A QUIETER OPERATIONS ROADMAP

Six Ideas to reduce noise impacts for our neighbours
Public Engagement Report

JULY 2018

JOINTLY PRESENTED BY:

NAV CANADA

Toronto Pearson

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FOREWORDS

As the operator of Toronto Pearson International Airport, the Greater Toronto Airports Authority (GTAA) recognizes that airports have impacts, such as noise, on local communities. While airport noise can't be eliminated entirely, the GTAA believes that continuous improvements should be studied, discussed and implemented with our neighbours.

We know that as we continue to grow and deliver benefits in the form of jobs and economic development, we need to better manage the impacts of our operations. And we need to step up and lead a process that not only involves our neighbours, but also our industry partners.

Three years ago, in partnership with NAV CANADA, we started studying six ideas to minimize operational impacts on our neighbours. We launched this work in direct response to our neighbours who were clear in their expectations: do more to manage the airport's impact, and get better at addressing community concerns and suggestions.

Over the course of this process, residents have shown their commitment and resolve as they have asked us to do more. They have continued to work with us– helping us scope the ideas, participating in technical briefings along the way, and most recently taking part in our large-scale, seven-week consultation.

This input has guided our work, and we are ready to report back. In the pages that follow, we outline a roadmap that explains how we will deliver on the Six Ideas and ultimately, quieter operations at Toronto Pearson.

The Six Ideas are just one example of how we work at being a good neighbour. From our most recent Noise Management Action Plan, our broad-ranging environmental sustainability programs, and community-building initiatives through our Community Investment Program, to our advocacy work to bring more transit options to the airport, we think as much about where our community is heading as we do about our passengers.

Thank you to everyone who has engaged in the consultation process for the Six Ideas. We look forward to many more meaningful conversations with our neighbours and industry partners as we work towards reducing noise impacts for communities affected by operations at Toronto Pearson.

Hillary Marshall
Vice President
Stakeholder Relations and Communications
Greater Toronto Airports Authority

NAV CANADA is committed to safely managing our country's skies while identifying opportunities to reduce the industry's impact on our communities and the environment.

Whether increasing the use of quieter, Continuous Descent Operations or leveraging technology to reduce overflight of residential areas at night, the ideas discussed during this consultation process are expected to result in real improvements for residents.

NAV CANADA intends to move quickly on the recommendations that follow. But at the same time we know that there is more work to do. We commit to continuing to work together as an industry to reduce noise and other environmental impacts.

Challenging the way of doing things–from new applications of satellite-based navigation technologies, to considering procedures in a new light–have been part and parcel of this process and will continue to shape how we look at opportunities to reduce noise impacts for communities.

Productive engagement with the public has been essential to this process. The Six Ideas reflect community input and, through consultation, residents across the region were provided an opportunity to collectively weigh their merit.

We will continue the dialogue as we work with the GTAA and our industry partners to develop and consider new opportunities and remain committed to effective public engagement.

We extend our gratitude to residents across the region who took the time to learn about our proposals and to share their feedback. Thank you for exploring these Six Ideas with us and for challenging us to be better neighbours.

Rudy Kellar
Executive Vice President, Service Delivery
NAV CANADA

INTRODUCTION

Toronto Pearson is more than an airport—it is one of Canada's vital economic engines. At a national level, it creates jobs, drives economic growth, and supports immigration. More locally, it builds healthy, prosperous communities, and it gives residents of the Greater Toronto Area (GTA) a chance to discover new experiences and opportunities around the globe.

Nearly 49,000 people are directly employed by 300+ organizations operating at Toronto Pearson. Additionally, hundreds of thousands of Southern Ontarians and neighbouring community members enjoy benefits made possible by the connectivity the airport provides. Toronto Pearson also boosts the productivity of industries across the country by linking Canadian firms with vibrant markets, commercial partners, and investors worldwide. As the airport evolves into a top-tier global hub, it is expected to connect Canada to more than 80 per cent of the global economy—creating more jobs, fuelling exports, and attracting foreign investment.

While there are many benefits of Toronto Pearson's growth, it can have an impact—especially on surrounding communities. Being responsible members of the aviation and local community means listening to different voices on aircraft noise and better understanding how our operations potentially impact individuals in their homes and throughout their daily lives.

In June 2015, the GTAA and NAV CANADA began conversations with communities across the GTA to explore noise mitigation ideas. These conversations led to the creation of the Toronto Noise Mitigation Initiatives Engagement Plan, commonly known as the Six Ideas.

