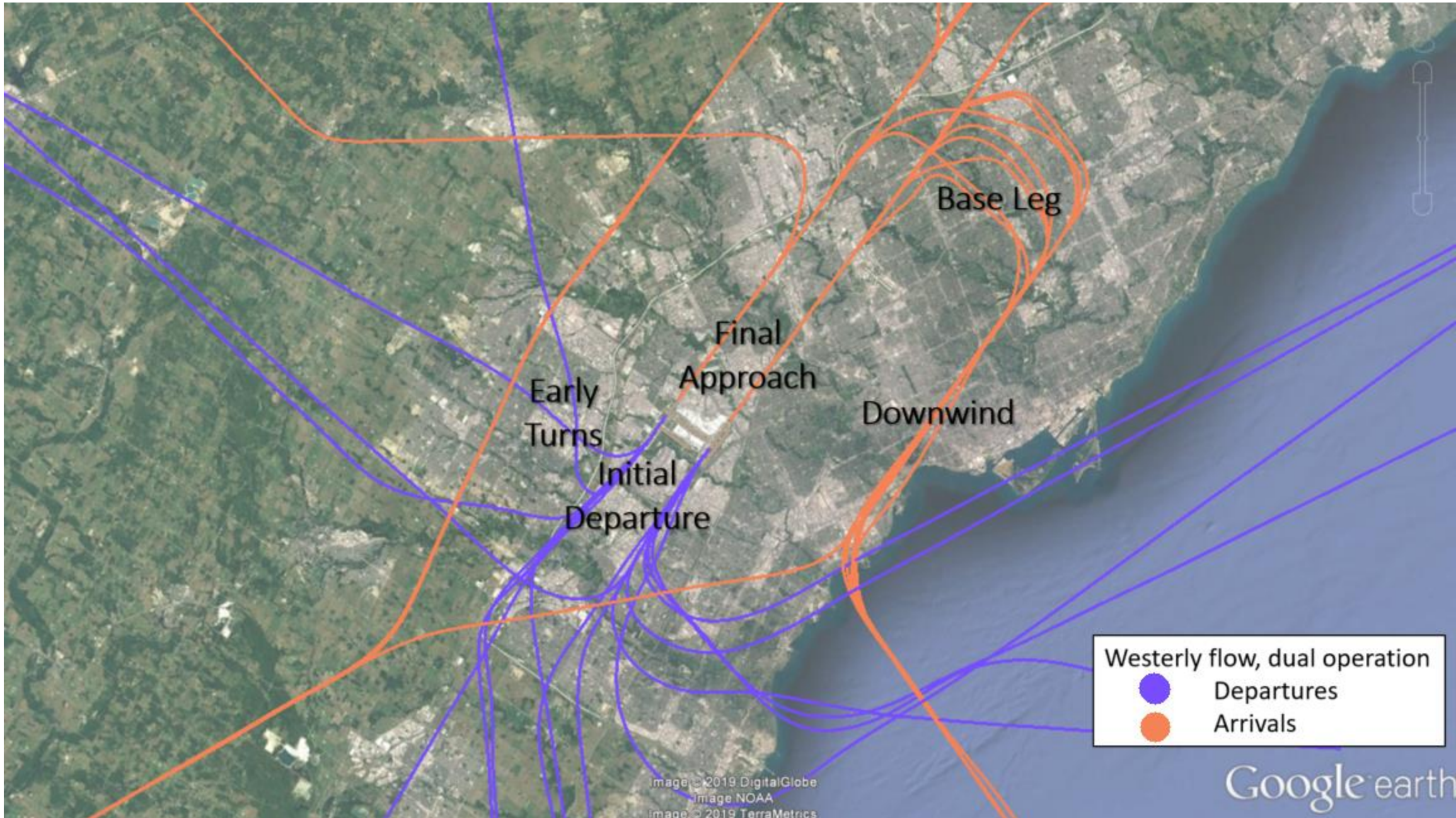


In order to ensure safe separation between aircraft and optimize capacity, air traffic controllers sequence arriving aircraft in a pattern that flies them past the airport before turning back towards the airport for final approach and landing. When viewed from above, this pattern looks like the slide of a trombone.

