

Toronto Pearson Noise Management Forums Political Briefing

September 22, 2020



Welcome + Introductions

Agenda

- Airport Situational Update
 - Healthy Airport Initiatives
 - Trends in Operations
- NAV CANADA Updates
- GTAA Updates
 1. Maintenance Update
 2. Noise Management Action Plan
 3. Working with the Community
- Discussion and Roundtable

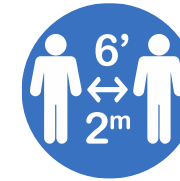
Airport Situational Update

Healthy Airport Initiatives





HEALTHY AIRPORT



- Toronto Pearson's "Healthy Airport" commitment puts the health of passengers and employees first.
- Guiding principles aligned with best practices.
- A healthy airport is the most important part of instilling public trust in air travel
- You are invited for a Healthy Airport tour



HEALTHY AIRPORT MEASURES

Transport Canada regulations:

- Passenger health assessment at the final point of departure
- Mandatory temperature checks
- Arrivals health declaration to CBSA with PHAC support
- All incoming passengers must have a 14-day quarantine plan

Toronto Pearson has implemented our own Healthy Airport measures:

- Mandatory masks in all public areas, for passengers and employees
- Physical distancing: plexiglass barriers, separation at kiosks/seating areas signage, floor decals, and increased passenger comms
- Limiting terminal access to only passengers and workers
- Enhanced hygiene and cleaning in high traffic areas





HEALTHY AIRPORT MEASURES

Embracing innovation:

- BlueDot to predict/monitor COVID and other infectious disease risks
- Disinfection corridor that sprays a water-based non-toxic sanitizer
- Autonomous floor cleaners that use UV light for disinfection
- Use of probiotics in our washrooms to get rid of bad bacteria
- Active monitoring duct system offering real time air quality assessment available in terminal and online for passengers to see
- McMaster HealthLabs International Arrivals COVID-19 testing Study, co-sponsor by GTAA and Air Canada



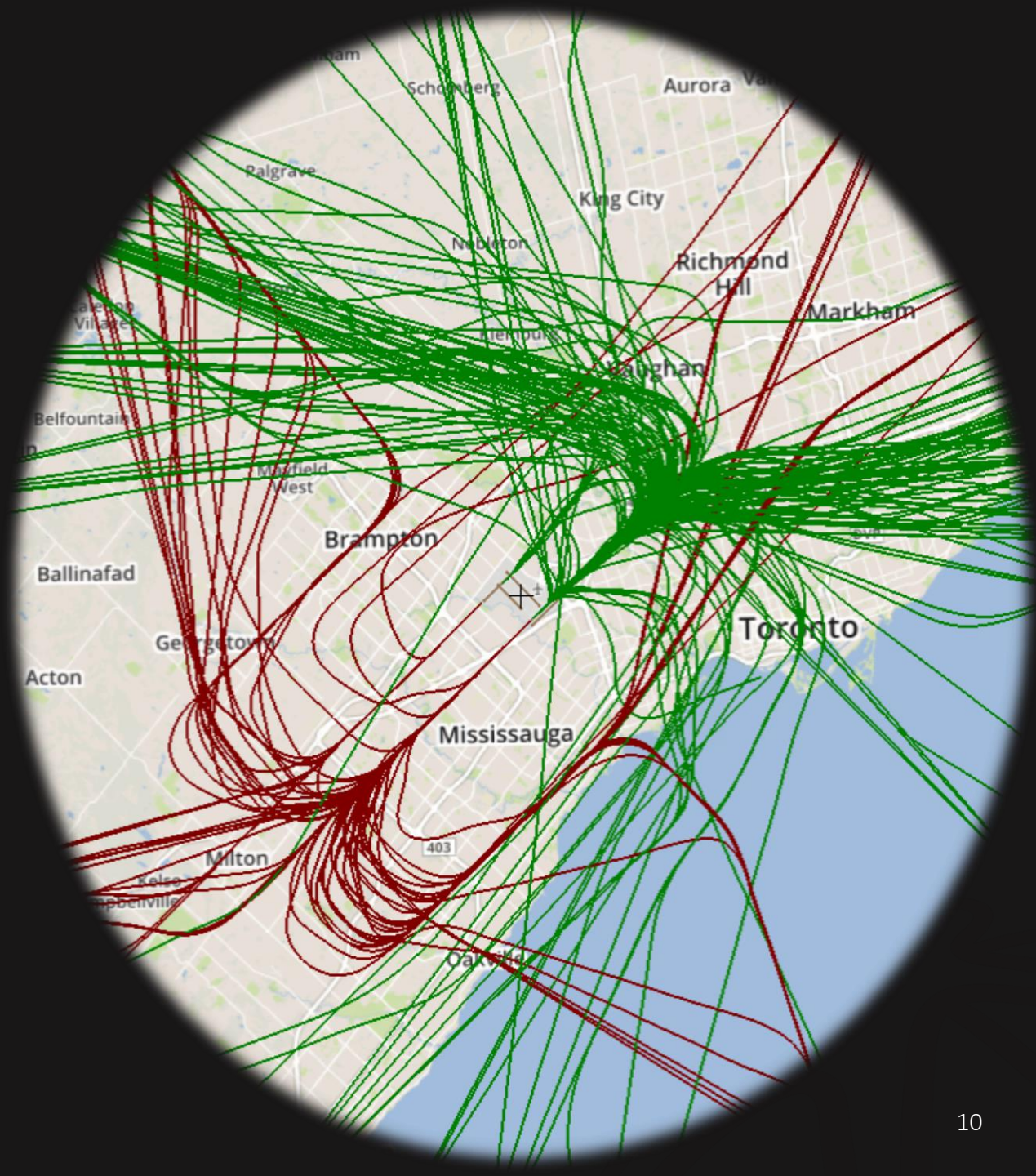


GOVERNMENT ASKS

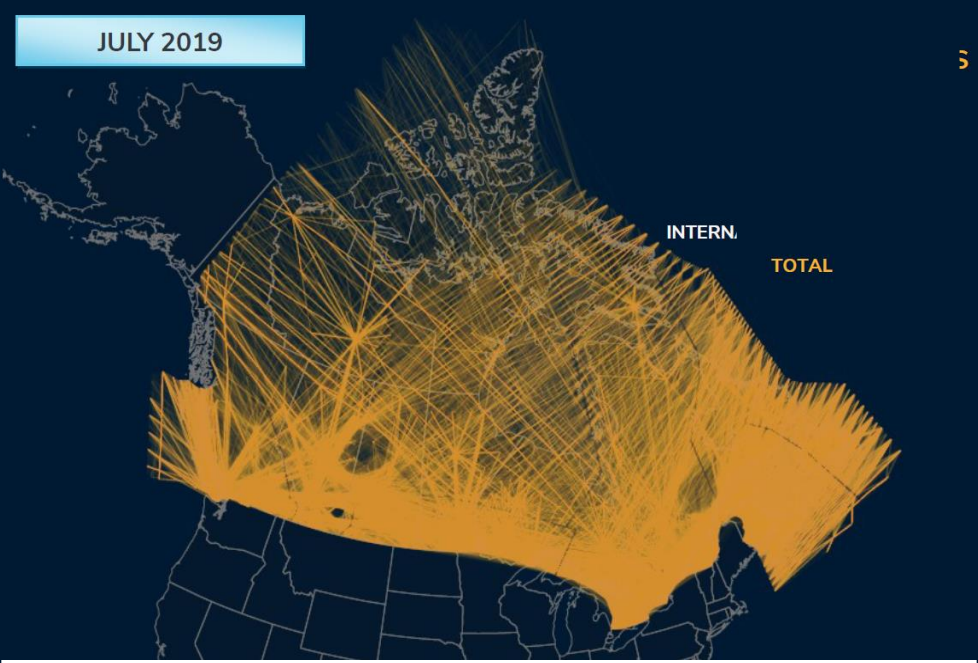
Short-term relief and longer-term stimulus needed to get Toronto Pearson back to being a regional and national economic asset

- Extend federal rent relief to future years
- Coordinate approach to restart air travel, remove inter-provincial travel restrictions and identify low-risk travel corridors
- Invest in airport infrastructure projects and no/low touch solutions
- Investment in better transit connections to Toronto Pearson
- Drive jobs and economic development through a Toronto Pearson Provincially Significant Employment Zone
- Incentivize travel and tourism and non-aeronautical revenue opportunities

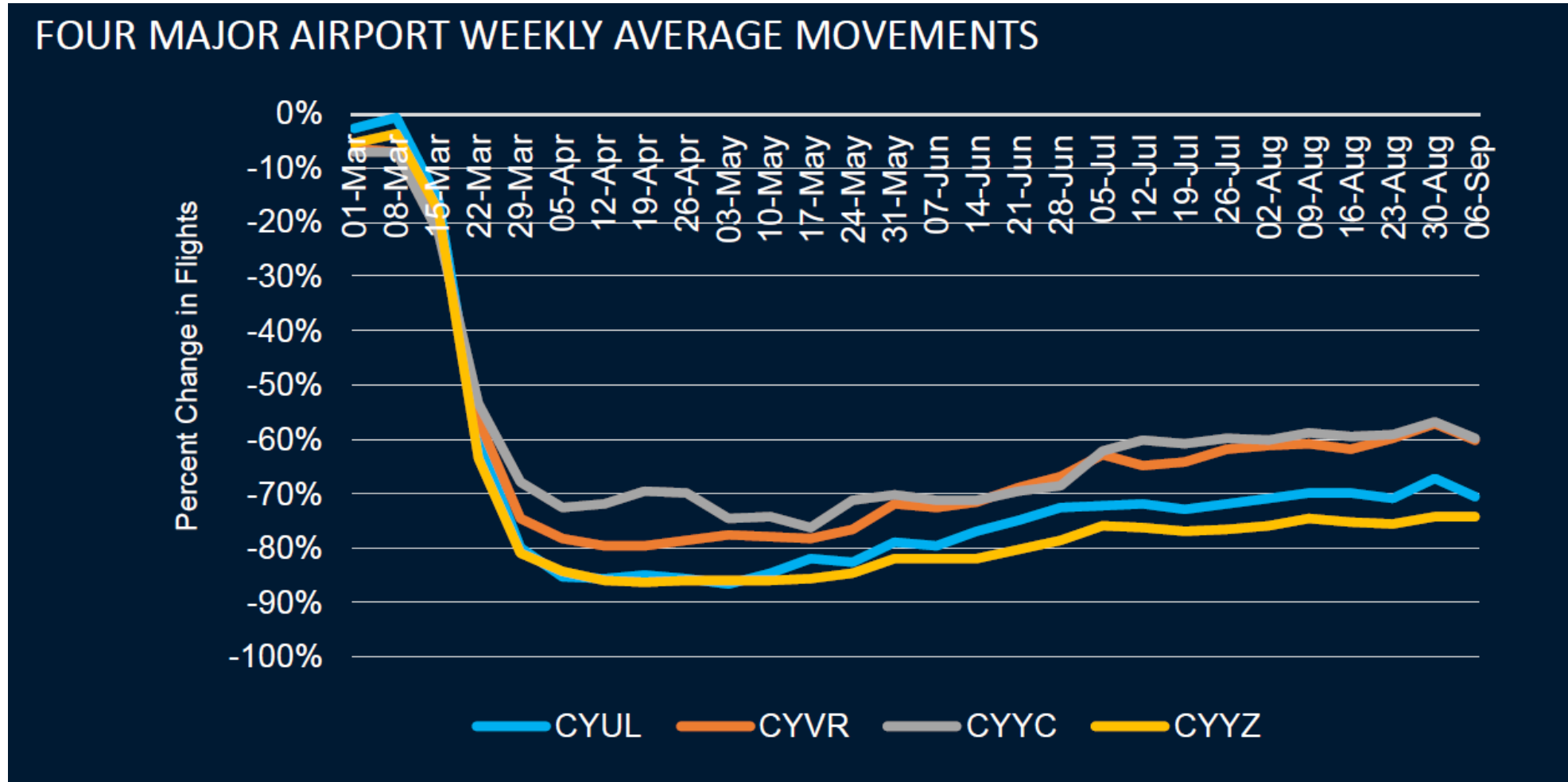
Operational Trends



National Traffic Changes due to COVID-19 Pandemic



National Traffic Changes due to COVID-19 Pandemic

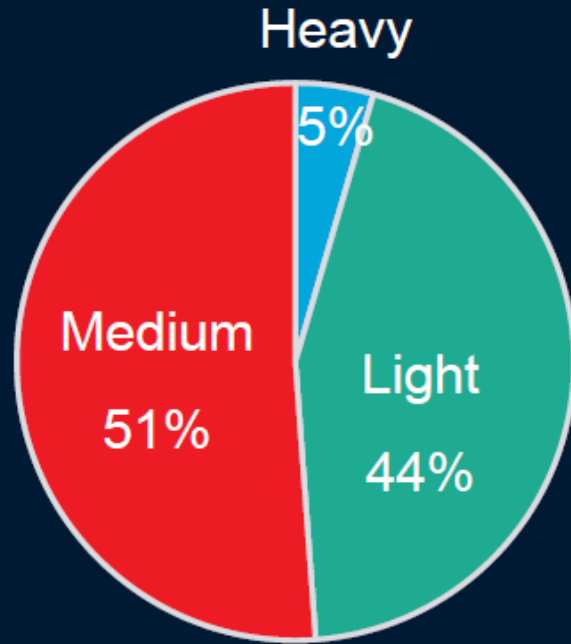


National Traffic Changes due to COVID-19 Pandemic

2019 Flights Operated –1 September—14 September* 2020

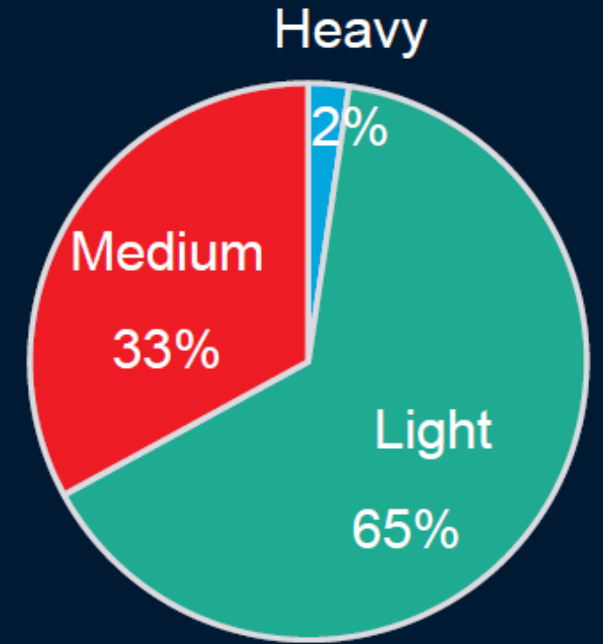
Top 5 Aircraft Types

- DH8D
- C172
- B190
- DH8C
- B738



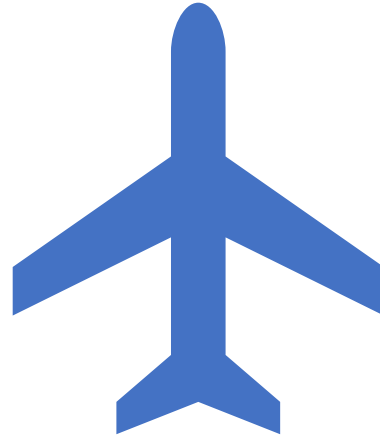
Top 5 Aircraft Types

- C172
- BE20
- C152
- PC12
- DH8D



Sources: FDW, CCARCS, CAPA

Operations since COVID-19

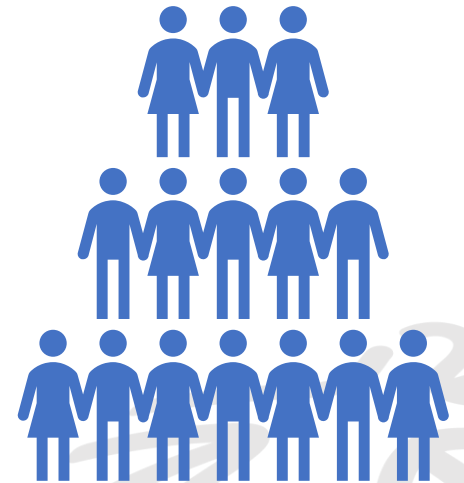


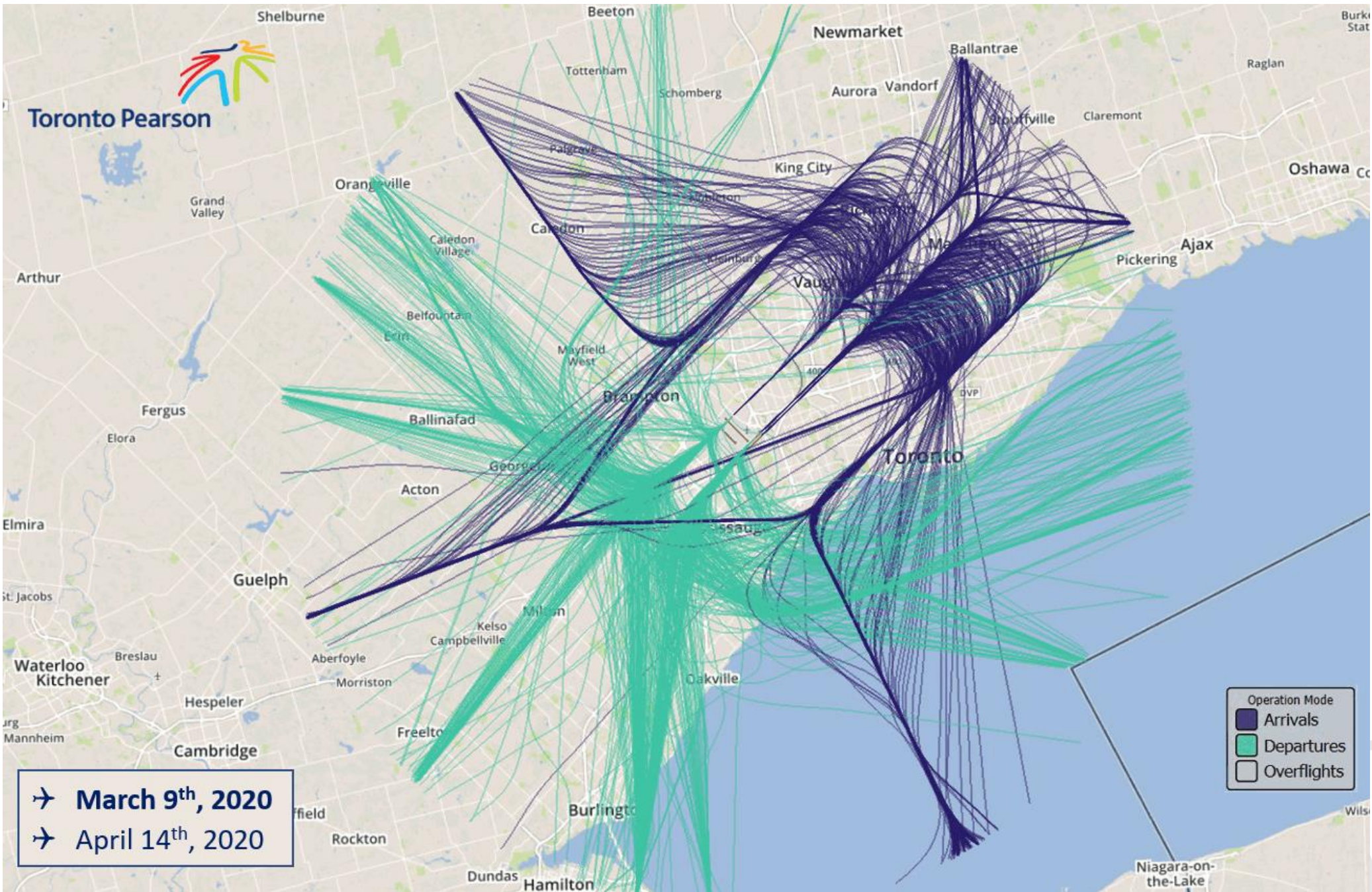
Operations

- Overall, traffic levels were down 84% in Q2 2020 compared to Q2 2019
- During the restricted hours (12:30 a.m. – 6:29 a.m.), there were 3,896 fewer operations, or approximately 43 fewer flights per night (15 down from 58)