The Six Ideas represent a three-year collaborative effort between our two organizations—with extensive input from our neighbours—to study and pursue new means of providing noise relief to the communities affected by Toronto Pearson's operations.

Toronto Pearson is located in the heart of a densely populated urban region. Conversations about opportunities to provide noise relief or minimize the total number of people impacted by aircraft noise needed to involve the communities surrounding the airport each step of the way.

With this in mind, NAV CANADA and the GTAA committed to an extensive public outreach and consultation process for the Six Ideas. We wanted to make sure residents had the opportunity to learn about our proposals and to participate in the dialogue. Information about the Six Ideas and the consultation period reached more than 2.9 million people through multiple communications channels, from online surveys, technical briefings, to sitting down and speaking one-on-one with a NAV CANADA air traffic controller about aircraft operations. Between March 3 and April 20, 2018, more than 430 residents attended meetings held across the region, and more than 900 residents provided feedback.

This public engagement report provides an overview of each of the Six Ideas and their benefits and impacts, summarizes what we heard over the seven week period from residents who engaged with us, and shares our roadmap to delivering some of the benefits we have been discussing.

NAV CANADA

Toronto Pearson

MEETING THE DEMAND FOR AIR TRAVEL

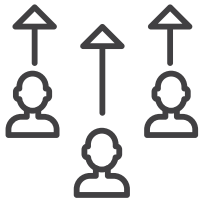
Over the next three decades, Ontario is set to experience significant growth—its population will reach 15 million and its GDP will double reaching $1.1 trillion. This means that regional demand for air travel is on the rise.

By 2037, passenger traffic is expected to increase at an annual rate of 3.1 per cent from the current 47 million to 85 million.

Over the same period, aircraft movements are projected to increase at a lower rate than passenger traffic, at 1.5 per cent per year from 478,000 to 632,000 movements.

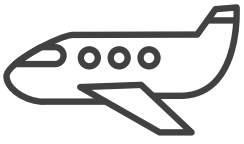
The two growth rates are different because of an industry-wide shift to larger, high-density, and more fully occupied aircraft.

WHAT FACTORS INFLUENCE TORONTO'S PASSENGER TRAFFIC GROWTH?



POPULATION

ECONOMY



AIR TRAVEL DEMAND

GLOBAL HUB

ADDRESSING AIRCRAFT NOISE FOR RESIDENTS

NAV CANADA and the GTAA have each produced a number of recent studies and reports related to noise mitigation:

NAV CANADA

Independent Toronto Airspace Noise Review
In summer 2016, NAV CANADA announced a review of Toronto airspace, to determine whether all reasonable actions to reduce aircraft noise were being considered with respect to design and operation of the Toronto area airspace for aircraft operating in and out of Toronto Pearson.

NAV CANADA Response to Independent Toronto Airspace Noise Review
This document outlines NAV CANADA's response to the recommendations of the Independent Toronto Airspace Noise Review and provides information on implementation plans and timelines.

GTAA

Noise Management Program Benchmarking and Best Practices Study
As part of the 2016 deliverables for the Five-Year Noise Management Action Plan, the GTAA benchmarked Toronto Pearson's Noise Management Program against similar airports to identify potential new programs or initiatives to pursue.

Residents' Reference Panel Report on Airport Growth and Noise Fairness
In 2017, the GTAA conducted an outreach and consultation program on Airport Growth and Noise Fairness, including a Residents' Reference Panel. These conversations resulted in a set of Values and Guiding Principles, co-created with the community, to guide the GTAA's decisions and ensure the community voice is reflected in the choices the airport makes.

Growing Responsibly: 2018–2022 Noise Management Action Plan
Following a two-year process that included extensive community engagement, the GTAA released an updated Noise Management Action Plan that outlines ten new commitments related to consultation, environmental responsibility, operational changes, monitoring and reporting aircraft noise, and industry collaboration.

THE SIX IDEAS

OVERVIEW

The Six Ideas consultation was launched as a three-phase plan that included community feedback from conception to completion.

PHASE 1:
STAKEHOLDER ROUNDTABLES (SUMMER 2015)

PHASE 2:
TECHNICAL ANALYSIS (2015–2017)

PHASE 3:
PUBLIC CONSULTATION (2018)

PHASE 1: STAKEHOLDER ROUNDTABLES

NAV CANADA and the GTAA hosted a series of eight Stakeholder Roundtable discussions with small groups of highly engaged community members in July and August 2015. Attendees included leaders of local community associations and groups, elected officials, and the GTAA's Community Environment and Noise Advisory Committee (CENAC) members. Feedback from the Stakeholder Roundtable discussions helped shape the process, criteria for decision-making, and next steps.