Runway Circuit Pattern

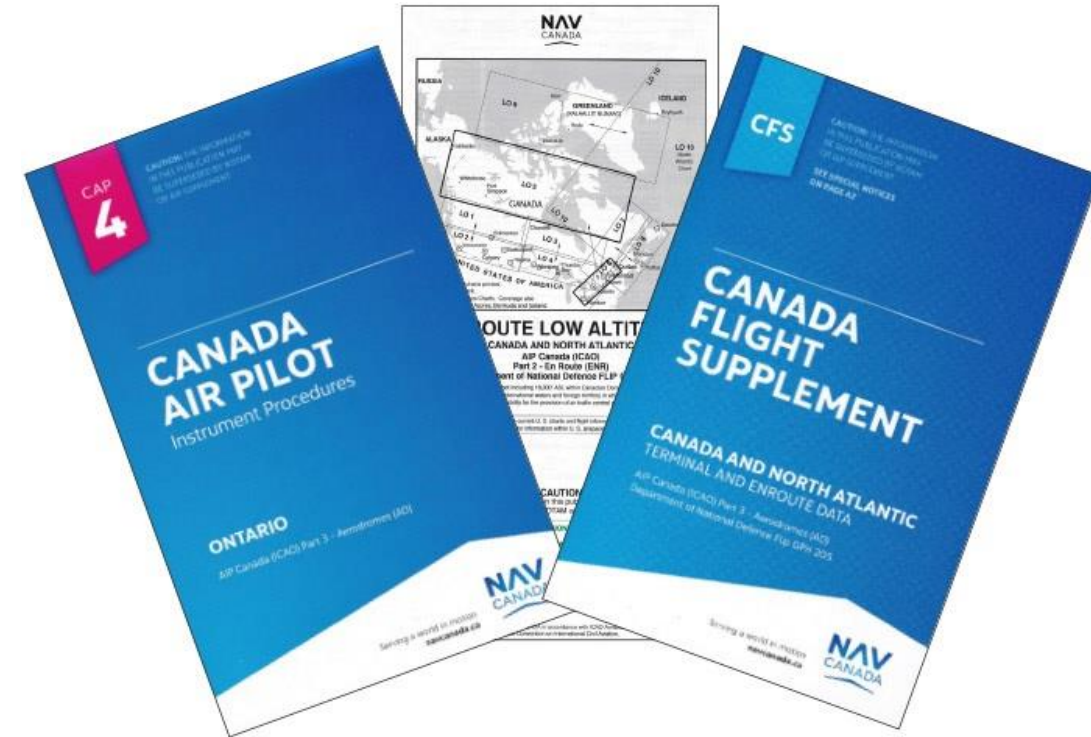
- The Downwind is when aircraft fly past the airport in the opposite direction of, but parallel to, the landing runway
- The Base Leg is when the aircraft is turning at a right angle from the downwind to line up with the airport and the landing runway
- Final Approach is when the aircraft is in line with the runway and getting ready to touch down