Passengers

- Processed 96% fewer passengers in Q2 2020 compared to same period in 2019
- Currently passenger traffic through Toronto Pearson is at approximately 1996 operating levels

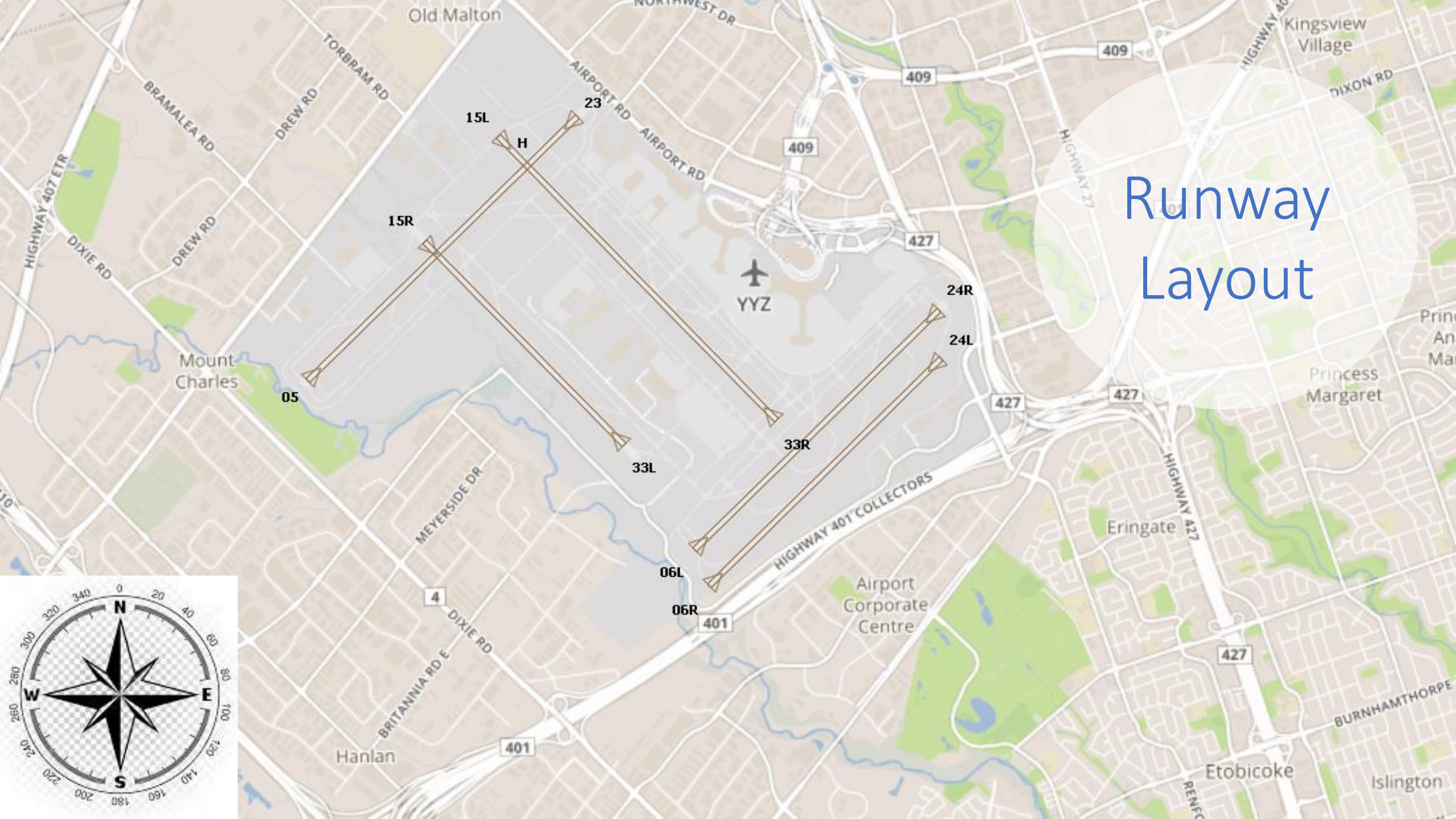




CYYZ Traffic Distribution Analysis

March 1st – June 30th, 2019 & 2020

Runway Layout



Traffic Distribution Summary

When looking at the following Heat Maps, we are watching for changes in flight track patterns and flight track densities

Overall, we found:

Arrivals

- Decrease in density, due to decreased traffic
- Some change in flight track patterns due to:
 - A proportional increase in arrivals being cut-across direct the downwind. However, the actual number of arrivals being cut-across has decreased
 - The RNAV X _ Idea 1: New Nighttime Procedure - being utilized more often during daytime hours leading to an increase in traffic density along these routes
 - Areas which have seen increased track densities due to this include: 1) greenspace west of Georgetown 2) Southern area of Oakville/Mississauga border (Winston Churchill Blvd & Royal Windsor Dr) 3) Nobleton and 4) Vaughan
- Compared to 2019, N/S runways were used proportionally more for one-off operations due to construction impacts and to expedite taxi times. This trend has been addressed and reversed in most recent months

Departures

- The location of departure flight tracks has remained very consistent
- Departure density along these tracks has decreased significantly

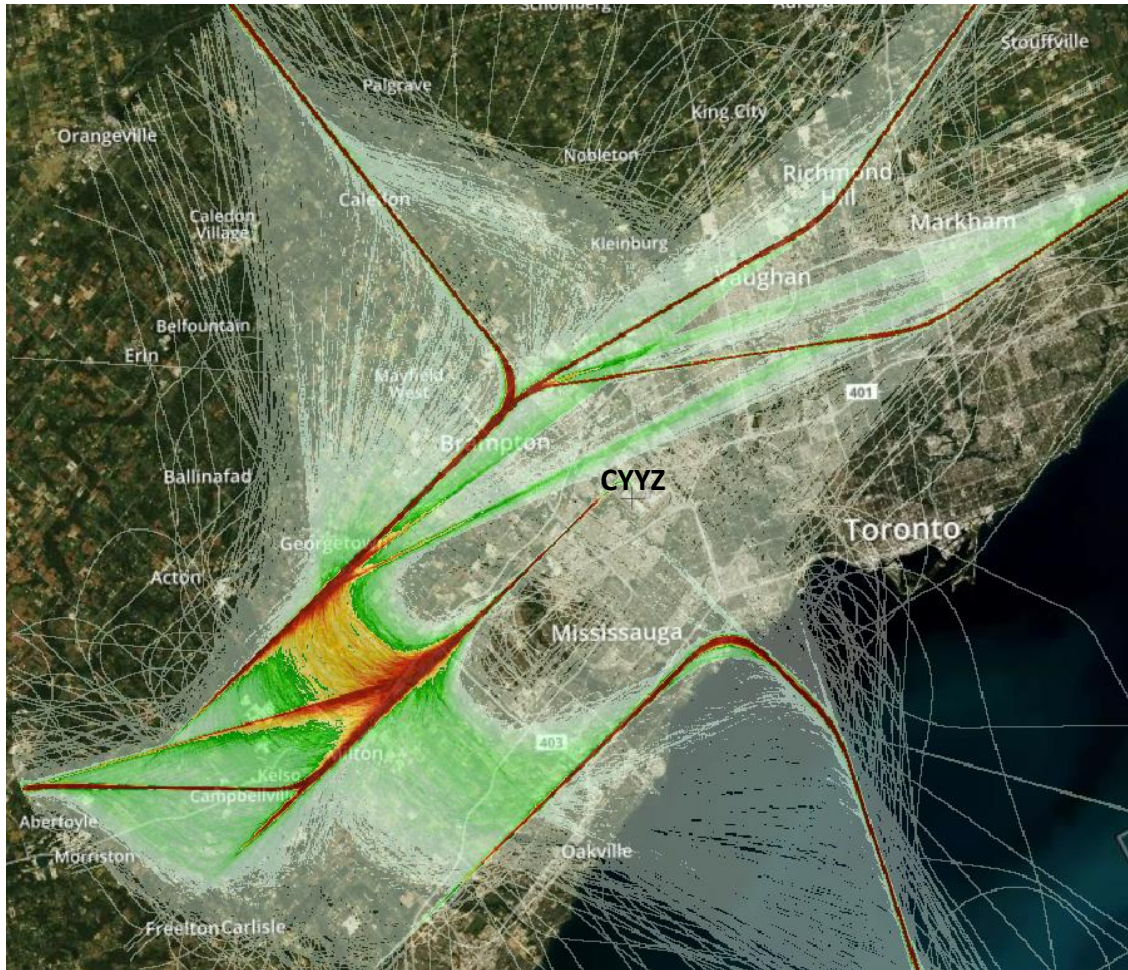
Arrival Track Densities

March 1st – June 30th, 2019 & 2020
Daytime Hours (0630-2359 local)

Arrivals Track Density – Runway 05

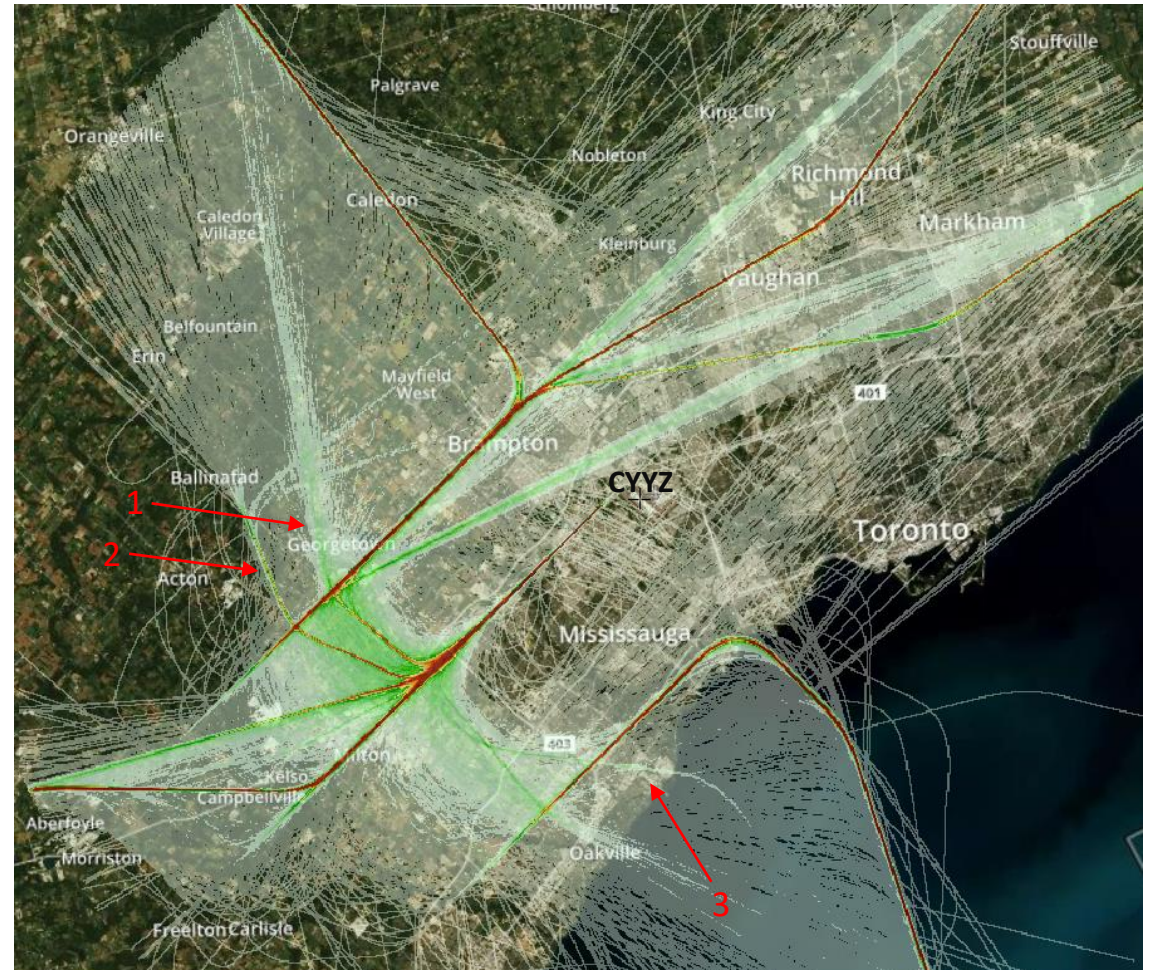


2019



Ops: 19,059

2020

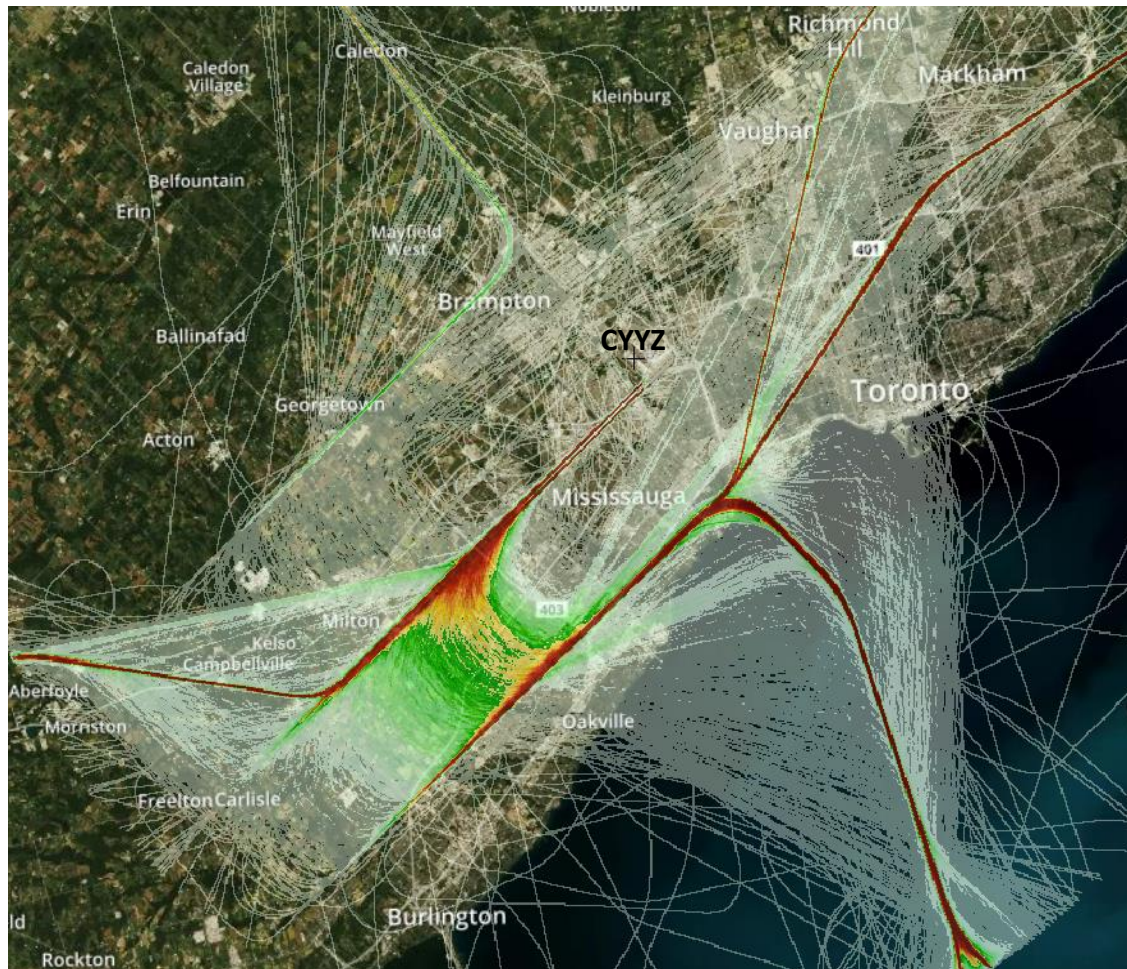


Ops: 6,295
(-67%)