PHASE 2: TECHNICAL ANALYSIS

Each idea underwent technical analysis to determine the benefits and impacts for local communities and feasibility, given the demand forecast for Toronto Pearson.

The technical analysis focused on:

- Understanding the base case using 2015 air traffic data
- Identifying future option cases
- Feasibility analysis of the option cases against the base case, including projected traffic levels, fleet mix, and fleet equipage, completed by a third-party, independent consultant
- Noise Modelling for each option case against the base case to understand any potential noise benefits and impacts, completed by a third-party, independent consultant

In May 2016, Stakeholder Roundtable participants were invited to attend a briefing for a Phase 2 progress update. The feedback from the technical briefing session helped finalize options for the next steps in the Technical Analysis. Technical analysis of each idea was completed in late 2017.

PHASE 3: PUBLIC CONSULTATION

Communications and outreach for the Six Ideas began in February 2018. Multiple communications through a variety of stakeholder networks, digital, and print channels reached more than 2.9 million people.

The official comment period for the public consultation ran over seven weeks from March 3 to April 20, 2018, and offered several different options to provide input. More than 430 people attended 15 public meetings throughout the region. Feedback was received from more than 900 people through a survey. Paper copies of the survey were given to participants at public meetings, and the survey was available online at **torontopearson.com/conversations** for the duration of the consultation period.

> I think this proposal when initiated will be an excellent start to addressing airplane noise."
>
> *–Six Ideas Consultation Survey Respondent*

PROPOSALS, FEEDBACK, AND NEXT STEPS

Idea

01

NEW NIGHTTIME APPROACHES

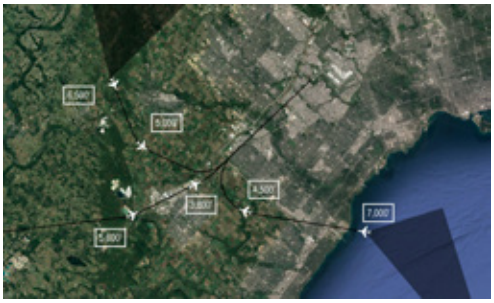
While traffic levels are significantly lower at night than during the day, aircraft noise events can be more noticeable for some residents during these periods as ambient community and household noise levels are typically lower.

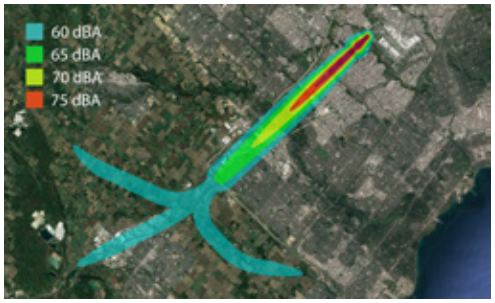
Lower demand and fewer aircraft in Toronto Pearson's airspace at night provide the opportunity to employ routes that impact fewer people.

WHAT WAS PROPOSED

NAV CANADA proposed leveraging satellite-based navigation technology, known as Area Navigation (RNAV), to design new nighttime approaches that better avoid residential areas. Nighttime approaches will be used between the hours of 12:30 a.m. and 6:30 a.m. If possible, usage would start earlier; however, use would be limited to very low traffic periods overnight as these approaches require relatively low traffic levels to be operationally feasible. Spikes in traffic increase complexity and require other approach types to be used. Weather conditions and poor visibility—when pilots will need to use an Instrument Landing System—will also affect utilization. While approaches have been developed for all runways, some would see low usage given that the nighttime preferential runways are in place at Toronto Pearson.

The figures below show, a sample of flight tracks as flown on a recent day, a composite of the proposed flight paths, and a composite of the associated noise footprint for Runway 23.





EXPECTED BENEFITS AND IMPACTS

The new procedures were designed to enable continuous descent and therefore would enable aircraft to be higher on portions of the approach compared to procedures that require aircraft to employ low altitude level segments as they approach the airport. They have been designed to reduce overflight of residential areas where possible in order to reduce the noise impacts. Noise modelling analysis has resulted in the following estimated reduction in population overflown for each runway.

RUNWAY	PERCENTAGE CHANGE in population overflown at greater than 60 dBA* *(depending on the transition flown)*
23	-8% to -44%
24 L/R	-10% to -24%
05	-7% to -22%
06 L/R	-2% to -30%

* Based on the modelled noise footprint of a 737-800 aircraft.

