Toronto Pearson Noise Management Forums
Neighbourhood Table

September 25, 2019
Welcome +
Introductions
Agenda

• Welcome + Introductions
• NAV CANADA: Update
  • Continuous Descent Operations Monitoring
  • Industry Noise Management Board Update
• GTAA: Idea 5 Summer Weekend Runway Alternation Preliminary Report for Trial Summer 2019
• GTAA: Noise Management Action Plan Update
• Discussion + Roundtable
NAV CANADA
Update
Update for Neighbourhood Table September 25, 2019

CONTINUOUS DESCENT OPERATIONS MONITORING
At Toronto Pearson International Airport
BACKGROUND

- Summer 2016 – Third Party Airspace Review Announced
- September 2017 – Third Party Airspace Review Published
- November 2017 – NAV CANADA Response Published
- Spring 2018 – Consultation on 6 Ideas
- November 2018 – Night Procedures Implemented
- December 2018 – INMB Quieter Operations Guide Published
- February 2019 – STAR Profile Enhancements Implements for Continuous Descent Operations
- May 2019 – Custom Analysis Tool Produces
- June 2019 – Q1 CDO Report Published
- September – Q2 CDO Report Published
Continuous Descent Operations (CDO) allow aircraft to descend on a low thrust setting and in a quieter profile, resulting in noise reductions of 1 to 5 dBA, in addition to reducing emissions.
What’s considered a CDO operation?
A Continuous Descent approach is achieved when the aircraft descends with no segment of level flight greater than 2.0 nautical miles.

What areas are we capturing?
Our analysis begins at the downwind entry points defined and extend approximately 25 nautical miles.

Which runways are being monitored for CDO use?
The downwind portion of final descent to the East/West runways (05/23, 06L/24R, 06R/24L) at Toronto International Airport.

This data was provided by NAV CANADA’s Corporate Performance team.
CONTINUOUS DESCENT MONITORING

Downwind flight profile

From January to June, CDO usage on this downwind averaged 64%.

From January to June, CDO usage on this downwind averaged 66%.

From January to June, CDO usage on this downwind averaged 78%.

From January to June, CDO usage on this downwind averaged 74%.

Flights highlighted in light blue represent data over a month long period in 2019.
Aircraft not employing the downwind have been filtered out for the purpose of this analysis.

This data was provided by NAV CANADA’s Corporate Performance team.
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.

This data was provided by NAV CANADA’s Corporate Performance team.

Q1
- February: 57%
- March: 65%

Q2
- April: 66%
- May: 66%
- June: 71%

Percentage of aircraft using CDO procedures pre-implementation
- February: 57%
- March: 65%
- April: 66%
- May: 66%
- June: 71%

Percentage of aircraft using CDO procedures post-implementation

This data was provided by NAV CANADA’s Corporate Performance team.
AVERAGE LEVEL SEGMENT DISTANCE*

*For aircraft not achieving CDO

This data was provided by NAV CANADA’s Corporate Performance team.
NEW NIGHTTIME APPROACHES

USING AREA NAVIGATION (RNAV)

Runway 05

Runway 23
NEW NIGHTTIME APPROACHES

USING AREA NAVIGATION (RNAV)

While traffic levels are significantly lower at night than during the day, aircraft noise events can be more noticeable for some residents during these periods as ambient community and household noise levels are typically lower.

Lower demand and fewer aircraft in Toronto Pearson’s airspace at night provide the opportunity to employ routes that impact fewer people.

On November 8, 2018, NAV CANADA implemented new Area Navigation (RNAV) procedures to enable continuous descent. These new procedures enable aircraft to be higher on portions of the approach to the airport.

This data was provided by NAV CANADA’s Corporate Performance team.

12:30 a.m. – 6:30 a.m.  
New nighttime approaches are being used between these hours (or earlier if possible)

3,000  
number of times new nighttime approaches have been used since implemented
A WORK IN PROGRESS

- The potential of this quieter approach is only at the early stages of being realized.
- Continued work to educate front line operations staff.
- Expanded metrics being considered.
- Further Helios Recommendations to support CDO.
6 IDEAS – 180 DAY REVIEW

› Post-Implementation Community Impact Review
› Focused on Ideas 1, 2 and 4
› Analysis of performance
› Consideration of community feedback
› Publish by end of 2019
REFERENCE MATERIALS

Quieter Operations: A Guide for Pilots and Controllers

Independent Toronto Airspace Noise Review*

NAV CANADA Response to Independent Toronto Airspace Noise Review

Airspace Change Communications and Consultation Protocol (ACCCP)
Quieter Operations Guide Published in December 2018