Arrivals Track Density – Runways 06L/R

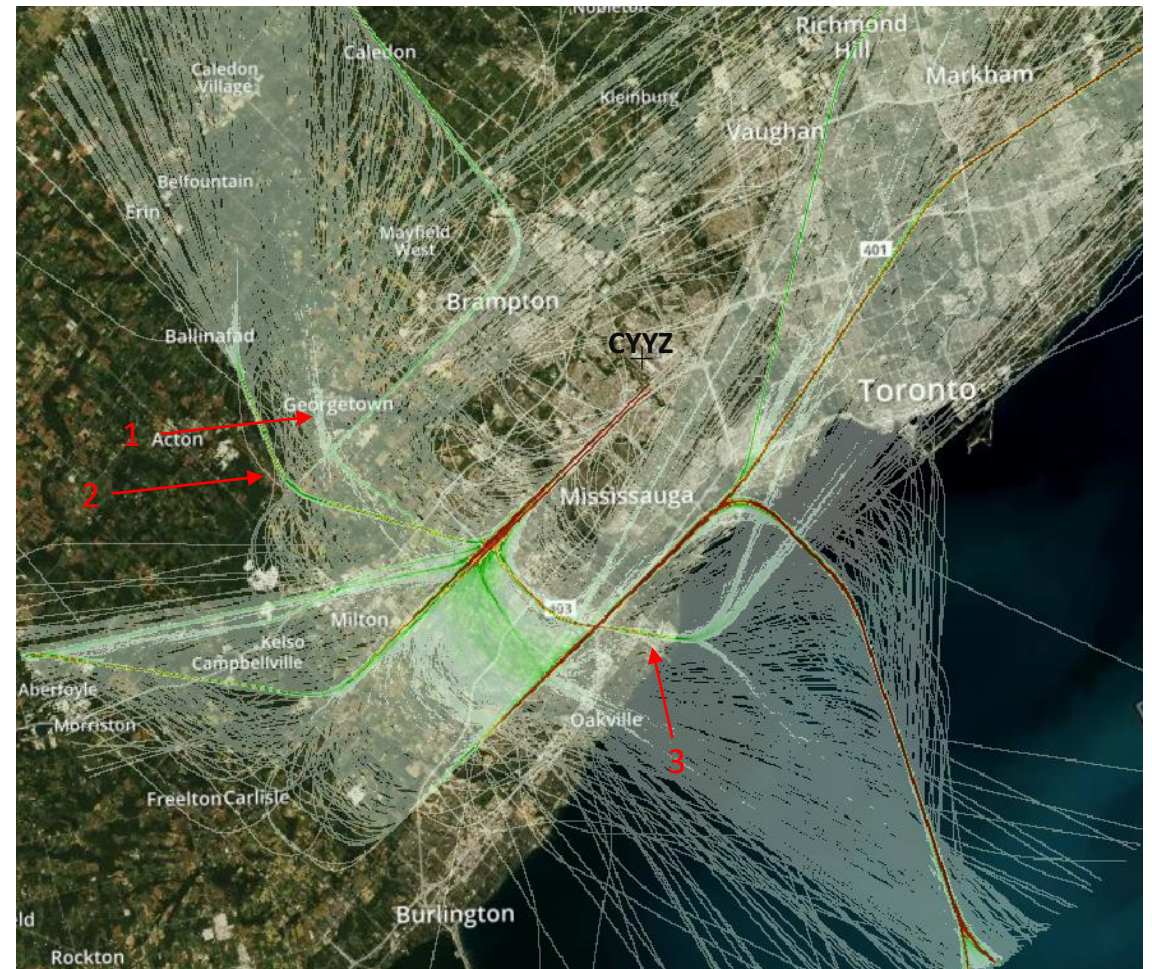


2019



Ops: 10,910

2020

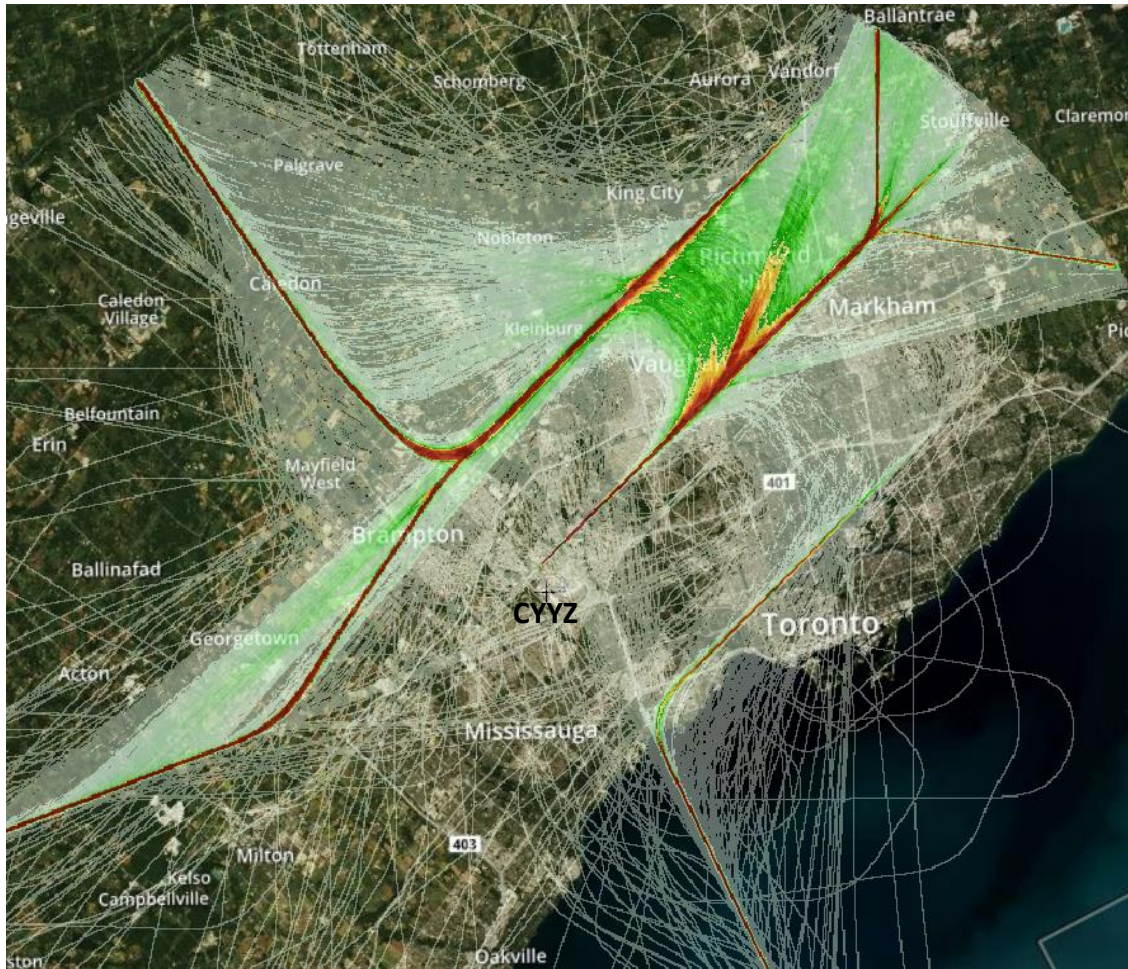


Ops: 3,388
(-69%)

Arrivals Track Density – Runway 23

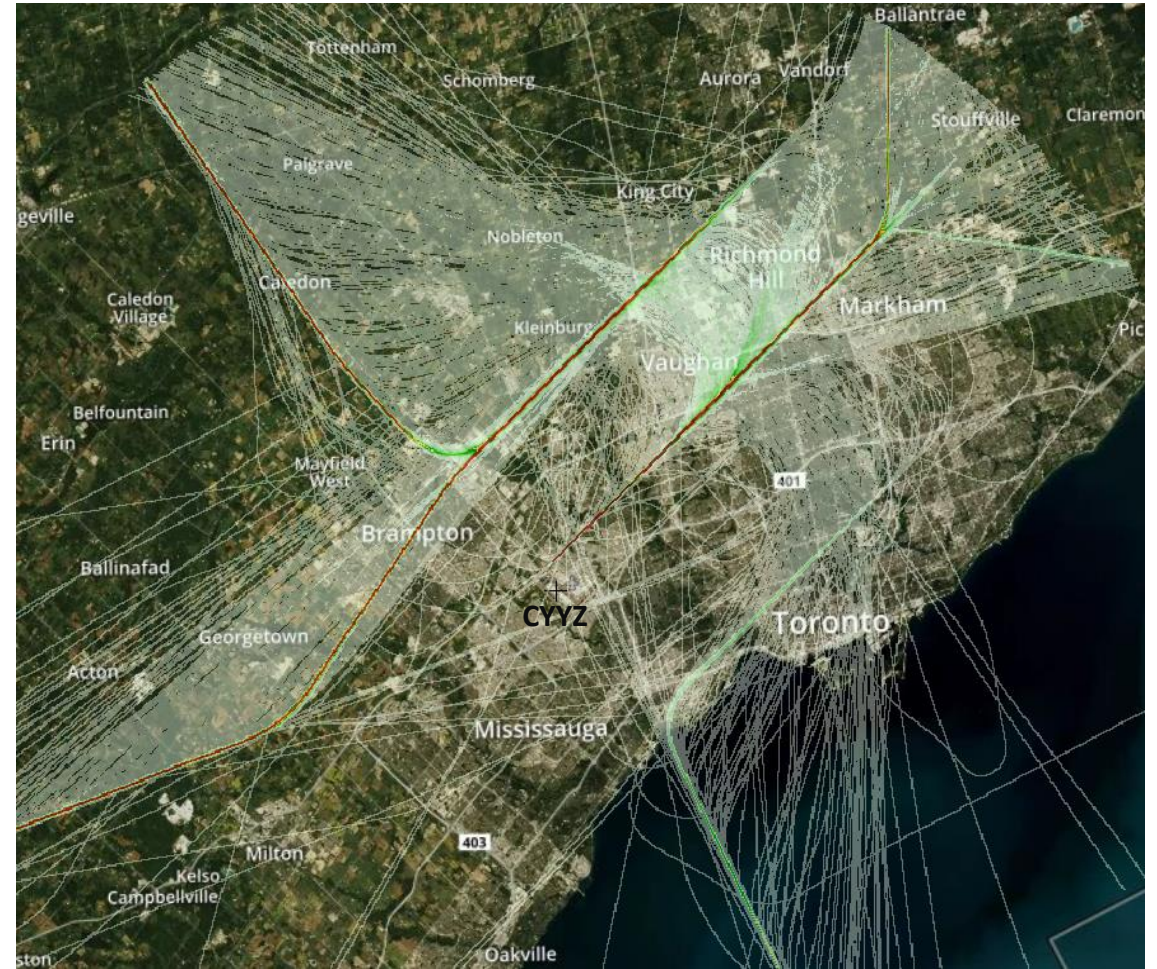


2019



Ops: 13,627

2020

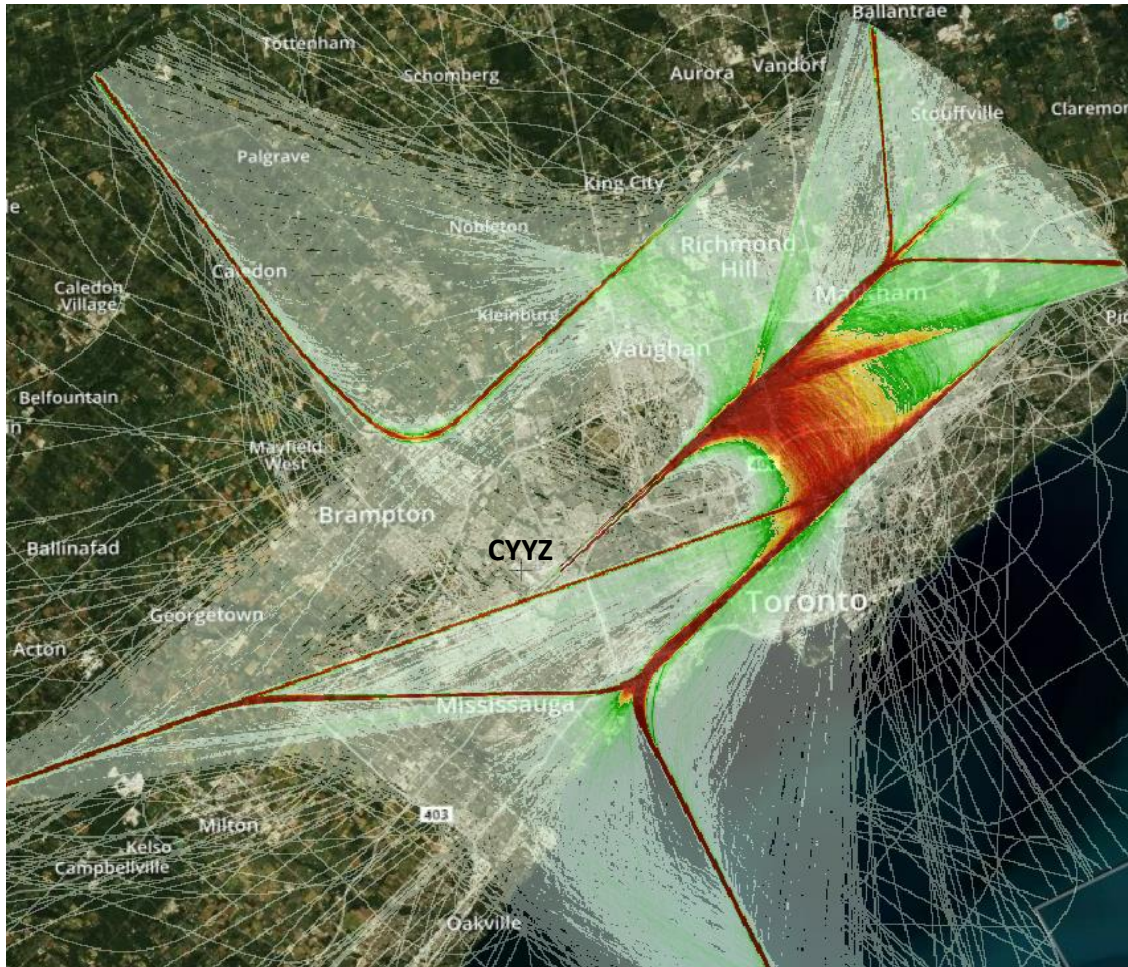


Ops: 2,363
(-83%)

Arrivals Track Density – Runways 24L/R

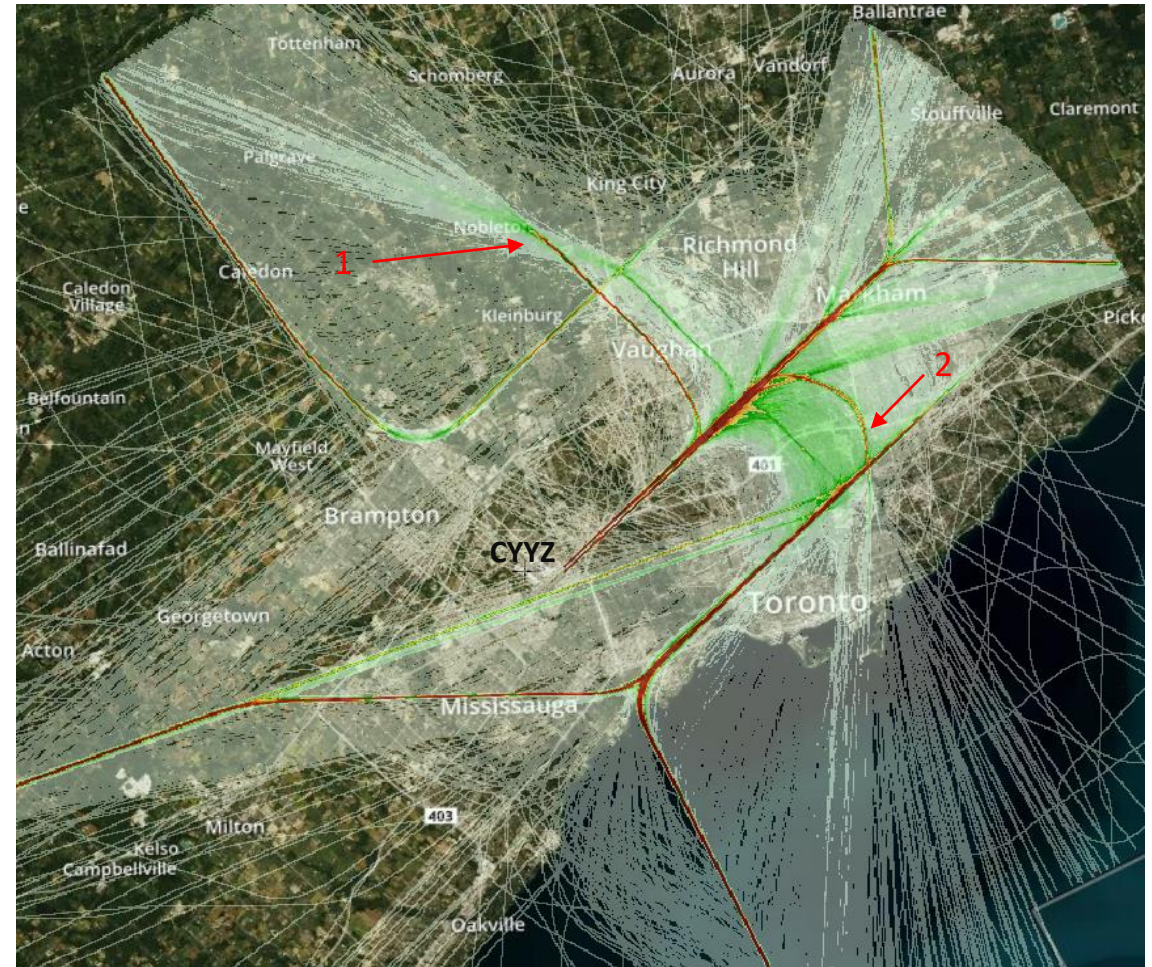


2019



Ops: 24,776

2020



Ops: 7,455
(-70%)

Arrivals Track Density – Runways 33L/R



2019



Ops: 2,744

2020



Ops: 1,283
(-53%)

Arrivals Track Density – Runways 15L/R



2019



Ops: 222

2020



Ops: 333
(+50%)*

**In the earlier months, the N/S runways were being utilized more than usual for one-off operations due to construction and to expedite taxi times. This trend has been addressed and reversed in most recent months.*

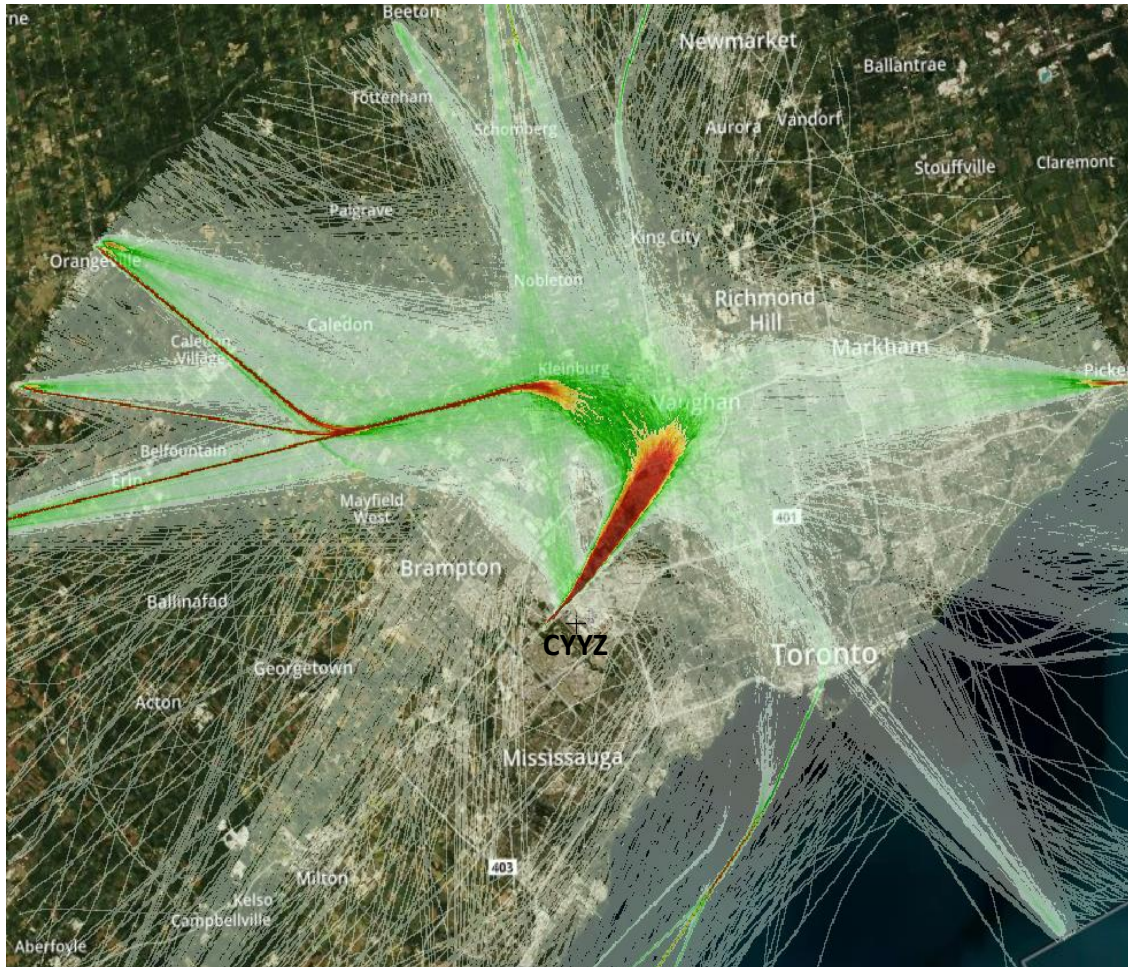
Departure Track Densities

March 1st – June 30th, 2019 & 2020
Daytime Hours (0630-2359 local)