On average, there are approximately 40 arrivals per night over the period the nighttime arrival procedures would be in use. Those flights would be further distributed between the multiple approaches to each runway, depending on where aircraft are arriving from.

*Visit **torontopearson.com/conversations** for more in-depth analysis and resources.*

SUMMARY OF WHAT WE HEARD

At consultation meetings in some areas affected by nighttime air traffic, there was support for the proposed night RNAV designs and efforts to move night operations over non-residential areas where possible. However, it is acknowledged that for many residents on final approach their experience following the implementation of the new procedures will be comparable to today. Residents at meetings in Georgetown, Leaside, Oakville and Vaughan were particularly supportive.

A total of 481 respondents provided full or partial feedback through the survey tool on Idea 1. Approximately 55 per cent of question respondents indicated that they support the idea of different nighttime arrivals while 17 per cent indicated that they were neutral and 28 per cent were opposed to the idea. When asked if the proposal would result in benefits for surrounding communities overall, responses were almost evenly split between the expectation that there will be improvements (35 per cent) and that there won't be improvements (32 per cent) and not being certain (33 per cent).

Respondents were asked to indicate whether they expected aircraft noise to increase or decrease *at their specific location* as a result of Idea 1. Of

463 respondents who answered, approximately 42 per cent indicated that they expected noise to increase at their location while 28 per cent expected it to decrease and 29 per cent expected it to remain the same. Analysis shows that respondents from Etobicoke, Mississauga, Brampton, Toronto and Oakville were more likely to expect noise to increase. Some residents expected increases in aircraft noise despite there not being any anticipated changes in their area. For instance, the proposed redesign of nighttime approach procedures does not positively or adversely affect Etobicoke; however, many residents in this area expressed opposition to the idea. It appears that many who indicated that they expect overnight noise to increase were expressing a concern about increases in traffic volume over time.

For more detail on survey responses and analysis, please see Appendix C: Feedback and Survey Analysis available at ***torontopearson.com/conversations***

NEXT STEPS

Given positive feedback overall and anticipated benefits for many residents surrounding Toronto Pearson, the implementation of new nighttime approach procedures will proceed. NAV CANADA will work towards an implementation in fall 2018, at which point the procedures will be published in the Canada Air Pilot 4.

As part of the follow-up process under the Airspace Change Communications and Consultation Protocol, NAV CANADA will complete a Post-Implementation Community Impact Assessment. This assessment takes place approximately six months following the implementation of changes.

Idea

02

NEW NIGHTTIME DEPARTURES

Aircraft departures at night can also be more noticeable for some residents 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 departure procedures that better avoid populated areas and impact fewer people.

WHAT WAS PROPOSED

NAV CANADA proposed a mix of strategies to provide better departure routings. These include changing the location where aircraft turn towards their destination—either by increasing the required altitude they must reach before turning, or identifying an optimized location for their turn. Nighttime departure procedures will be used between the hours of 12:30 a.m. and 6:30 a.m. If possible, usage would start earlier, but use is limited to low traffic periods.

EXPECTED BENEFITS AND IMPACTS

New proposed nighttime departures have been optimized to avoid more households than a typical departure that is flown today. Opportunities to overfly industrial or greenspace were identified. Depending on the specific runway, strategies include either delaying the point at which an aircraft turns by increasing the required altitude they must reach before turning, or identifying an optimized location for their turn. There are on average six departures overnight. While the frequency of departures is low, they can be more noticeable because of the higher thrust settings. The following table shows the estimated reduction in homes overflown for each proposed departure when compared to a typical, sample departure.

RUNWAY	PERCENTAGE CHANGE in population overflown at greater than 60 dBA*
05 to east	-39%
05 to west	+6% (-20% decrease at 65 dBA)
23 to east	-67%
23 to west	-54%

* Based on the modelled noise footprint of a 737-800 aircraft.

*Visit **torontopearson.com/conversations** for more in-depth analysis and resources.*

SUMMARY OF WHAT WE HEARD

Night departure routings are not a significant concern in many communities because of the low number of departures that occur at night. Residents attending consultation meetings in locations west of the airport were generally supportive of efforts to ensure that departing aircraft turns occur at higher altitudes beyond residential areas.