- CDO reporting commenced
- Continued work to educate and improve utilization

AMAN now installed and in use

Focus for next INMB (October)

- Departures analysis
- Established on RNP
- Consideration for point merge (longer term)
Six Ideas Update

Idea 5 Summer Weekend Runway Alternation Program

Trial 2019 Preliminary Report
Summer Weekend Runway Alternation – 2019 Trial Interim Results

September 2019
Nick Boud
1. Background

2. Objectives & concept

3. Trial performance

4. Conclusions & next steps
Background
Background

- Sept. 2015: Stakeholder roundtables
- Spring 2018: Public consultation
- 2016 – 2017: Technical analysis
- Summer 2018: Operational Test for 8 weekends
- Summer 2019: Operational trial for 16 weekends
Objectives & Concept
Objectives of Trial

• To implement the learning from the 8-weekend test in Summer 2018, to determine if we can achieve greater respite than in 2018.
• Allow community members to provide further feedback from an extended trial period.
Concept

Primary departure direction
Primary arrival direction
Overflow for departure demand
Overflow for arrival demand

Westerly operations

“A” weekends

Partial respite

Easterly operations

Partial respite

“B” weekends

Partial respite

Primary departure direction
Primary arrival direction
Overflow for departure demand
Overflow for arrival demand

Westerly operations

Partial respite

Easterly operations

Partial respite

Westerly operations

Partial respite

Easterly operations

Partial respite

Partial respite

Partial respite

Partial respite

Partial respite
A and B Respite Regions with Respect to Runway Layout
Trial Performance
# Weekend Runway Alternation Program – Adherence to Schedule

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<td>08-Sep 19</td>
<td>Sun</td>
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100% delivers full respite. Using 1 arrival and 1 departure runway as per schedule.
Periods of Full and Partial Respite

The Summer Weekend Runway program was in effect for 17.5 hours per day (06:30 to 23:59). The intent of the program was to maximise full respite during those hours.

<table>
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<th>Full Respite</th>
<th>Partial Respite</th>
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<td>Total respite (hr:mm)</td>
<td>Average duration (hr:mm)</td>
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<tr>
<td>North East</td>
<td>7:19</td>
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<td>South West</td>
<td>8:03</td>
<td>1:40</td>
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<tr>
<td>North West</td>
<td>6:30</td>
<td>0:50</td>
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<td>South East</td>
<td>6:52</td>
<td>1:20</td>
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<tr>
<td>Overall</td>
<td>7:11</td>
<td>1:16</td>
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Partial respite periods are nearly twice the length of full respite periods on average.
### Partial Respite

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<th>Region</th>
<th>Avg Flights</th>
<th>Avg Flights per 15 min Respite</th>
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<td>North East</td>
<td>148</td>
<td>3.6</td>
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<tr>
<td>South West</td>
<td>158</td>
<td>4.2</td>
</tr>
<tr>
<td>North West</td>
<td>166</td>
<td>3.7</td>
</tr>
<tr>
<td>South East</td>
<td>185</td>
<td>4.3</td>
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<tr>
<td>Overall</td>
<td>164</td>
<td>3.9</td>
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</table>
Group B have seen approximately a 30% reduction in weekend traffic, whilst Group A communities experienced nearly a 100% increase, compared to weekends without runway alternation. The traffic pattern during the trial was similar to the Summer 18 Test.
Factors that Influenced Performance

- Summer is the busiest season
- Performance was typically reduced on weekends with greater traffic and in particular during afternoon periods
- Weekend traffic has grown over Summer 18
Communication Methods

The GTAA used various tools to inform residents of the Trial and how they could provide their feedback:

- Idea 5 webpages with details, schedule and feedback forms updated throughout Trial
- Elected officials' briefings and emails
- Social media
- Automated phone calls to affected residents pre and post-Trial (~163,000 per round of calls)
- Print ads two weeks before Trial in local Metroland papers in affected communities.