Departures Track Density – Runway 05

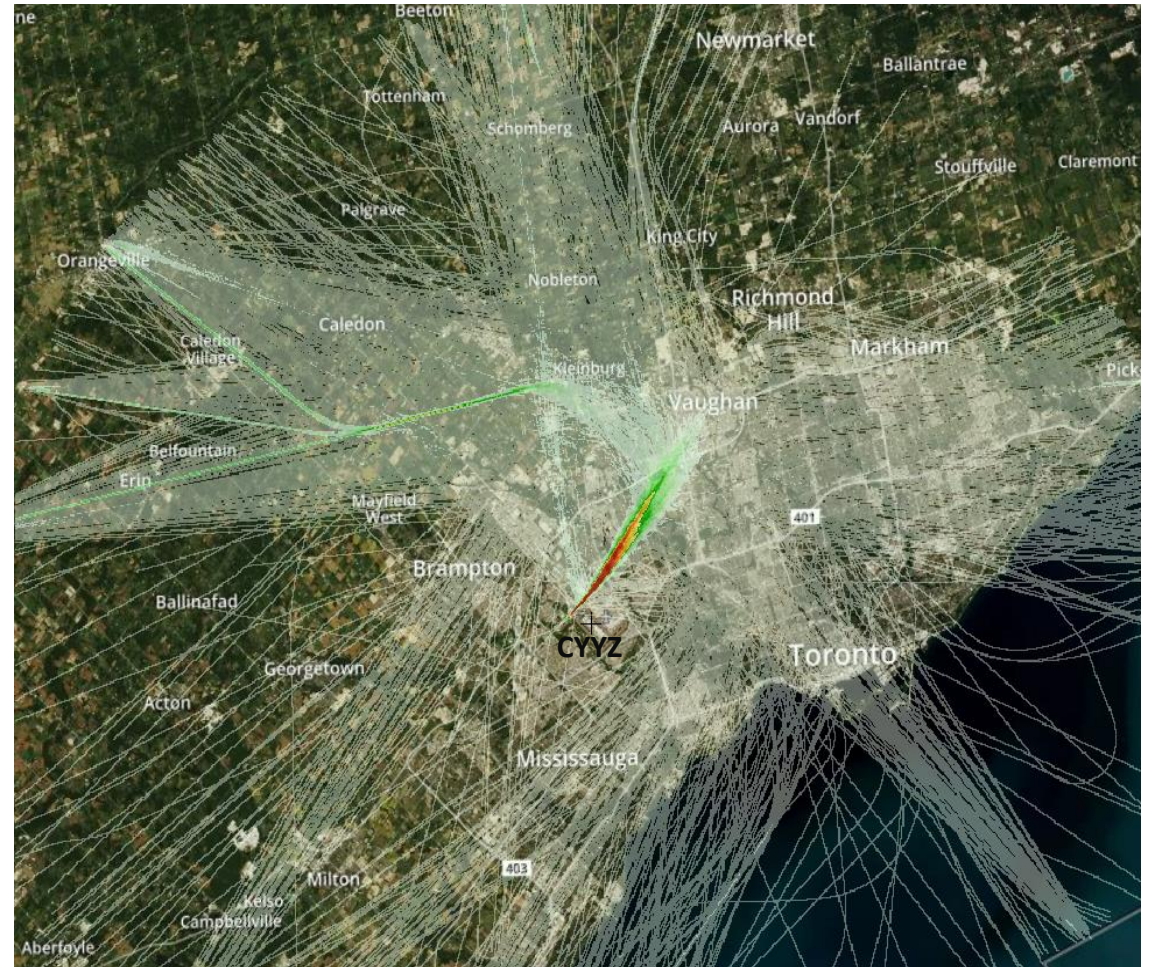


2019



Ops: 9,027

2020

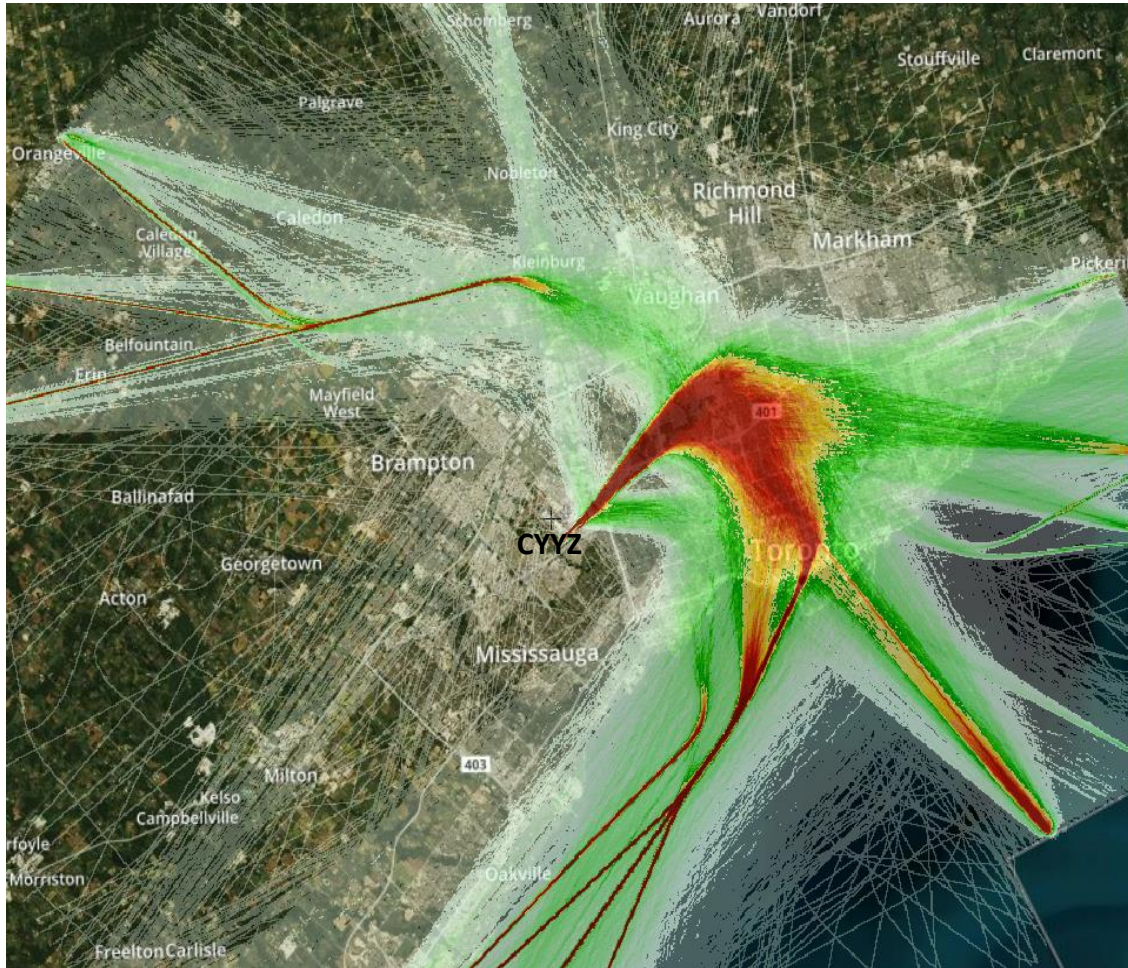


Ops: 1,673
(-81%)

Departures Track Density – Runways 06L/R



2019



Ops: 23,012

2020



Ops: 8,303
(-64%)

Departures Track Density – Runway 23

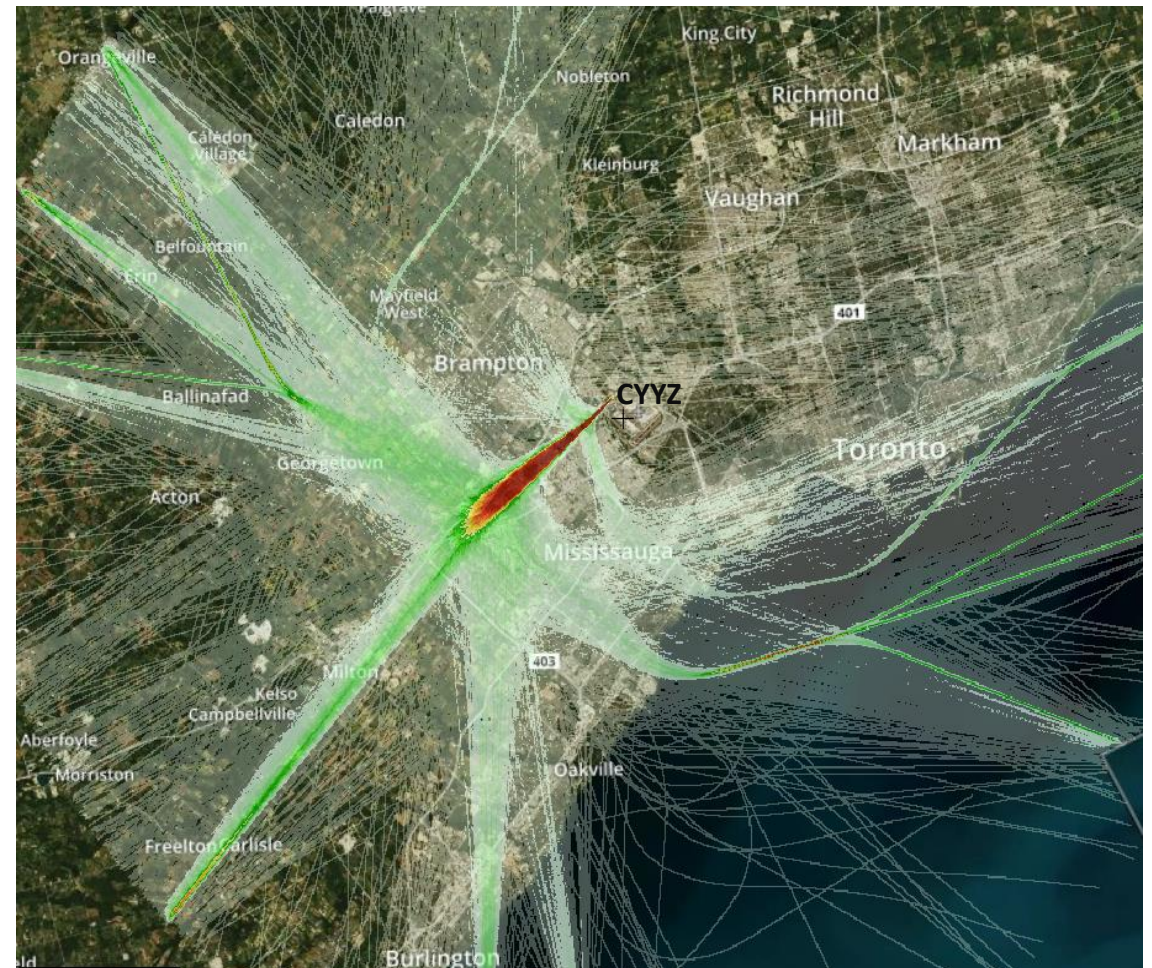


2019



Ops: 24,881

2020

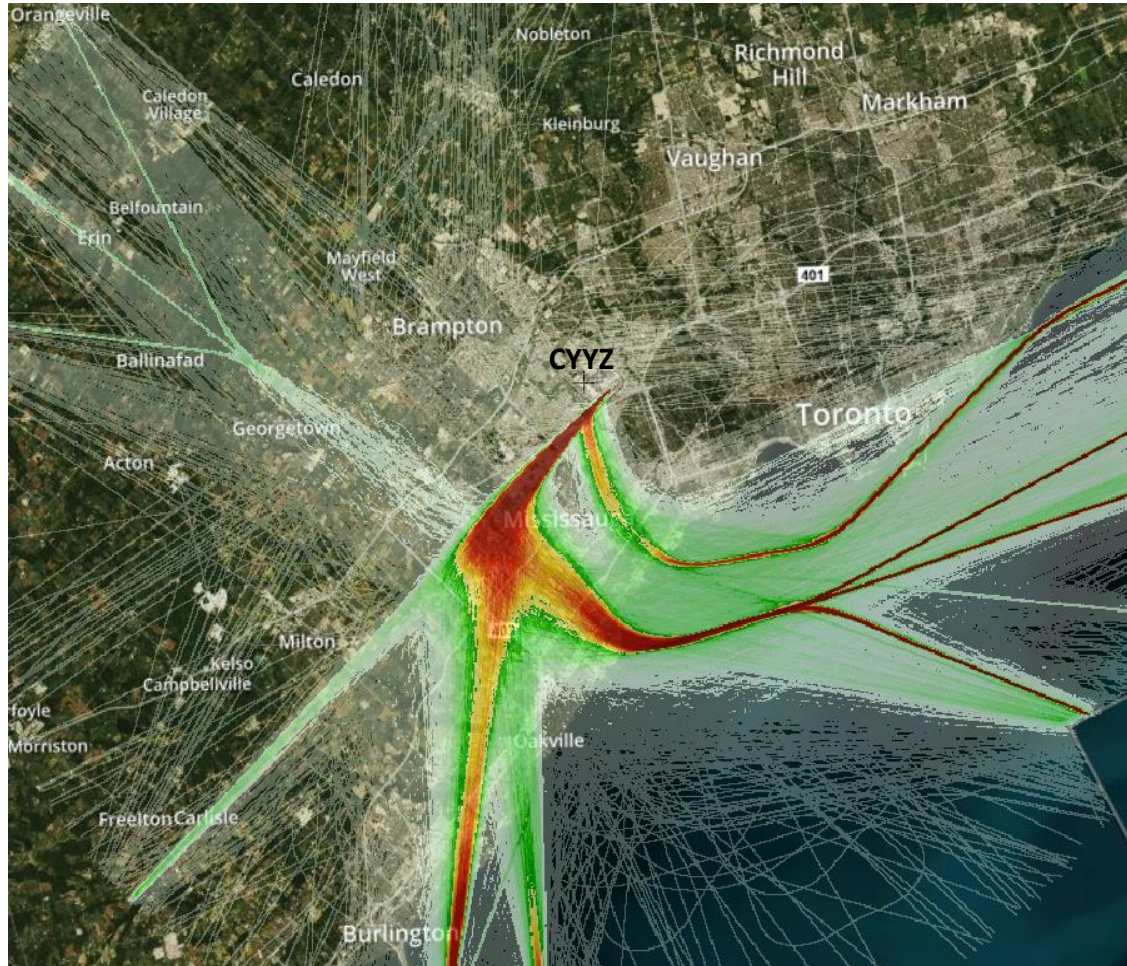


Ops: 5,820
(-77%)

Departures Track Density – Runways 24L/R

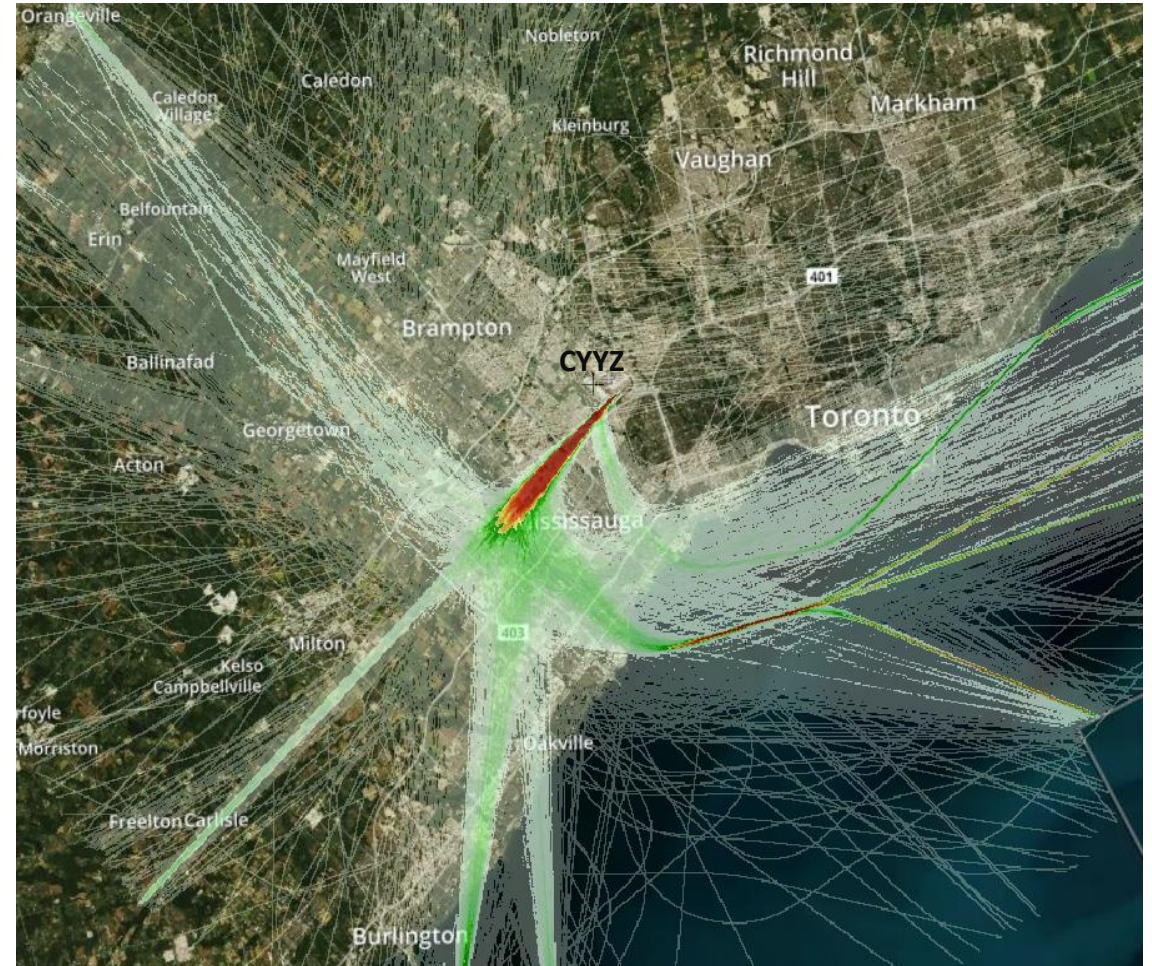


2019



Ops: 14,531

2020

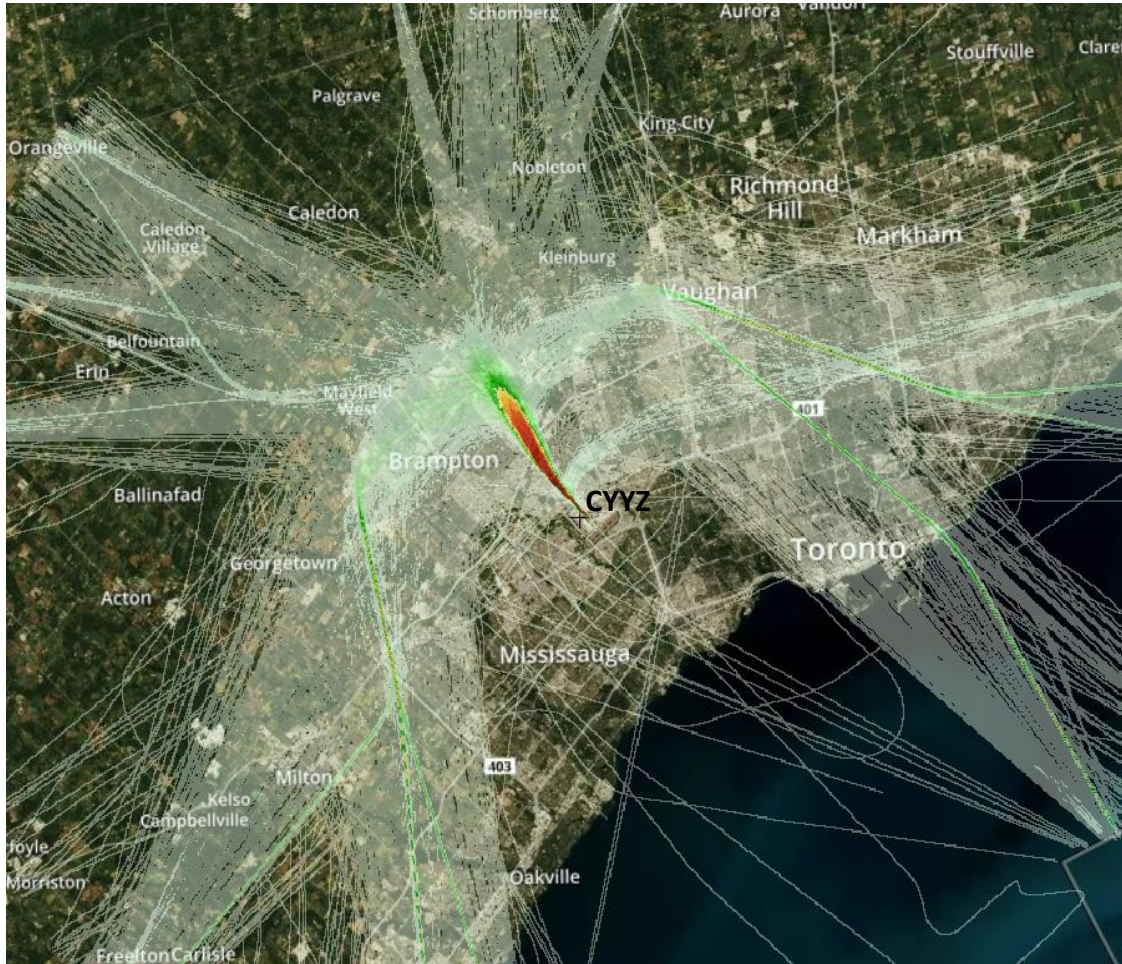


Ops: 4,452
(-69%)