Routes: SIDs and STARs

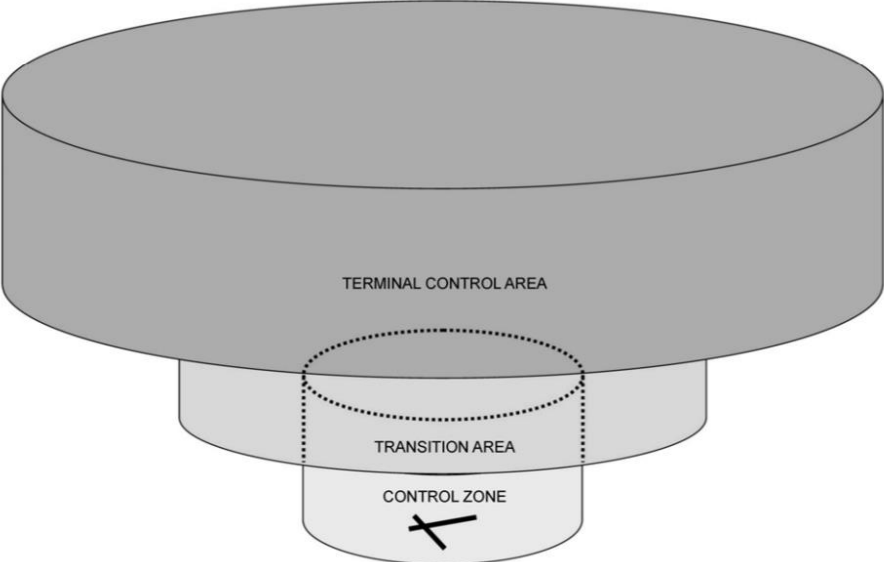
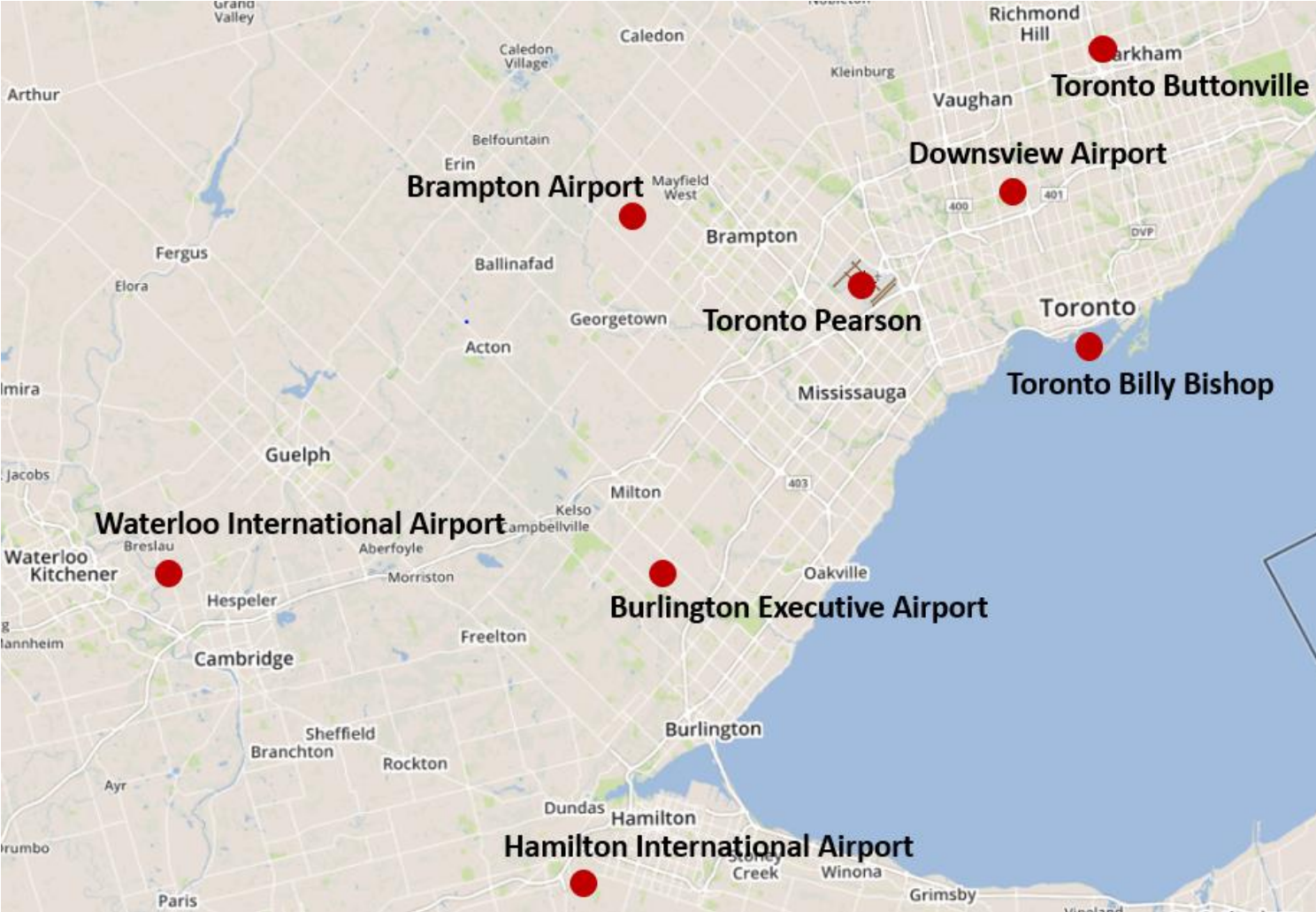
Flight crews use standardized routes when departing or arriving called Standard Instrument Departures (SIDs) and Standard Terminal Arrivals (STARs). For Canadian airports, these procedures are published in the Canada Air Pilot. At Toronto Pearson, we have five runways that can each be used in both directions. Each operational end is equipped with SIDs and STARs.