Feedback Opportunities

The GTAA offered two means for residents to provide their comments and feedback on the Trial:

- **During Trial** - A feedback form was provided on the Trial section of the website as a means for residents to share comments about their experience of the Trial while underway.
- **Post-Trial** - At the end of the Trial, by means of the automated phone calls residents were invited to complete a survey on their overall experience of the Trial.
### Feedback Received During the Trial Period

<table>
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<th>Relief Weekends</th>
<th>Non-relief Weekends</th>
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<tr>
<td></td>
<td>Positive</td>
<td>Neutral</td>
</tr>
<tr>
<td>Group A</td>
<td>11</td>
<td>38</td>
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<tr>
<td>Group B</td>
<td>37</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>76</td>
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</table>

- Overall more negative feedback was received during the trial than positive.
- There is virtually no difference in the number of sets of feedback in each category of response, positive, neutral or negative, when aggregated by Relief or Non-relief weekends.
- The number of sets of feedback received is extremely low compared to the number of residents impacted by the trial.
Conclusions & Next Steps
Conclusions

- Respite is possible during the weekend mornings & late evenings
- Respite is only consistently achievable during lower traffic levels
- Traffic levels are increasing limiting the duration of full respite periods
- Runway alternation leads to a redistribution of traffic across runways
- Feedback received during the trial suggest a lack of support
Next Steps

- Post-trial survey feedback to be analysed to understand community support for / against summer weekend runway alternation
- GTAA, NAV CANADA & Airlines to complete a post-trial wash-up
- GTAA to report back in December 2019, once survey results analysed.
DISCUSSION
2018-2022 Noise Management Action Plan Update
Toronto Pearson Noise Management Forums

- **External Process Audit** (Every 2 Years)
- **Neighbourhood Table** (3 Each Year)
- **Pearson Public Meetings** (3 Each Year)
- **Political Briefings** (3 Each Year)
- **Community Advisory Committees & Reference Panels** (Ad-Hoc)
- **Community-Proposal Review Process** (2 Each Year)
- **Noise Accountability Board** (4 Each Year)
1. Quieter Fleet Incentive Program

- Many airports incentivize airlines to use the quietest aircraft in their fleets, or expedite purchase of quieter aircraft.
- The A320 family program is the first piece of Toronto Pearson’s Quieter Fleet Incentive Program.
GTAA shares intent to introduce incentives around an A320 family retrofit program with airlines

Initiated audit of A320 family aircraft with operators to track retrofit status and future implementation plans

Update

September 2017

April 2019

September 2019

Audit update
Based on the audit, we anticipate that by end of the term of this Action Plan (2022), 90% of A320 family operations at Toronto Pearson by retrofitted aircraft.

These four airlines made up 94% of A320 family operations at Toronto Pearson from January to July 2019, and have committed to retrofitting their A320 family fleet.
A320 Operators at Toronto Pearson - Audit

<table>
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<tr>
<th>Airline</th>
<th>Total Flights Jan-July 2019</th>
<th>Percent of A320 Flights</th>
<th>Retrofit Status</th>
<th>Retrofit Completion Timeline</th>
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<tr>
<td>Air Canada/Rouge</td>
<td>39878</td>
<td>86.3%</td>
<td>41 of 101 (40.6%). However, only 65 will remain in fleet after 2020. Considering this, 63% of aircraft that will remain in fleet after 2020 are currently retrofitted</td>
<td>Remainder of aircraft that will remain in fleet after 2020 will be retrofitted by end of 2021</td>
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<tr>
<td>United Airlines</td>
<td>2122</td>
<td>4.6%</td>
<td>44 of 166 (25%)</td>
<td>Retrofits ongoing</td>
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<tr>
<td>American Airlines</td>
<td>1485</td>
<td>3.2%</td>
<td>189 of 398 (47%)</td>
<td>By end of 2022</td>
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<tr>
<td>Air Transat</td>
<td>1352</td>
<td>2.9%</td>
<td>12 of 16 (75%)</td>
<td>Follow-up ongoing</td>
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<tr>
<td>Interjet</td>
<td>732</td>
<td>1.6%</td>
<td>10 of 51 (20%)</td>
<td>Follow-up ongoing</td>
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Next Steps

• We are encouraged by the commitment to noise management shown by our airline partners

• GTAA will continue to monitor airlines’ progress on A320 family aircraft retrofits

• Expect to finalize and share details of the A320 Compliance and Incentive program with the community in December 2019
DISCUSSION
2. Noise Metrics and Reporting + InsightFull

- Research by the Airport Cooperative Research Program (ACRP) shows that residents affected by aircraft noise want to know:
  - Location of flight paths
  - How many flights are over their areas
  - How traffic levels vary over time
  - How much "respite" do they get

- Residents also want tools to perform their own analysis

- Noise Reports:
  - Develop noise reports from our 25 Noise Monitoring Terminals that will be valuable for the community

- InsightFull:
  - Interactive web-portal will provide residents with customized information about airport operations and impacts
Working with the Neighbourhood Table