Departures Track Density – Runways 33L/R

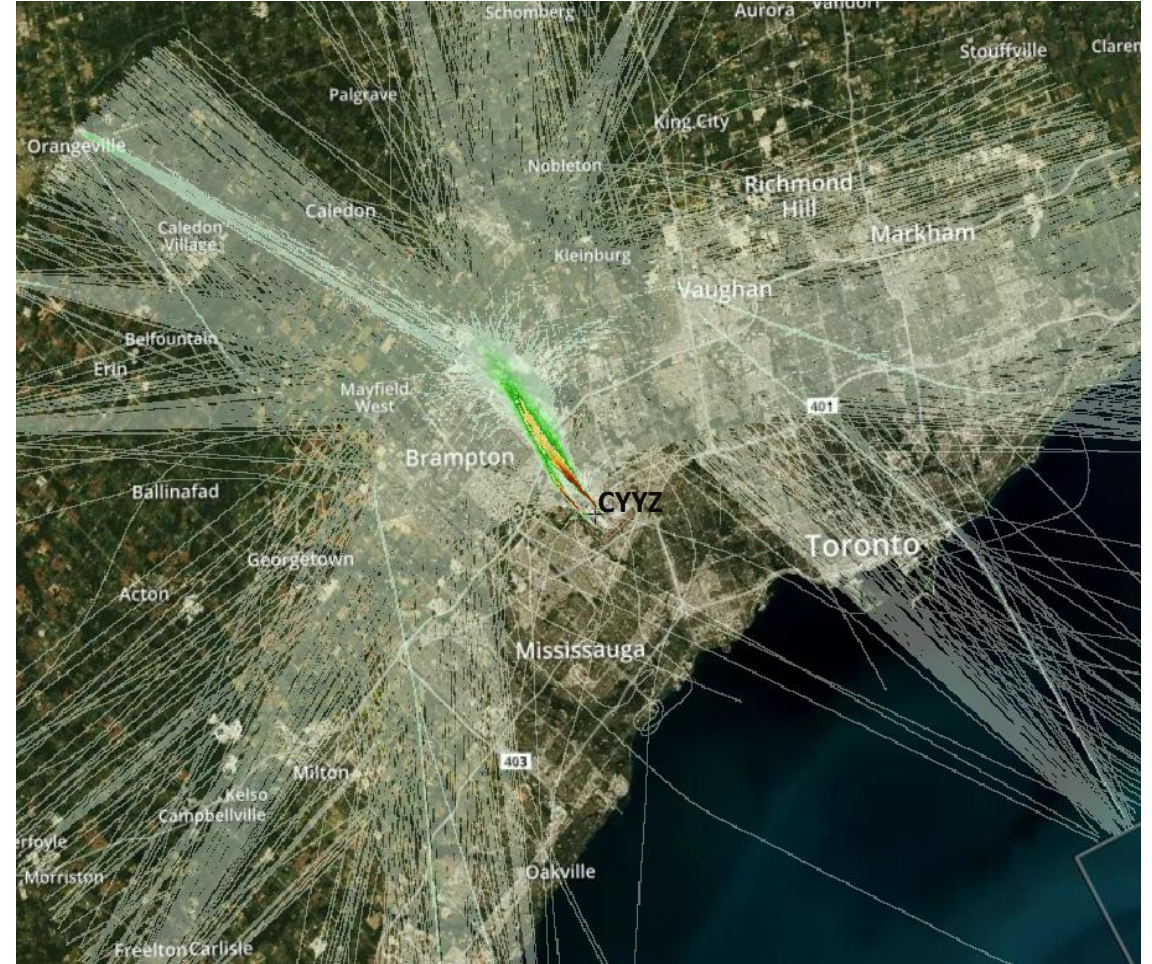


2019



Ops: 2,785

2020



Ops: 1,688
(-39%)

Departures Track Density – Runways 15L/R

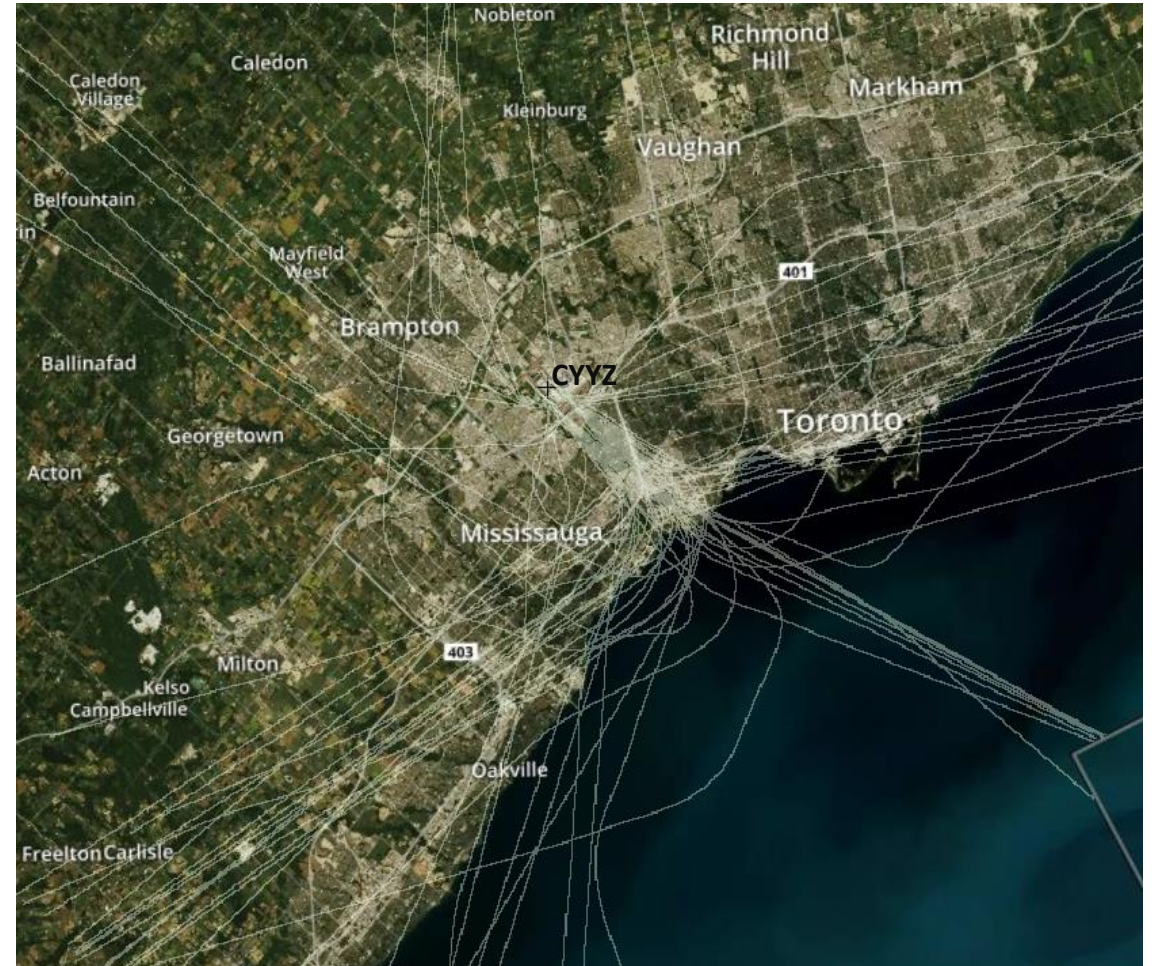


2019



Ops: 246

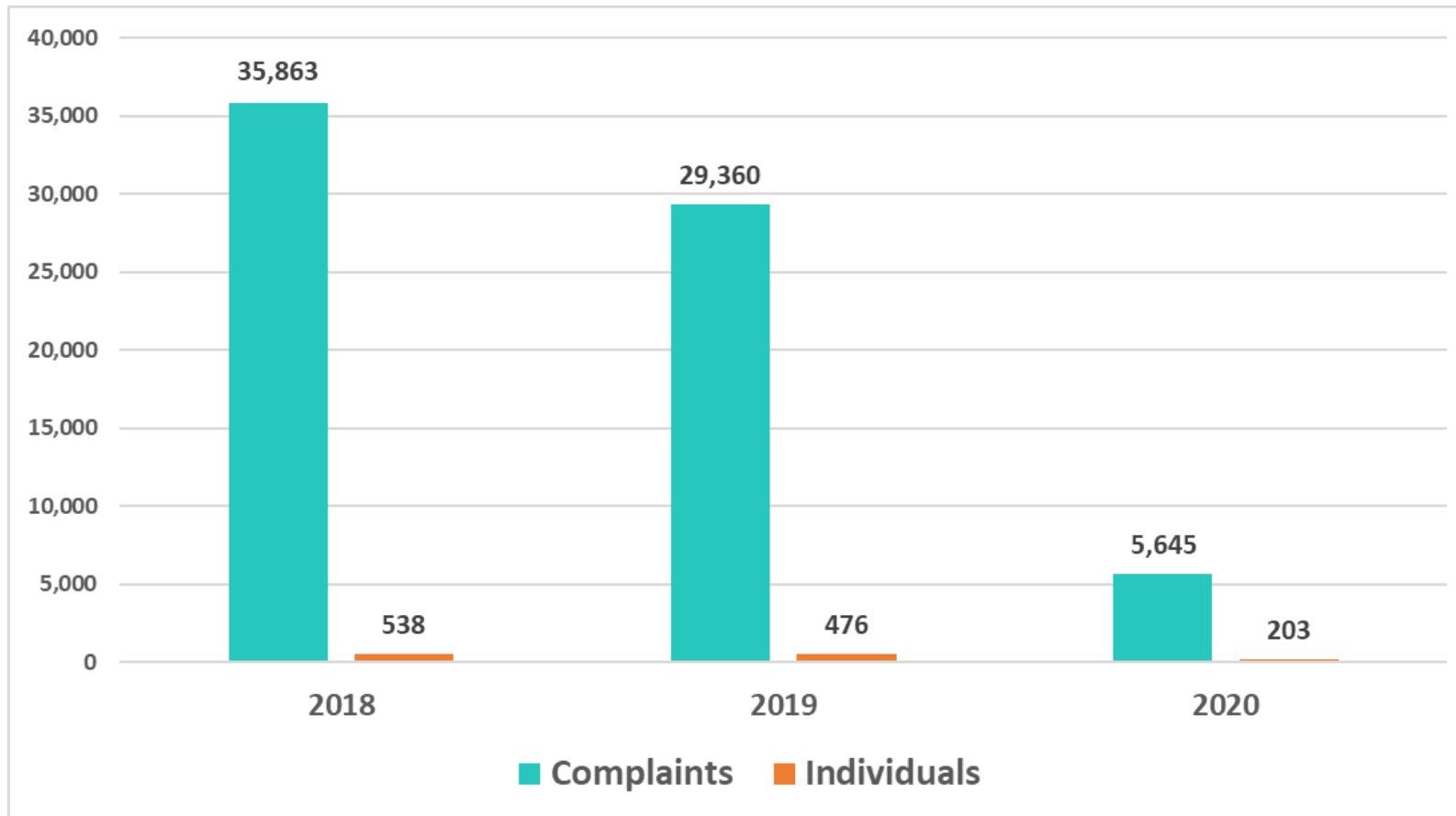
2020



Ops: 70
(-72%)

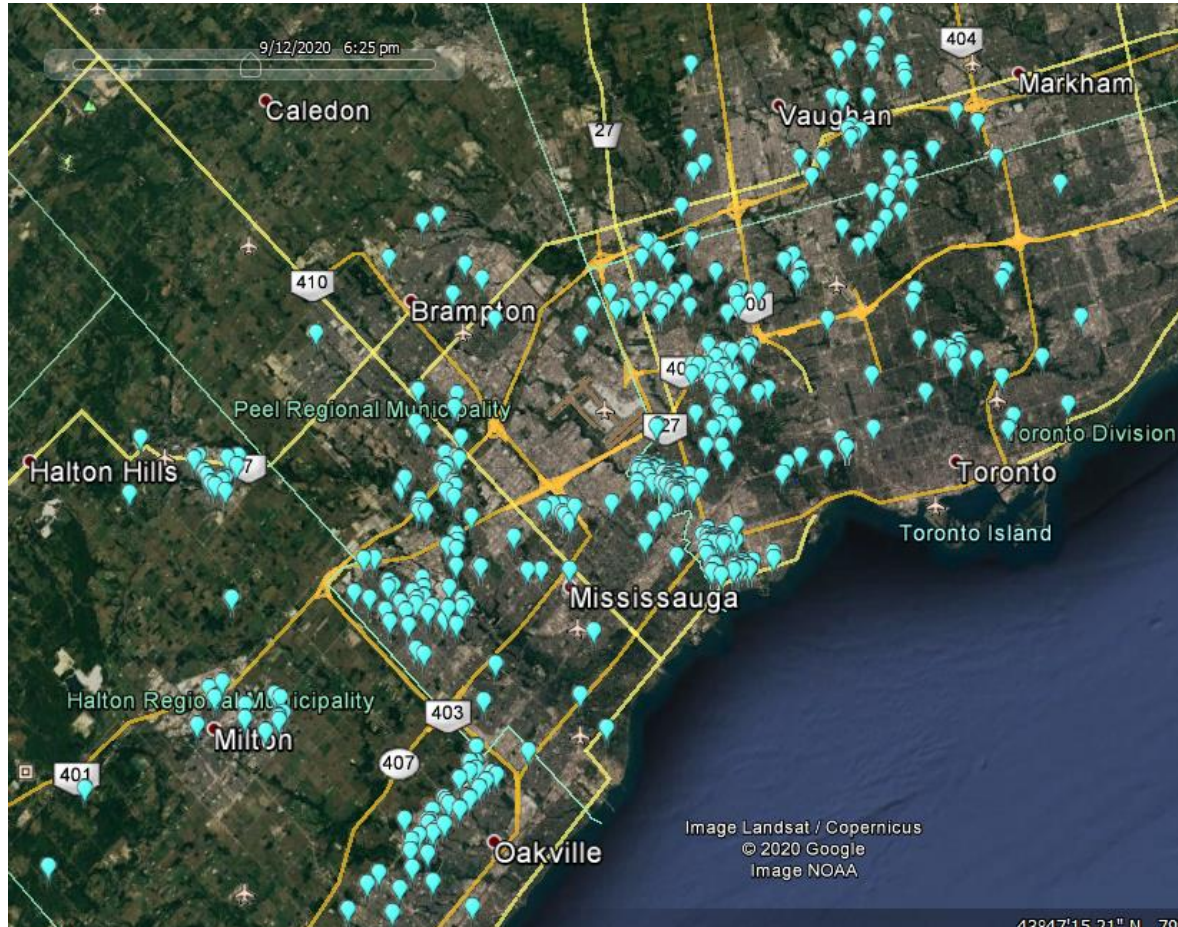
Complaints Summary

- Compared to Q2 2019, there were 23,715 fewer complaints (-81%) from 273 fewer individuals (-57%) in Q2 2020
- Overall, from January to August 2020, we have received complaints from 409 residents. Of these, 114 individuals were either new or had not complained since 2010.