A Very Complex Airspace

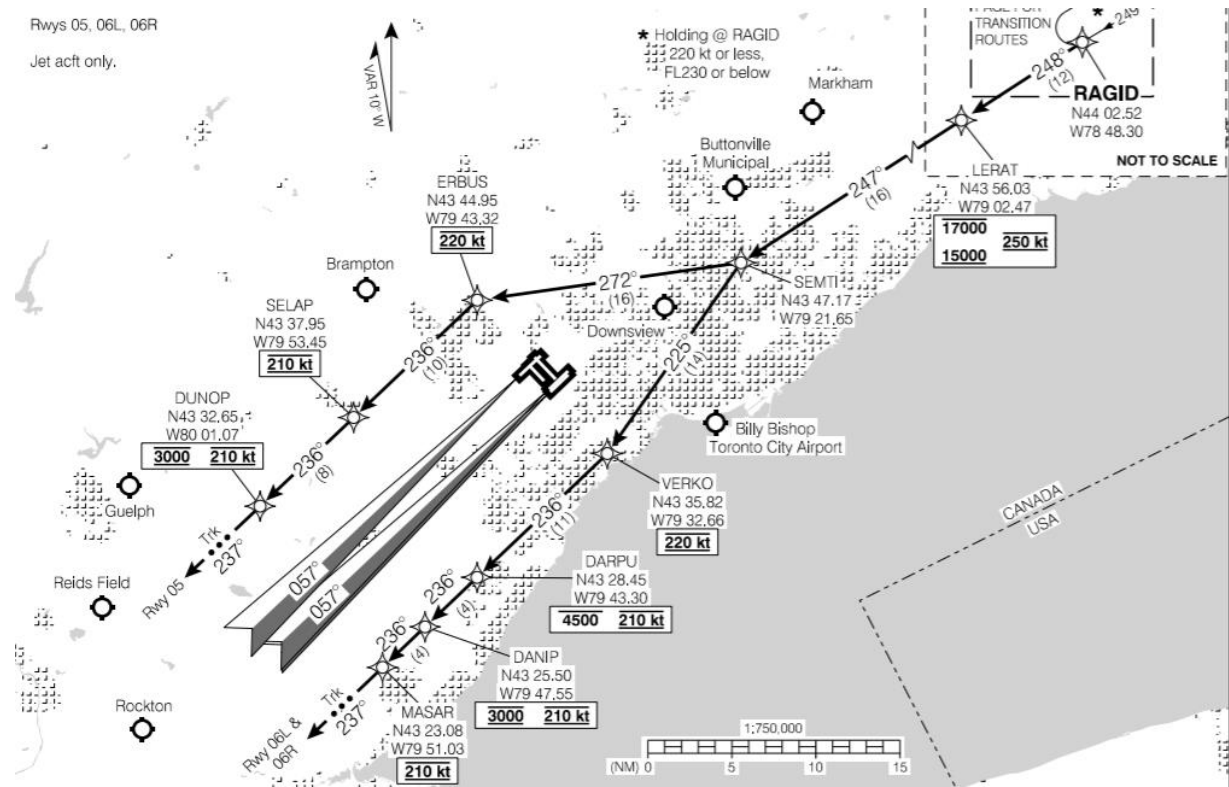
Although Toronto Pearson is by far the busiest airport in the region, there are several other airports close by with traffic that operates in close proximity to Toronto Pearson arrivals and departures. The airspace around Toronto is divided in a very precise and complex way to keep all this traffic safely separated.