- 7 May 2019: Met with Neighbourhood Table Sub-Committee to discuss expectations for Noise Reports
- 28 May 2019: Held workshop with Neighbourhood Table Sub-Committee on the structure and content for the InsightFull web-portal
- 11 July 2019: Presented Noise Report templates to Sub-Committee for feedback
- Fall 2019: Work is underway on InsightFull prototype, and we’ll be reporting back to the Sub-Committee later this year
- Winter 2019: Review sample Noise Reports with Toronto Pearson data with Sub-Committee
- Q1 2020: Launch InsightFull and commence regular noise reporting
Sample Noise Reports

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<th>Avg Sound L (Day)</th>
<th>Avg Sound A (Night)</th>
<th>Avg Sound A (Day)</th>
<th>Number of events above 65 dBA</th>
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</table>

Monthly noise events split by arrival / departure and by day / night – NMT 9

![Graph showing noise events split by month and type](image-url)
InsightFull Site Design
DISCUSSION
3. Terms of Reference

- Terms of Reference updated based on feedback from Neighbourhood Table at June 10 meeting
- Improvements to better reflect the expectations for all parties and the way members want meetings to run
- Final document shared in the July Monthly Update and available online
2019-2020 NMAP Workplan at a Glance

Q4 2019
- Idea 5: Weekend Runway Alternation – Final Analysis and Next Steps
- A320 Compliance Program details
- Launch Community-Proposal Review Process

Q1/Q2 2020
- Launch Trial for Idea 6: Review of the Preferential Runway System
- Launch InsightFull + Quarterly Noise Reports
- School Air Conditioning Pilot Program Update
- External Process Audit – Terms of Reference and RFP
- Fly Quiet Reporting Program Development Metrics Selection
- Continue Review of the Night Flight Restriction Program
DISCUSSION
Other Updates
The Noise Management Office

Torontopearson.com/noisemanagement

416-247-7682
• Visit our Noise Advisory page to stay up to date on upcoming runway closures at [torontopearson.com/en/noiseadvisory](http://torontopearson.com/en/noiseadvisory)

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<tr>
<th>PUBLICATION DATE</th>
<th>ADVISORY NAME</th>
<th>RUNWAYS</th>
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<tbody>
<tr>
<td>March 27, 2019</td>
<td>Runway Maintenance Notice for March 28 to April 3, 2019</td>
<td>06L/24R, 06R/24L, 15L/33R</td>
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<td>March 20, 2019</td>
<td>Runway Maintenance Notice for March 21 to 27, 2019</td>
<td>06L/24R, 15L/33R, 15R/33L, 05/23</td>
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<td>March 13, 2019</td>
<td>Runway Maintenance Notice for March 14 to March 20, 2019</td>
<td>06R/24L, 15L/33R, 15R/33L</td>
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<td>March 6, 2019</td>
<td>Runway Maintenance Notice for March 07 to 13, 2019</td>
<td>05/23, 06R/24L, 06L/24R</td>
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<td>February 28, 2019</td>
<td>Runway Maintenance Notice for February 28 to March 6, 2019 (updated)</td>
<td>06L/24R, 15L/33R, 15R/33L, 05/23</td>
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<td>Runway Maintenance Notice for February 21 to 27, 2019</td>
<td>06R/24L, 15L/33R</td>
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<td>February 18, 2019</td>
<td>Runway Maintenance Notice for February 14 to 20, 2019 (updated)</td>
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<td>February 14, 2019</td>
<td>Runway Maintenance Notice for February 14 to 20, 2019</td>
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<td>Runway Maintenance Notice for February 7 to 13, 2019</td>
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<td>Runway Maintenance Notice for February 1 to 6, 2019</td>
<td>06L/24R, 06R/24L</td>
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<td>January 23, 2019</td>
<td>Runway Maintenance Notice for January 23 to 30, 2019</td>
<td>15L/33R, 15R/33L, 05/23</td>
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<td>Runway Maintenance Notice for January 16 to 22, 2019</td>
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Toronto Pearson Noise Management Forums

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<tr>
<td>Noise Office</td>
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<td>Pearson Open Houses in the community</td>
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<td>Ad hoc meetings as required</td>
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- **Noise Accountability Board**
  - (March 19)
  - (June 18)
  - (Sept 10)
  - (Nov 19)

- **Political Briefing**
  - (April 2)
  - (Dec 3)

- **Neighbourhood Table**
  - (April 3)
  - (Dec 4)

- **Pearson Public Meeting**
  - (April 4)
  - (Sept 26)
  - (Dec 5)

- **Throughout the Year**
  - Pearson Open Houses in the community

- **All Times**
  - Noise Office
  - First Point of Contact

- **Ad hoc meetings as required**
Thank You