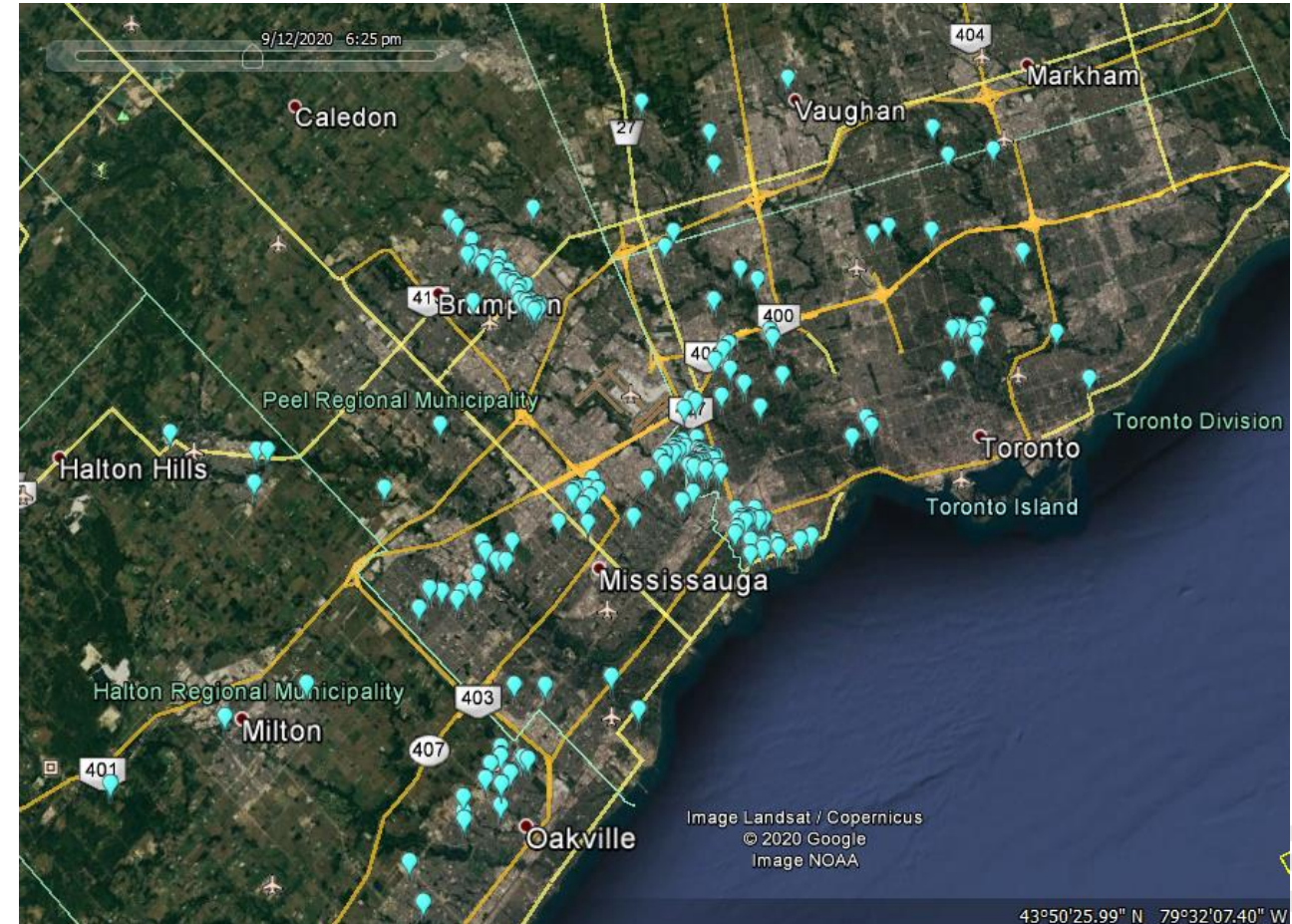


Complaint Distribution

Q2 2019: 29,360 complaints from 476 individuals



Q2 2020: 5,645 complaints from 203 individuals



There was a noticeable decrease in the number of individuals in Brampton South and Etobicoke North, likely because these areas are affected by operations on Runway 05/23, which was impacted by the capital construction work between May 25 to July 9

NAV CANADA Updates

2020-06-05

POST-IMPLEMENTATION COMMUNITY IMPACT REVIEW

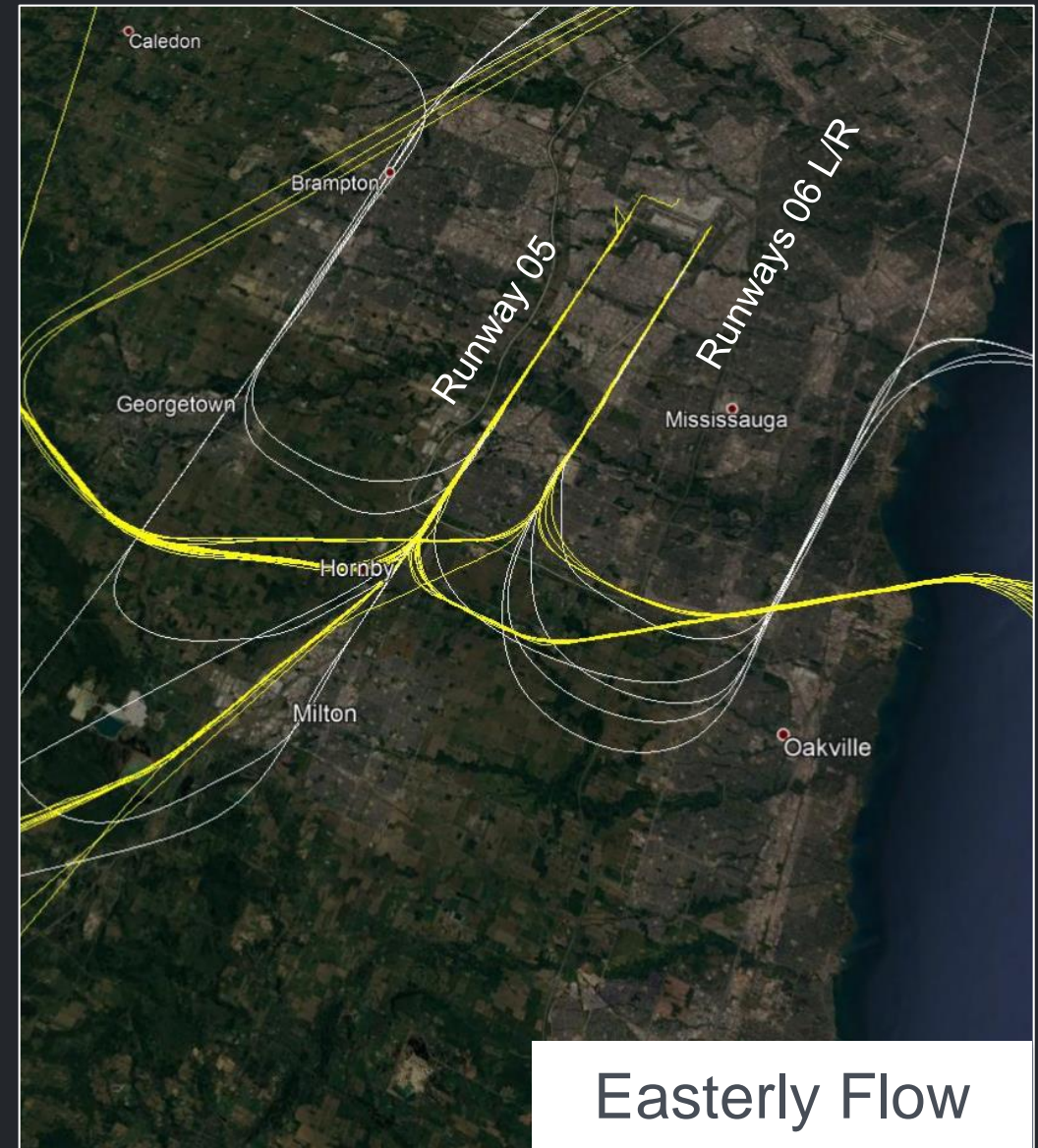
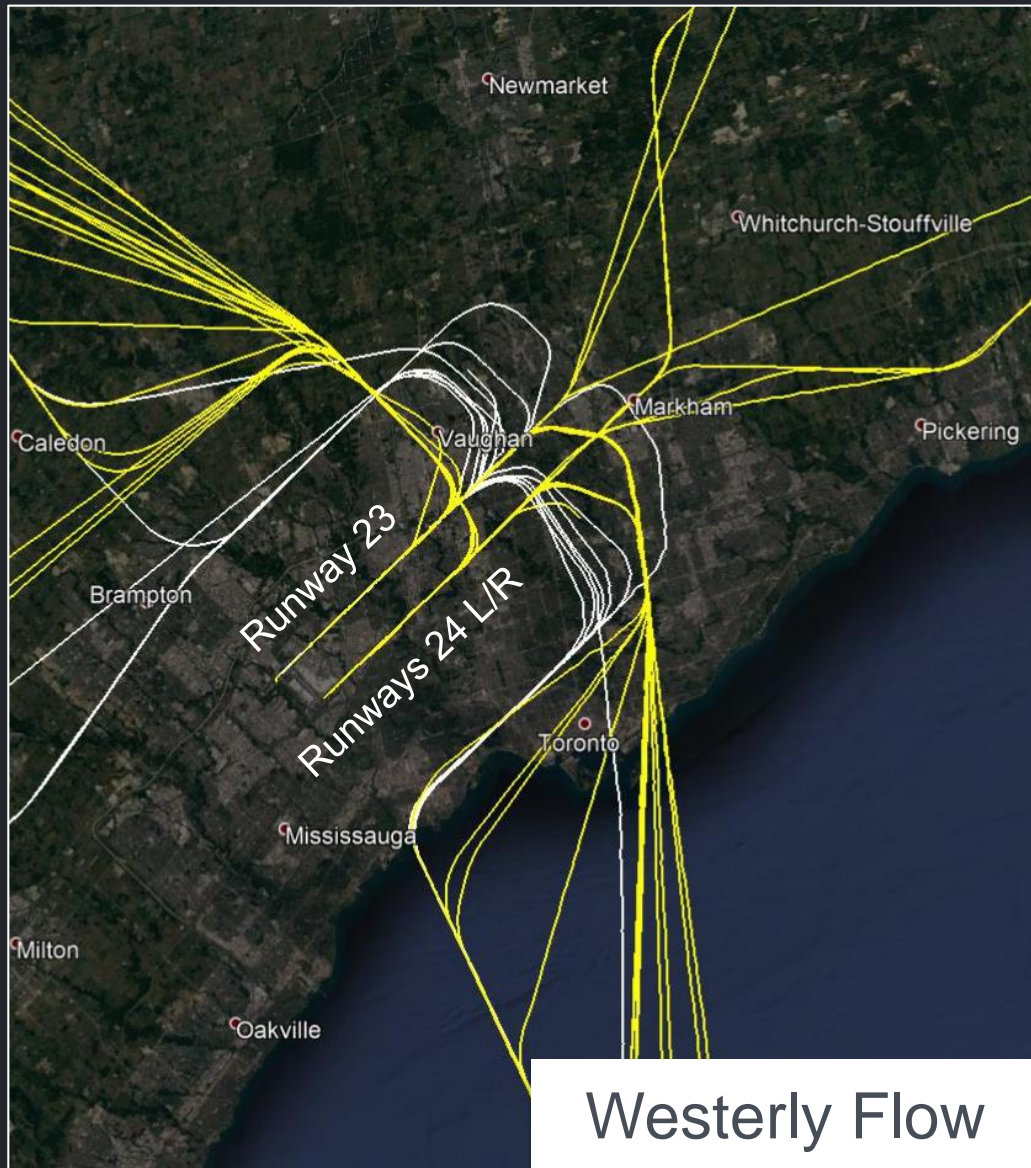
**Assessing the implementation of
airspace changes at Toronto Pearson**

To reduce environmental and noise impacts on communities



PURPOSE & BACKGROUND

- › The review examines the implementation of new procedures during YYZ's nighttime hours as well as those associated with Continuous Descent Operations
- › Follow up to the six noise mitigation initiatives, which were studied and proposed by NAV CANADA and the Greater Toronto Airport Authority (GTAA).
- › The period between February 28, 2019 and January 24, 2020 was examined.
- › Analysis of a period pre-pandemic.
- › Full report posted on www.navcanada.ca



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

53%

Percentage usage of the new nighttime approaches during nighttime restricted hours (calendar 2019)

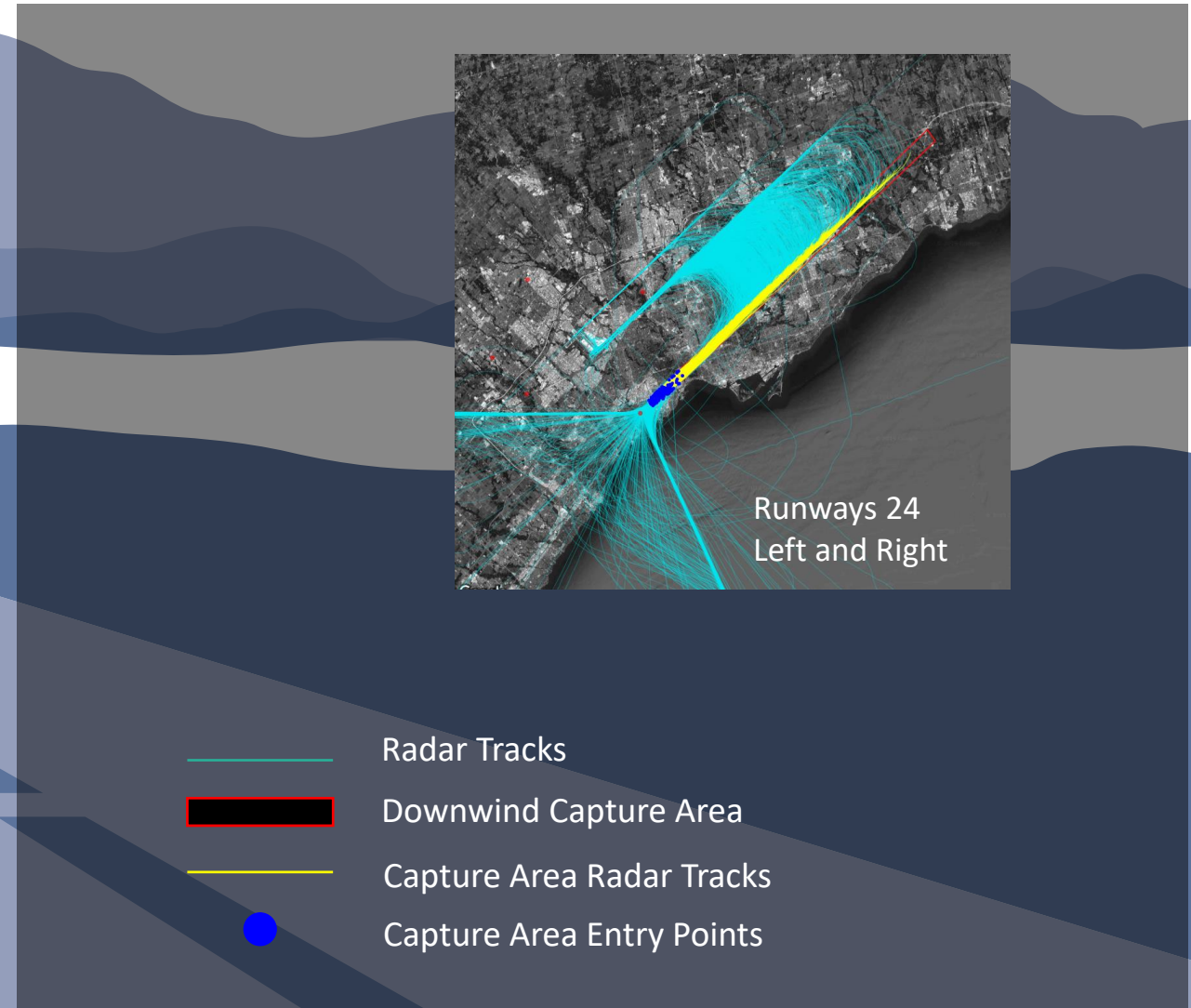
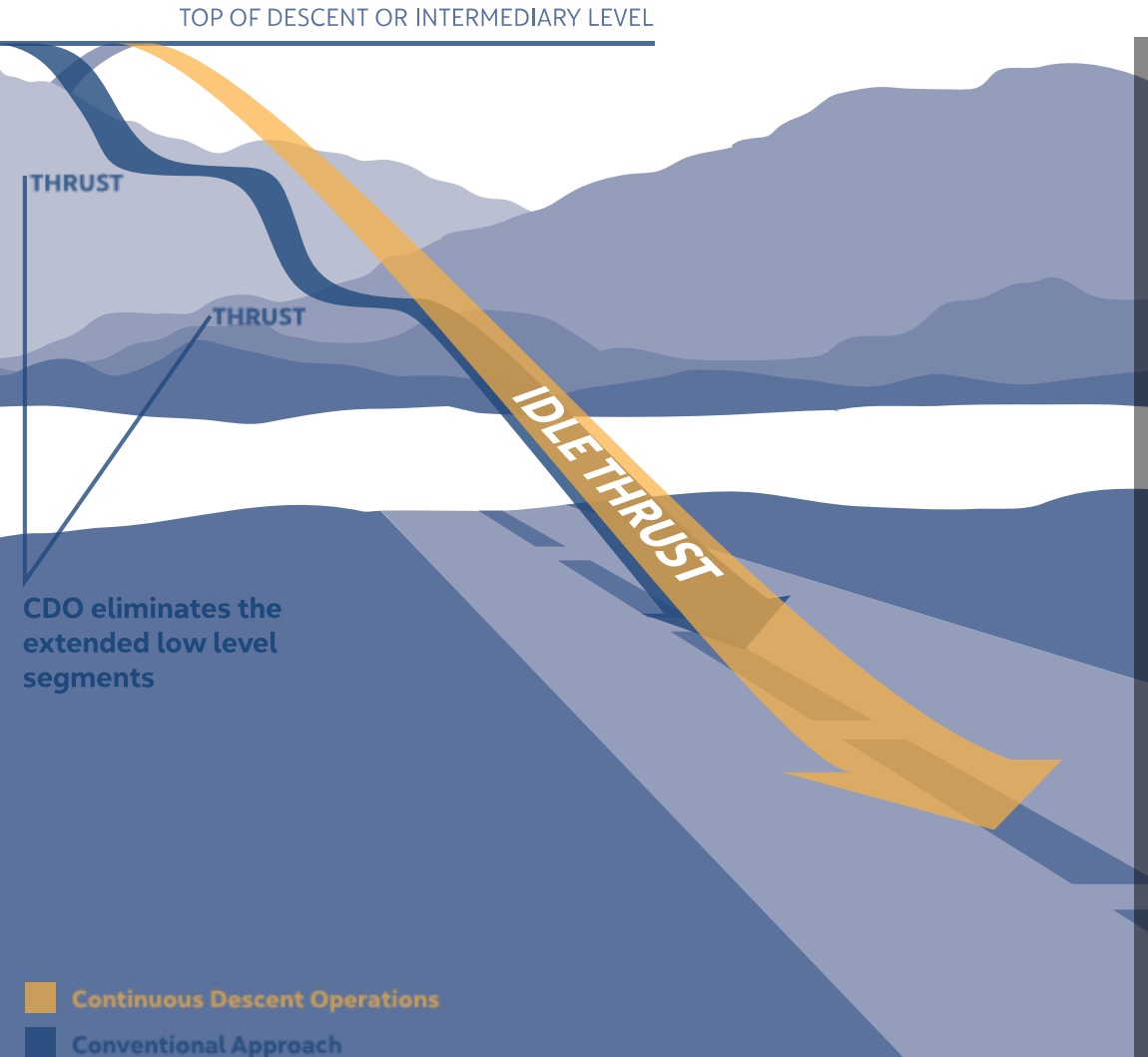
5,748

Number of times new nighttime approaches used between Nov 2018 and Jan 2020

NEW NIGHTTIME ARRIVALS

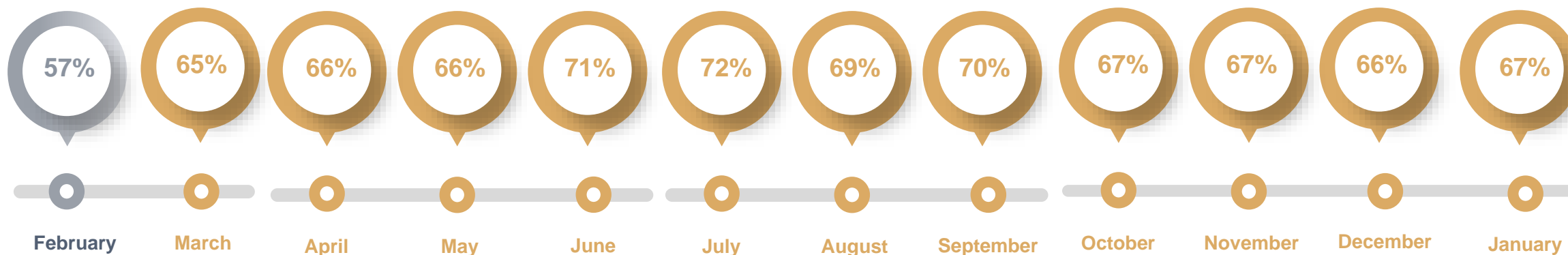
- › Implementation date: November 2018
- › These approaches using RNAV (used between 12:30 a.m. - 6:30 a.m.) support CDO
- › Used for East-West Runways
- › New procedures were published in the Canada Air Pilot and through an Aeronautical Information Circular (AIC)
- › New procedures were further communicated through the Quieter Operations Guide
- › Total RNAV benefits forecast achievable to 2020 2,084,000 metric tonnes CO2e reduction