SIDs and STARs are procedures which allow aircraft to move through this complex airspace in a safe and efficient manner.



Standard Terminal Arrival Routes

The existence of a published STAR doesn't mean it's the only route an aircraft will follow. Air traffic controllers may direct flight crews to operate off the STAR for reasons related to safety and/or efficiency. For example, during periods of low traffic, air traffic controllers may direct aircraft to take a more direct approach to reduce the time it takes to get on the ground. Also, flights coming from directions that are aligned with the runway simply continue straight-in to final approach.

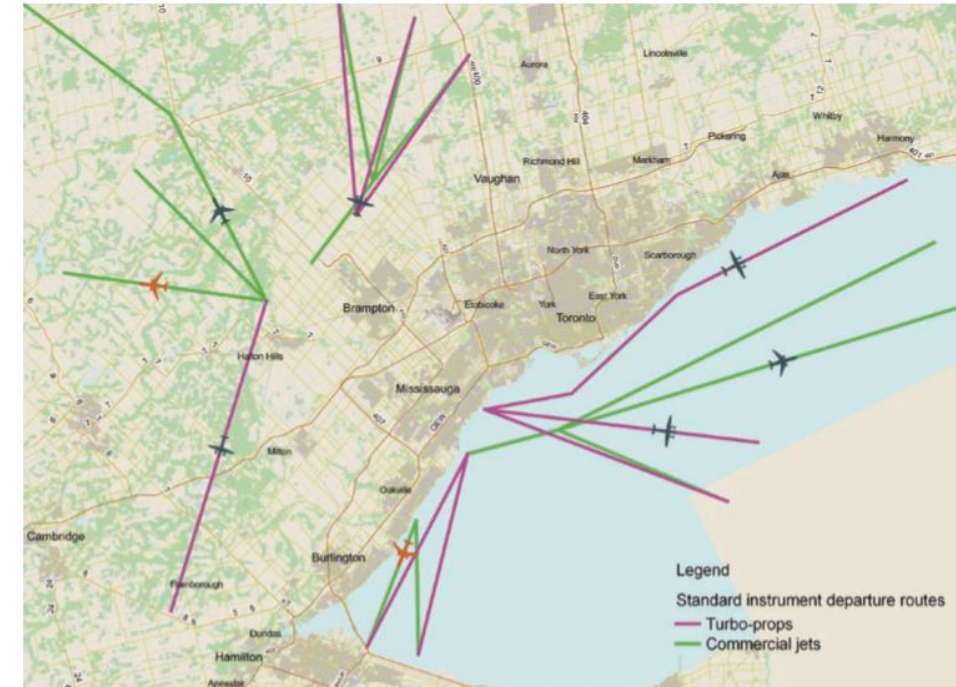


Standard Instrument Departures

Each SID procedure has a number of waypoints, a climb profile and possible altitude restrictions. It strikes a balance between terrain, obstacle avoidance, noise abatement, and airspace management considerations. This means that not every departure will be the same, and might vary even more depending on weather conditions (e.g. wind drift).

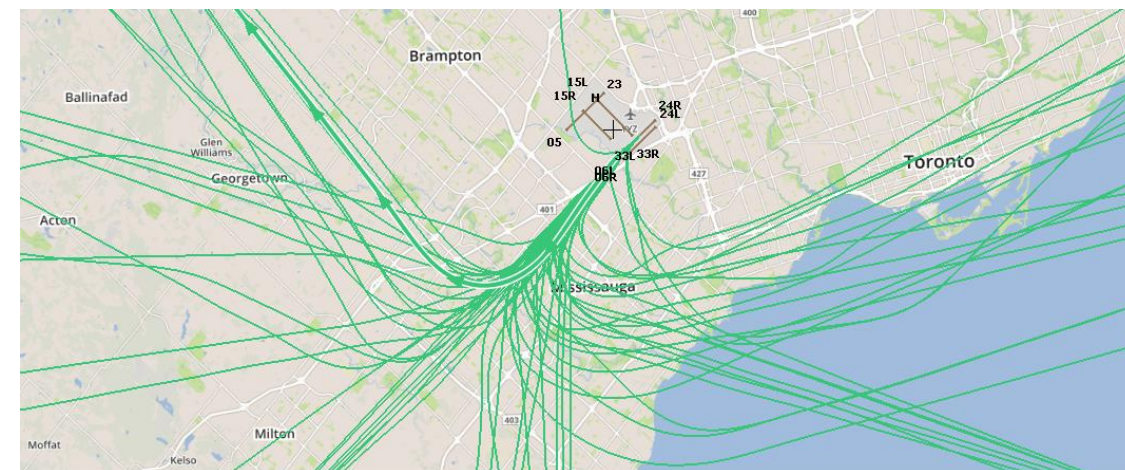
At Toronto Pearson, there is also a diversion between parallel runways 05/23 and 06L/24R, to ensure separation standards are met.