IMPROVING FLIGHT EFFICIENCY WHILE REDUCING OPERATIONAL IMPACTS



PERCENTAGE OF AIRCRAFT USING CDO PROCEDURES

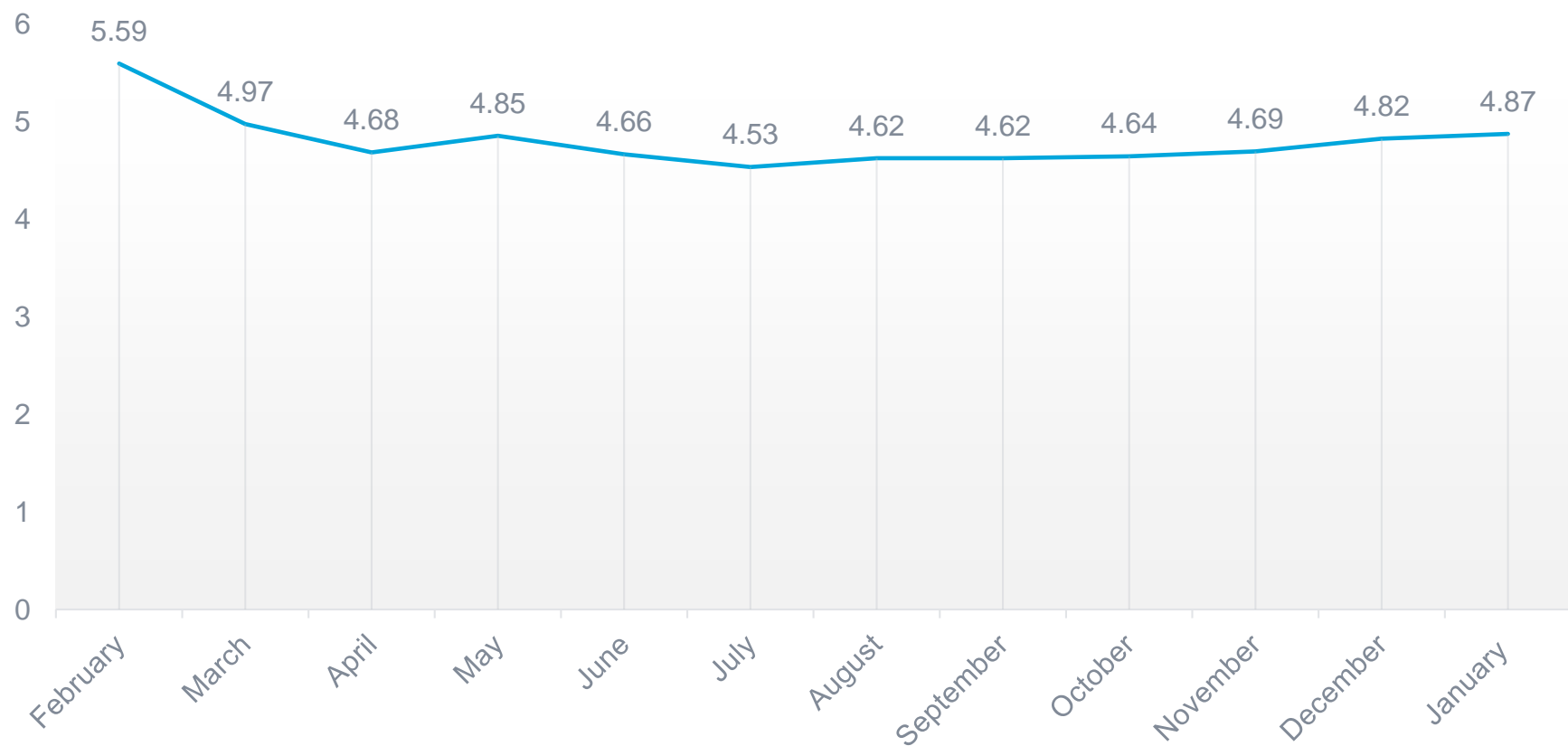
New CDO arrival procedures for the downwind segments were implemented February 28, 2019.
Current traffic levels and seasonality may influence usage of CDO.



Anticipated 10% increase in CDO during consultation.

AVERAGE LEVEL SEGMENT DISTANCE*

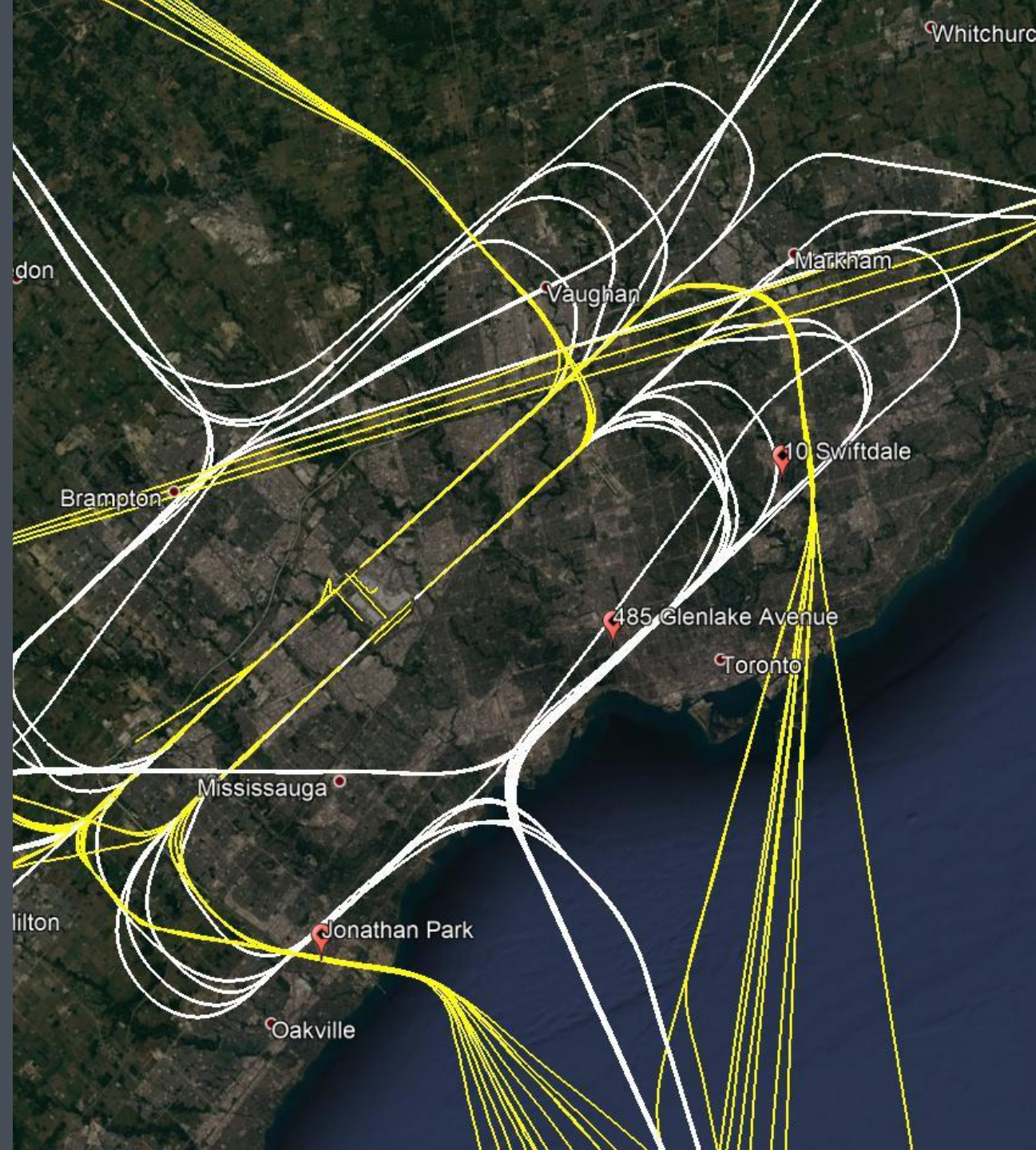
*For aircraft not achieving CDO



● Percentage of aircraft using CDO procedures **post-implementation**

ENVIRONMENTAL CONSIDERATIONS

- › Contracted Akoustik to place monitors in three locations for four days
- › Sample level monitoring, to validate noise modeling
- › Leverages the commonly used LAmax metric
- › Start January 10th
- › Extended to two weeks (Jan 10-24)
- › Weather conditions were unfavourable (high winds, precipitation, 33 ops) which limited size of data set.
- › Provides insights, but limits isolation of variables





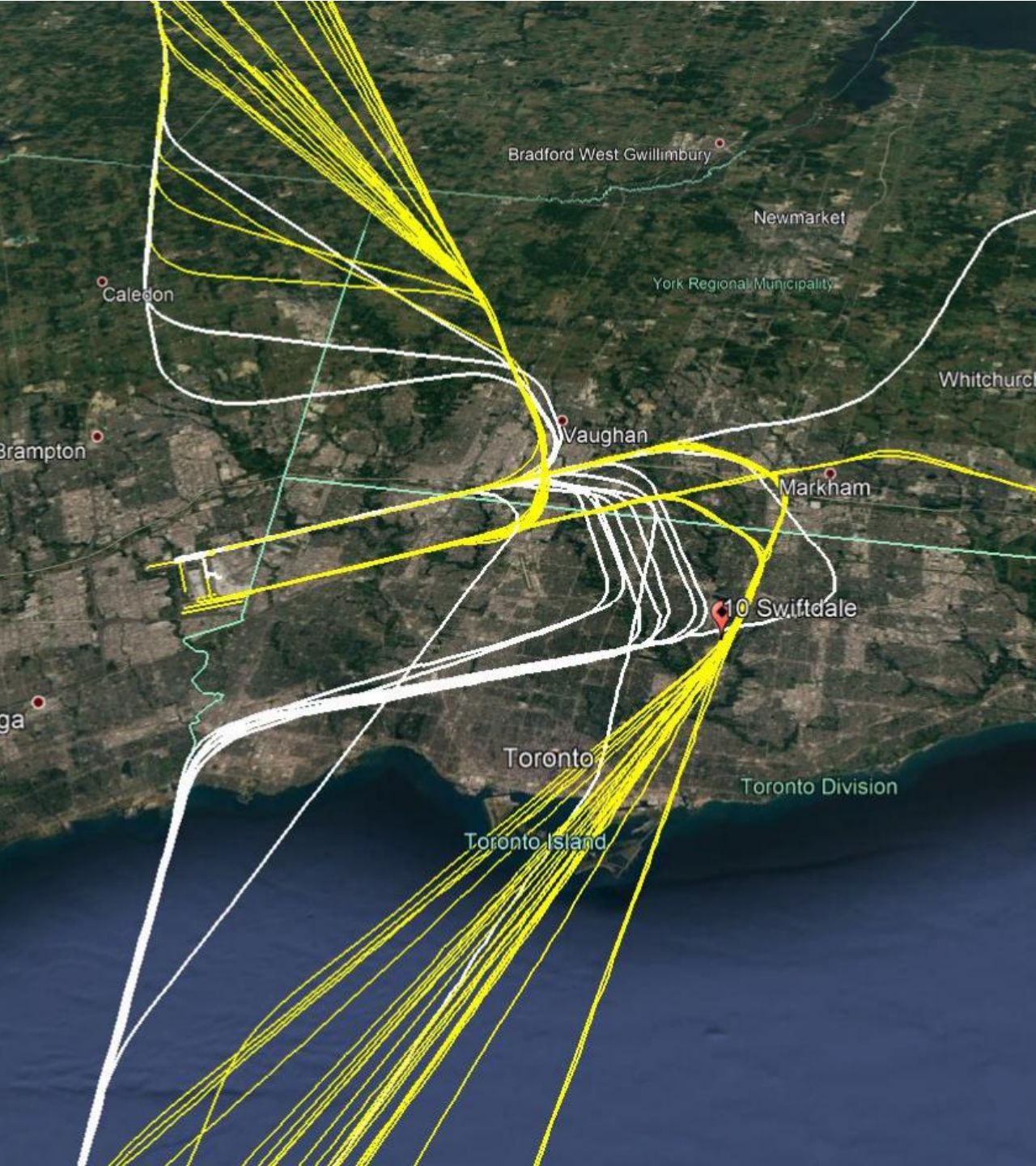
JONATHAN PARK LOCATION

- > Strategically placed to get measurements for the night procedure from the south (to 06/05L/05R) – all aircraft types
- > Location is just inside the 60-65 dBA range for 24R/L and in the 55-60 dBA range for 23 based on modeling
- > The table below shows the average (arithmetic) maximum level, which provides an average of the individual measures versus sound energy level

Night Procedure
54 dBA

- > While not directly under the downwind, it did allow us to capture some data on aircraft that were descending continuously versus those that were level.

DW Level	DW CDO
57 dBA	56 dBA



SWIFTDALE LOCATION

- > Strategically placed to get measurements related to the night procedure to runways 23 and 24R/L
- > Vast majority of aircraft are on a descending path
- > Anticipated noise level for a 737-800 in the 60 to 65 dBA range.

Night procedure	Base leg
64 dBA	69 dBA

ASSOCIATED COMPLAINTS

- › Considering complaints can be tricky as residents often do not differentiate between procedure usage, CDO/non-CDO, vs longstanding concerns.
- › A total of nine residents submitted complaints attributable to night procedures (Idea #1) through GTAA submission.
- › Understanding if complaints on the downwind are attributable to the new STAR profile is challenging (i.e. differentiation between downwind location and CDO).
- › Overall, changes have not generated any groundswell/increase of community concern.



INMB UPDATE

Departure Operations



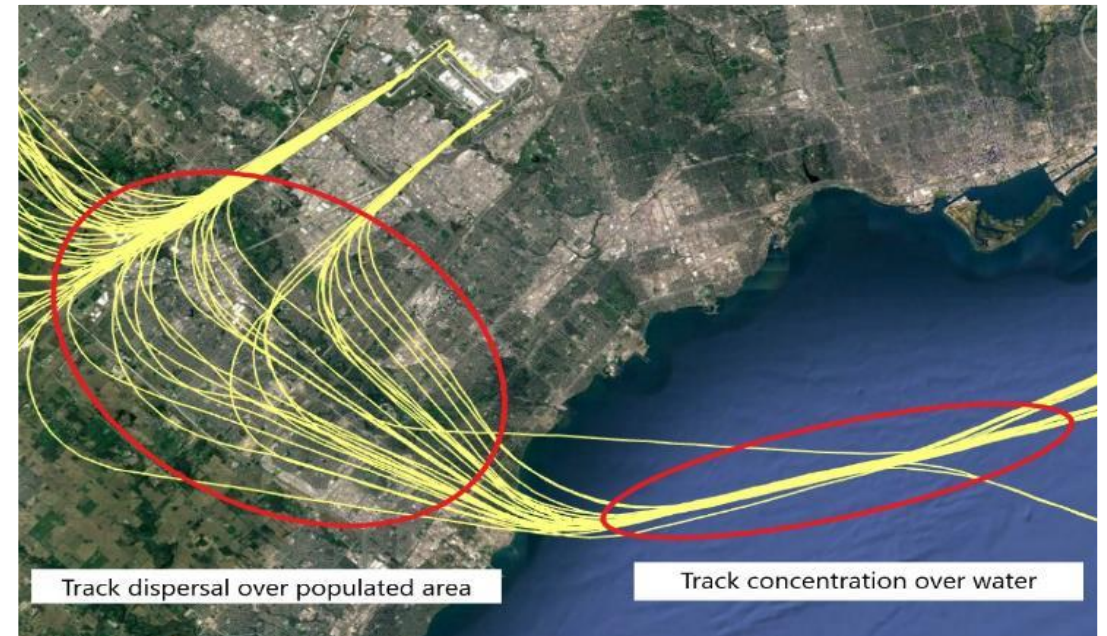
NOT STEP OUT OF THIS AREA

OVERVIEW

- › Current departure considerations
- › Ongoing consideration for departures
 - MIT slower climb study
 - NADP1 and NADP2
 - 4DT Trajectory (long-term)

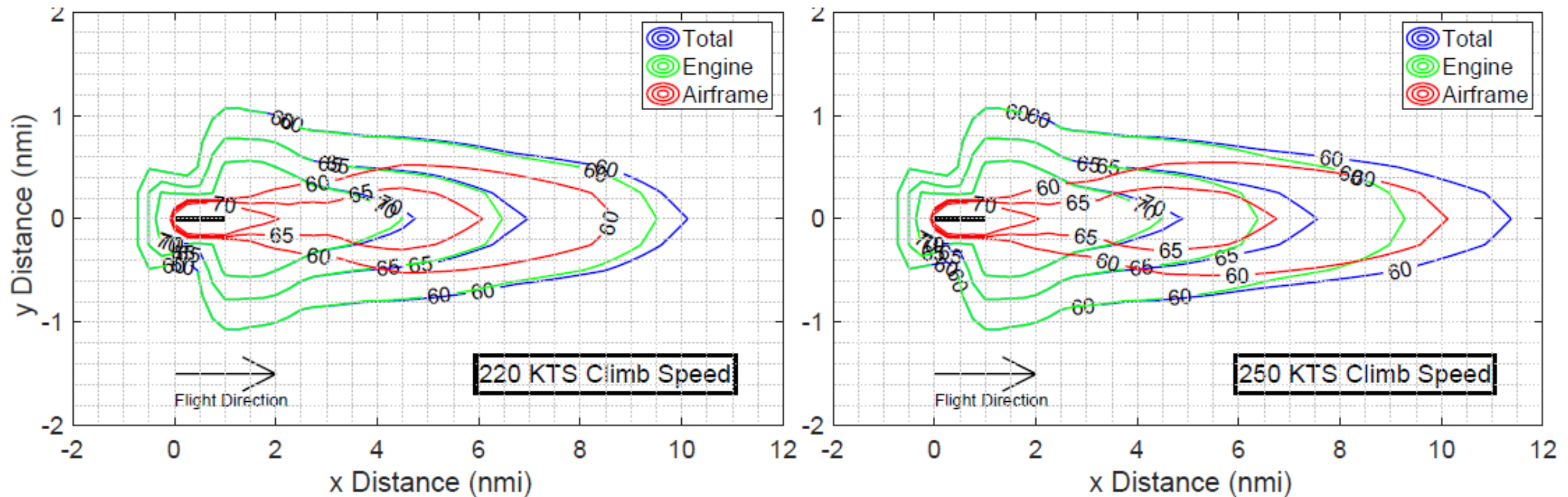
CURRENT DEPARTURE CONSIDERATIONS

- › Need to keep arrivals and departures safely separated
- › Departures typically operate under arrival procedures
- › Wind drift can change location of aircraft, despite flying on heading
- › Hybrid SIDs balance need for structure while allowing for some dispersion
- › Limited toolkit on departure, but monitoring emerging ICAO standards



MIT STUDY

- › Study developed by MIT International Center for Air Transportation and Boston Logan International
- › Proposes aircraft climb at a slower rate (from about 250 knots to 220 knots)
- › Goal to reduce engine noise to a level equal to that of the airframe on initial climb
- › Based on noise modeling
- › Trade-off between noise level and duration of exposure



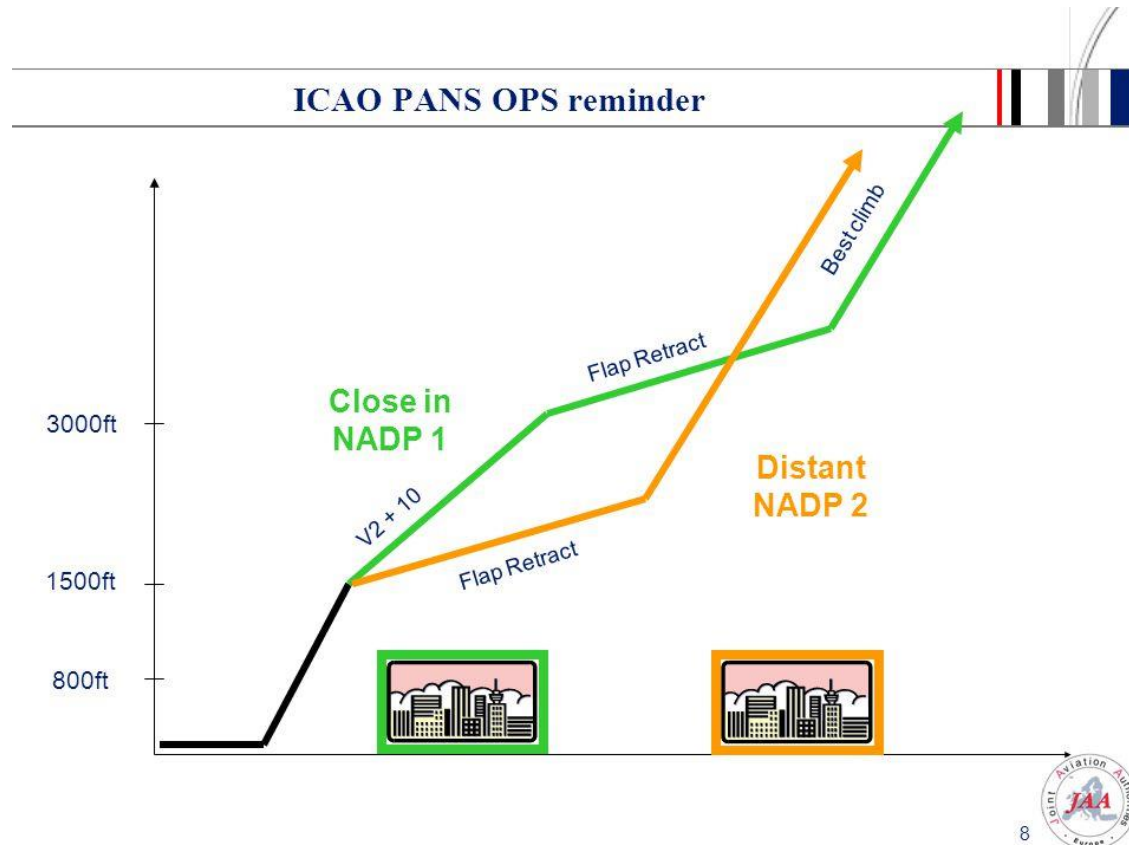
Source: Block 1 Procedure Recommendations for Logan Airport Community Noise Reduction, Hansman et al (December 2017)

MIT STUDY

- › Not all aircraft can safely climb at a speed of 220 knots
- › Increases complexity in normally congested airspace with aircraft climbing at different speeds
- › Impacts capacity as it requires increased separation between aircraft at different speeds
- › Workload impacts as aircraft remain in airspace longer
- › Increase in Greenhouse Gas Emissions
- › Will continue to monitor research on this topic, but at this time it is not deemed to be a feasible solution

NADP1 AND NADP2

- › Standard Noise Abatement Departure Procedures used around the world
- › Garnering a better understanding of how they are used at Toronto Pearson



4DT TRAJECTORY

- › Longer-term consideration
- › Fully-integrated planning environment between airlines, airports and ANSP
- › Gate-to-gate concept with optimum trajectories
- › Supports increased use of noise mitigating procedures
- › CDO, CCO



ADDITIONAL HELIOS WORK

Design RNP-AR procedures that can reduce the need for a high / low operation

- > New 'Established on RNP-AR' separation standard approved by ICAO and NAV CANADA has worked with Transport Canada to gain approval for use in Canada.
- > NAV CANADA, the GTAA and INMB are undertaking preliminary analysis work on how the concept could be deployed at Toronto Pearson

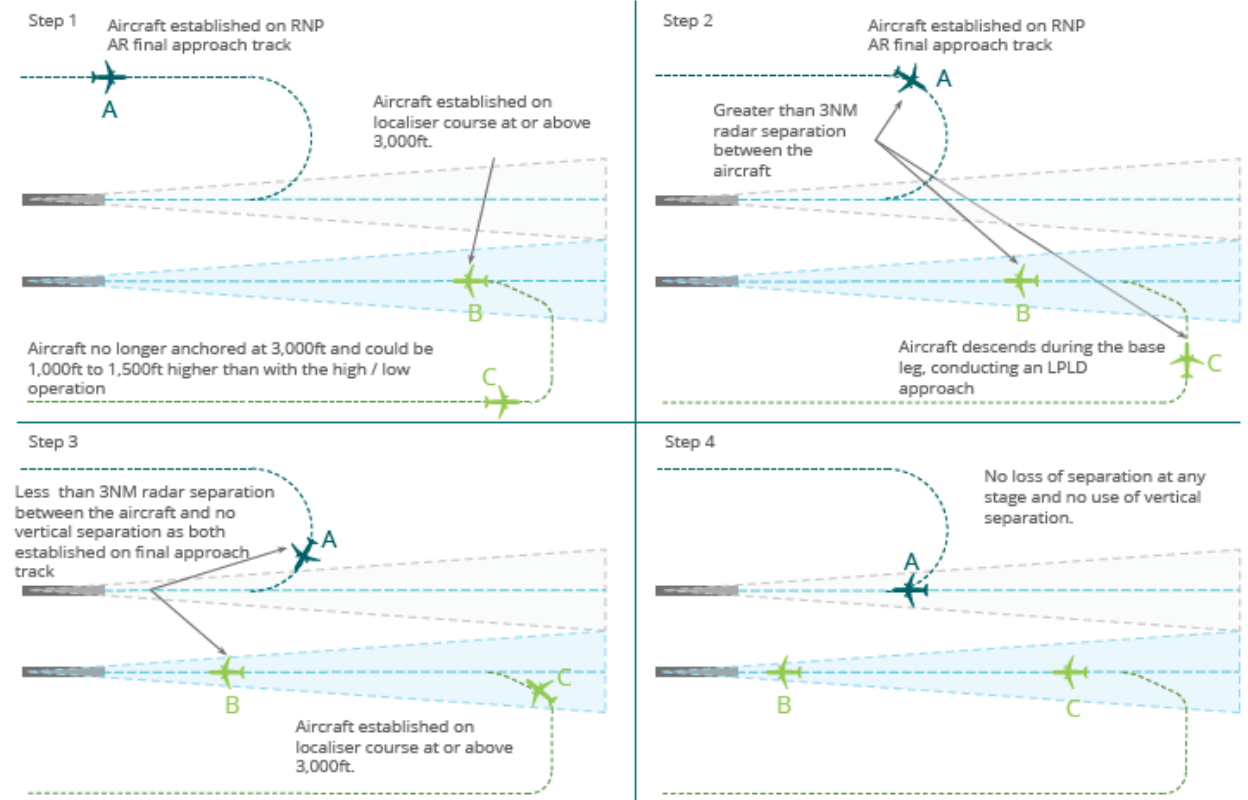


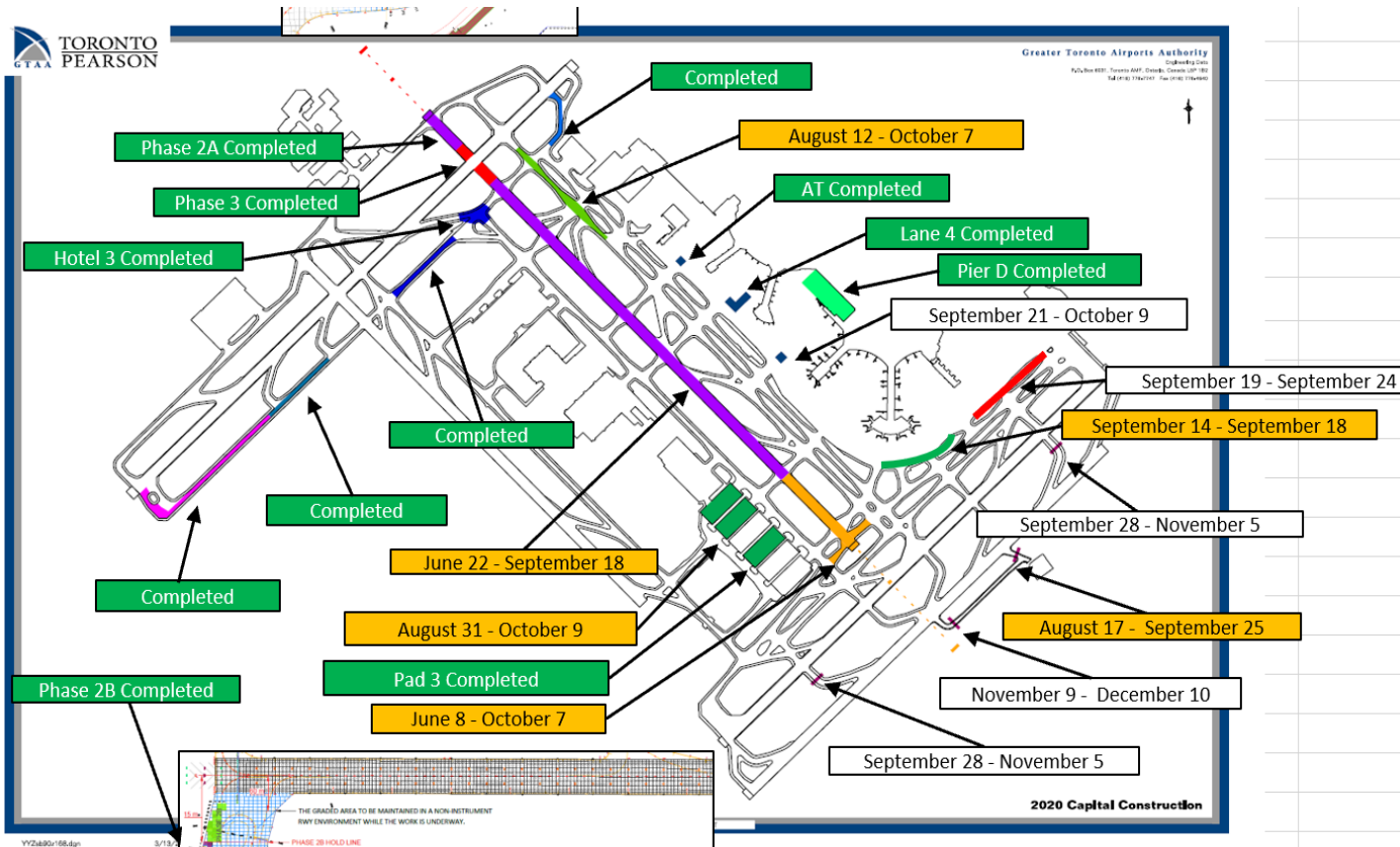
Figure 26. Established on RNP AR

GTAA Updates

Maintenance Update



2020 Work Program



- Work began in Spring 2020, and potential impacts were communicated through:
 - Briefing sessions for Elected Officials and Neighbourhood Table
 - Advertisements in local newspapers
 - Social media and Checking In
 - Digital advertising
 - Media outreach
- Runway 05/23 fully re-opened to traffic on July 9th
- Runway 15L/33R is substantially complete, scheduled to re-open mid-October

Noise Management Action Plan



Noise Management Action Plan

Night Flight Restrictions

Communications, Outreach & Noise Committees

Noise Complaints

New Quieter Fleet Incentive Program

New Fly Quiet Reporting Program

Noise Reporting and Metrics

Noise Abatement Procedures

Land Use Planning

Runway Usage

NMAP Deliverables to Date










- ✓ Launched Noise Management Forums
- ✓ Published updated Complaint Process
- ✓ Completed A320 Family Audit and began tracking usage against 2019 audit
- ✓ Six Ideas:
 - ✓ Ideas 1-4 implemented
 - ✓ Idea 5 tested summer 2018, trialed summer 2019 (will not be pursued based on trial results and community feedback)
 - ✓ Idea 6 trial began February 2020
- ✓ Launched InsightFull, a new noise management website
- ✓ Began publishing standard noise reports
- ✓ Began working with selected school on the Pilot School Air Conditioning Program

A320 Family Retrofit Program

A320 Family Retrofit Program










- We are monitoring usage of the A320 family operations at Toronto Pearson against the audit conducted in 2019
- We will share the reports on the usage through the Noise Management Forums and in the Noise Management Action Plan updates on our website at torontopearson.com/nmap
- **A320 Usage Report Summary**
 - The reports for January to June 2020 show that:
 - 32% of A320 family aircraft operating at CYYZ are retrofitted
 - 53% of A320 family movements are performed by retrofitted aircraft
 - This means that airlines are using proportionally more of their retrofitted aircraft for operations at CYYZ
 - Based on the reports, more than 90% of A320 movements will be performed by retrofitted aircraft by the end of 2021

A320 Family Usage by Total Movements

January - June 2020							
Airline	Retrofitted	% Retrofitted	Scheduled for Retrofit*	% Scheduled for Retrofit	Not Scheduled for Retrofit	% Not Scheduled for Retrofit	Total A320 Movements
Air Transat 	479	68%	0	0%	228	32%	707
Air Canada Family 	9,584	56%	7,391	44%	0	0%	16,975
American Airlines 	231	36%	414	64%	0	0%	645
United Airlines 	60	21%	0	0%	228	79%	288
Interjet 	23	7%	0	0%	303	93%	326
Avianca 	0	0%	0	0%	149	100%	149
Delta Airlines 	0	0%	0	0%	184	100%	184
Azores Airlines 	0	0%	0	0%	116	100%	116
Sunwing 	0	0%	0	0%	64	100%	64
TOTAL	10,377	53%	7,805	40%	1,272	7%	19,454

*Although not currently retrofitted, the airline has indicated these aircraft will be retrofitted in the near future.

A320 Family Usage by Aircraft

January - June 2020							
Airline	Retrofitted	% Retrofitted	Scheduled for Retrofit*	% Scheduled for Retrofit	Not Scheduled for Retrofit	% Not Scheduled for Retrofit	Total A320 Aircraft
Air Transat 	7	54%	0	0%	6	46%	13
Air Canada Family 	56	52%	51	48%	0	0%	107
American Airlines 	35	34%	67	66%	0	0%	102
United Airlines 	24	26%	0	0%	70	74%	94
Interjet 	8	22%	0	0%	28	78%	36
Avianca 	0	0%	0	0%	14	100%	14
Delta Airlines 	0	0%	0	0%	39	100%	39
Azores Airlines 	0	0%	0	0%	3	100%	3
Sunwing 	0	0%	0	0%	2	100%	2
TOTAL	130	32%	118	29%	162	40%	410

*Although not currently retrofitted, the airline has indicated these aircraft will be retrofitted in the near future.

Quieter Fleet Incentive Program

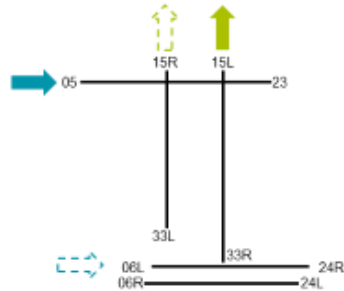
- Next Steps
 - Determine timing for the next A320 family audit
 - GTAA exploring “impact charge” for airlines that operate non-retrofitted A320 family aircraft after 2022
 - Explore options for Phase 2 of the Quieter Fleet Incentive Program including encouraging quieter fleet operations, looking at a potential phase out of noisier aircraft or possible noise charges.
 - Starting with an audit of aircraft operating at Toronto Pearson to determine Chapter type

Preferential Runway System Trial

- The GTAA began a trial of the updated Preferential Runway System on February 27, 2020
- Trial will last for one-year to test usage of the updated system across multiple weather conditions, during runway construction season, and winter operations
- Reports on the usage of the updated Nighttime Preferential Runway System are published on our [website](#) every three months
- Feedback survey will be open during trial for residents to provide their input on the same webpage as the reports

Updated Nighttime Preferential Runway System

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

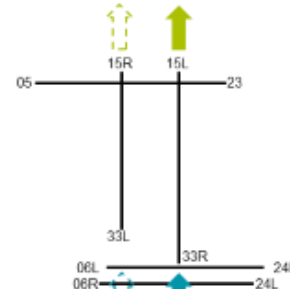


2nd Choice - Whenever crosswind, tailwinds & winds-aloft allow

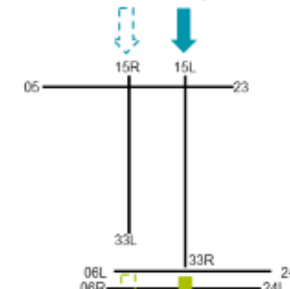


Selection driven by weather conditions and infrastructure availability when 1st or 2nd choice are not operable. Ultimately any single or pair of runways can be used.

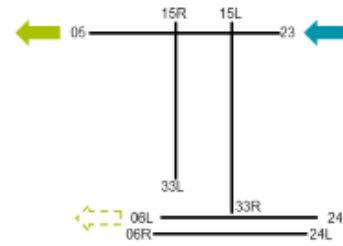
Operation for northerly wind



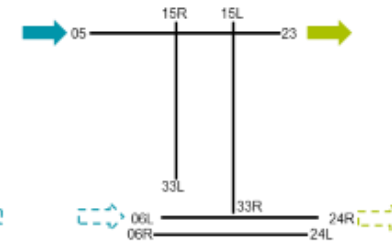
Operation for southerly wind



Operation for westerly wind



Operation for easterly wind



Key:

- Primary departures
- Primary arrivals
- Maintenance adjusted departures
- Maintenance adjusted arrivals

Pilot: School Air Conditioning Program

- As part of the 2018-2022 Noise Management Action Plan (NMAP), Toronto Pearson committed to exploring a pilot program to provide funding for HVAC systems to one or a small number of local schools within the most noise impacted communities. Similar programs have been offered by leading international airports.
- Based on criteria matrix, selected Marvin Heights Public School in the Peel District School Board was selected, and work is currently underway
- When operational in Spring 2021, the system will have an added benefit of improving the air quality at the school
- We have learned lessons and started working on plans to evolve the program, however given the airport's current financial constraints, determining what phase 2 of the program is on hold

Marvin Heights Public School within the AOA



InsightFull and Noise Reports

- Worked with the Neighbourhood Table throughout 2019 to develop both InsightFull and the Noise Reports
- InsightFull
 - Toronto Pearson launched InsightFull in March 2020, becoming the first airport in North America to launch this self-serve web portal
 - Residents can access InsightFull from our website at torontopearson.com/en/community/noise-management
- Noise Reports
 - Added an interactive dashboard of noise reports on InsightFull utilizing information from the airport's 25 Noise Monitoring Terminals
- The web-portal and noise reports will continue to be updated
- Both initiatives are now complete

Noise Management Forums

- As part of the Noise Management Forums launched in 2019, the GTAA also committed to adding a Community-Proposal Review Process and an External Process Audit
- These two initiatives ensure continued accountability and representation of the community interests
 - Community-Proposal Review Process: a formalized way to have community-submitted noise management proposals reviewed
 - External Process Audit: a third-party review of Toronto Pearson's activities and progress towards the Noise Management Action Plan
- Both these processes are currently being developed, and updates will be shared with the community later this year

Q4 2020 NMAP Workplan

- Trial continues for Idea 6: Review of the Preferential Runway System with quarterly reports
- Launch final pieces of Noise Management Forums
- Develop metrics and engage with industry and community stakeholders for the Fly Quieter and Greener Reporting Program
- Continue review of the Night Flight Restriction Program
- Continue to publish noise data and enhance content on InsightFull

Working with the Community



Pearson Airport Explorers Club



- Launched an educational resource for kids in Spring 2020 called the Pearson Airport Explorers Club
- To date, there have been over 5,000 visitors to the website and almost 600 children have signed up to the Club
- In August, we also hosted almost 350 participants over three live Virtual Day Camps
- Planning for fall and winter camps is underway! Details will be available when ready on airportexplorer.club

Discussion + Roundtable

Thank You