Standard instrument departure routes



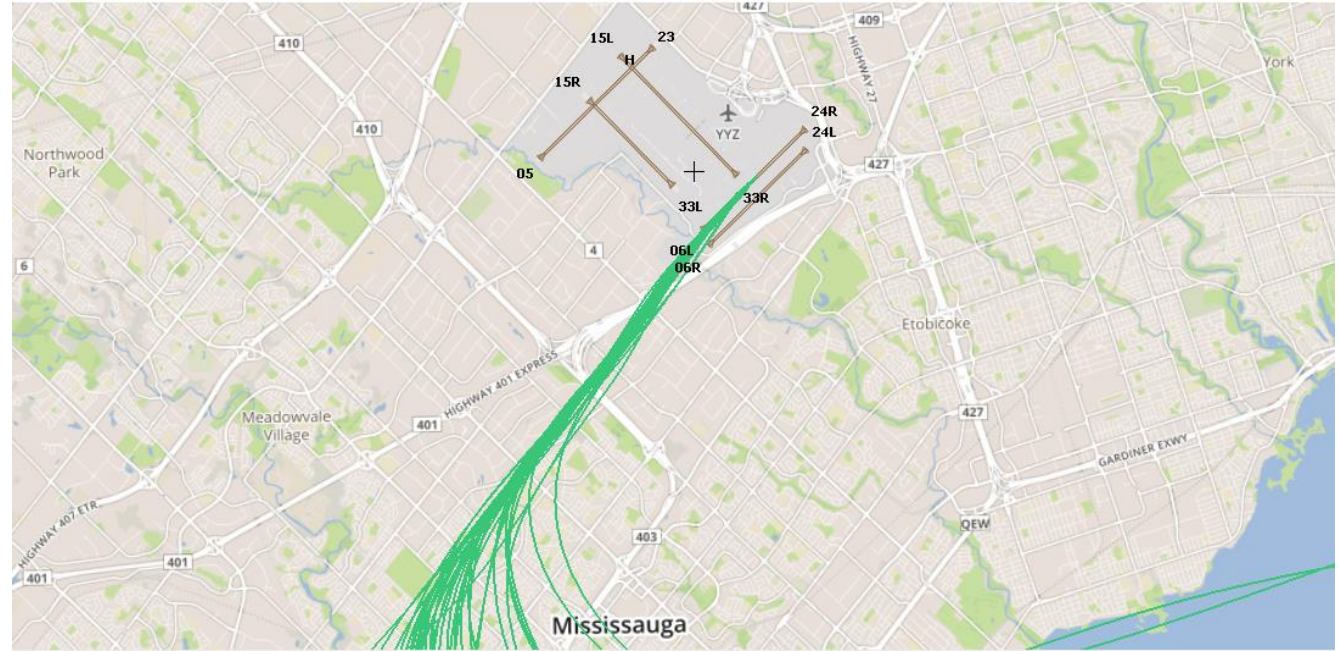
*

Departure routes from runways 23, 24L and 24R

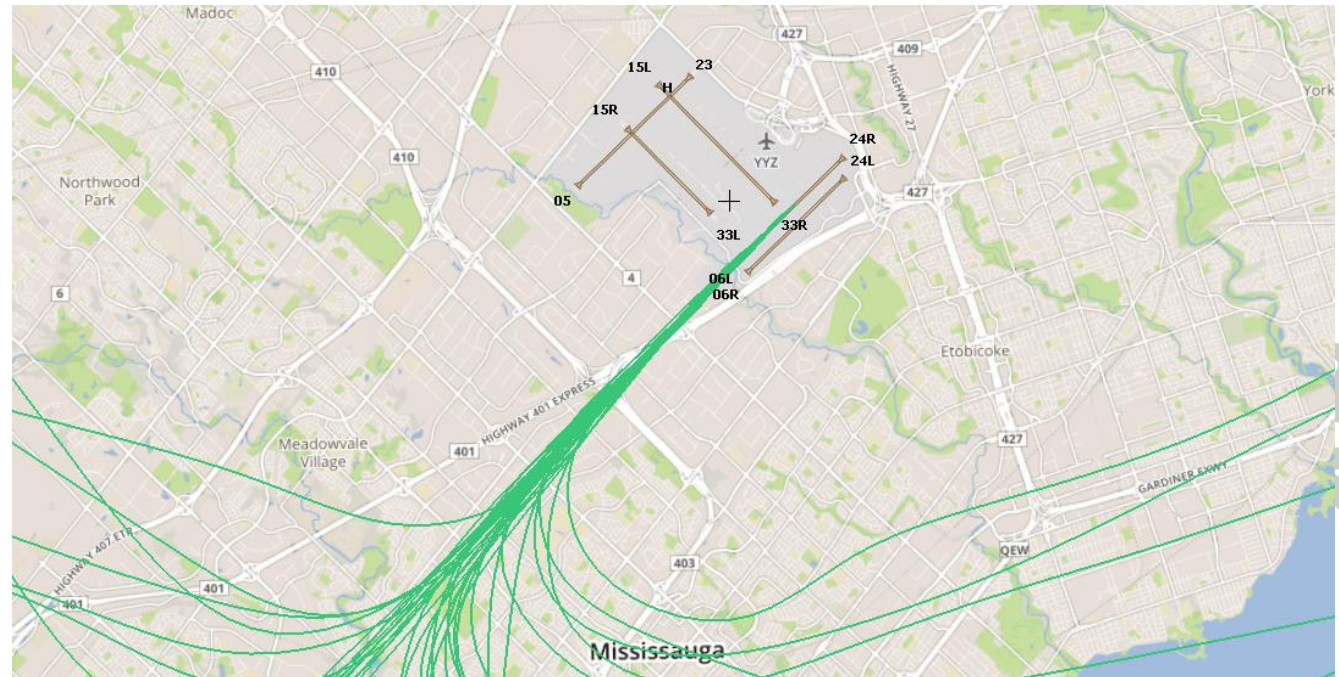


Example of wind drift versus non-wind drift

Example of departures off Runway 24R with winds between 280-300 degrees (northwest) at 16-18 knots, showing evidence of wind drift



Example of departures off Runway 24R without any evidence of wind drift





Questions



Pearson Airport Explorers Club

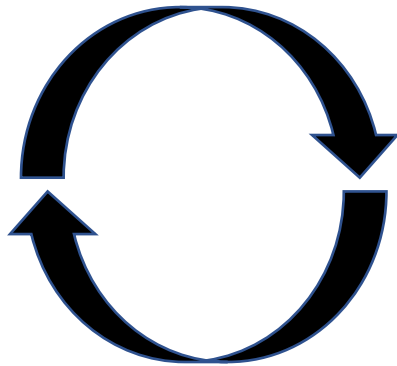
- The Pearson Airport Explorers Club is a component of our **Pearson Connects Program**
- **Pearson Airport Explorer's Club**, an on-line program for kids in grades 3 – 5 and 6 – 8
- Supports the Provincial Ministry of Education curriculum and initiatives to promote on-line learning



Program comprised of 12 modules

Each module will have age-appropriate content and activities for the different age groups and will include:

Weekly content and activities



Digital Check-ins and interviews with internal and external subject matter experts

- a photo-heavy slideshow
- videos
- links to 3+ links to external content for continued learning
- age-appropriate activities based on the weekly objective with each activity helping kids practice academic skills with an emphasis on downloaded and unplugged activities
- Opportunities to share work on website

Visit: <https://www.airportexplorer.club/>