A total of 464 respondents provided full or partial feedback through the survey tool on the subject of new nighttime departure procedures. Approximately 51 per cent of respondents viewed the initiative positively, indicating that they support the idea. Close to 28 per cent indicated that they do not support the idea of different nighttime departure procedures while just over 21 per cent indicated that they neither support nor oppose the idea. When asked if the proposal would result in benefits for surrounding communities overall, responses were balanced between the expectation that there will be improvements (31 per cent), that there won't be improvements (33 per cent) and uncertainty (36 per cent).

Close to 41 per cent of respondents indicated that they expected the proposed departures to increase noise over their specific area. Meanwhile, 29 per cent felt that it would stay the same and another 29 per cent felt that the procedures would result in a decrease. As with Idea 1 it appears that some of those expressing expectations of increased noise are concerned about overnight traffic growth.

*For more detail on survey responses and analysis, please see Appendix C: Feedback and Survey Analysis available at **torontopearson.com/conversations***

NEXT STEPS

While the proposal affects a very small portion of the airport's traffic, it aims to deliver benefits during the overnight period when community ambient noise levels are lowest. On balance, there appears to be support for the idea accompanied with some expectation that noise exposure will increase for some. As a result of this balanced feedback, implementation of new nighttime departure procedures will proceed in fall 2018.

As with all of the ideas, NAV CANADA is committed to following up after implementation to report on operational usage, associated noise complaints, and other relevant factors with a Post-Implementation Community Impact Assessment.

Idea

03

INCREASED SPEED ON THE DOWNWIND— *IMPLEMENTED*

Changes to the published speeds on the downwind portion of the arrival flight path from 200 knots to 210 knots were implemented effective April 27, 2017 via an amendment to the Canada Air Pilot, the aeronautical publication used by pilots that includes all flight procedures for Toronto Pearson. This change in speed restriction is intended to reduce noise in some areas of the city by decreasing the need for flap use by pilots of larger aircraft needing to slow their airspeed as they approach the airport.

As this idea had been raised as part of the Six Ideas in 2015, we used the public outreach to communicate that it has been actioned. No further action is planned.

Idea

04

INCREASE QUIETER CONTINUOUS DESCENT OPERATION

In busy airspace such as that surrounding Toronto Pearson, level flight segments can be necessary to safely manage traffic flows. In order to keep aircraft at a level altitude, pilots must increase thrust and drag which can create more noise. Increasing the use of Continuous Descent Operations will enable more aircraft to operate in a quieter flight profile on approach.

WHAT WAS PROPOSED

NAV CANADA is proposing to leverage satellite-based navigation technology, known as Area Navigation (RNAV), to design new transitions to the final approach that provide for continuous descent. In some cases, the RNAV procedures will enable "shortcuts" to the final approach to the runway that reduces use of the downwind portion of the existing flight path. These approaches can be used during daytime and evening periods when traffic is relatively light. Usage will depend on capacity demands and tactical sequencing requirements; a relatively small proportion of traffic will be cleared to use these approaches. Busy traffic periods at Toronto Pearson require use of a high-low procedure to ensure safe separation between aircraft and use of the new approaches would be precluded. The approaches for Runways 15 and 33 would also be used as nighttime approaches, as the base leg portion of the approaches are already outside the boundaries of the residential area.

EXPECTED BENEFITS AND IMPACTS

Continuous descent approaches are the quietest type of approach, offering noise reductions between 1 and 5 decibels depending on the phase of flight. A reduced noise footprint from continuous descent results in fewer households overflown at noise levels above 60 dBA. The following table shows the estimated reduction in population impacted at specific noise levels for composite approaches to each runway, assuming the usage of common downwind and base legs.

RUNWAY	**PERCENTAGE CHANGE in population overflown at greater than 60 dBA*** *(depending on the transition flown)*
23	-5% to -8%
24 L/R	-10% to -14%
05	-1% to -7%
06 L/R	-6% to -13%
15L	-7%
15R	-2% to -12%
33L	-8% to -30%
33R	-4% to -30%

* Based on the modelled noise footprint of a 737-800 aircraft.

In addition to reducing the noise footprint of some aircraft, the new RNAV transitions will make it easier for air traffic controllers to enable "shortcuts" to the final approach, which reduces the use of the downwind portion of the existing flight path during quiet traffic periods.

Some communities under the base leg portion of the flight path may experience increased regularity of aircraft passing overhead. As this type of approach will allow more aircraft to "short-cut" the final approach, areas under the downwind may experience less traffic while other areas may experience more.

It should also be noted that this change was a recommendation of the Independent Toronto Airspace Noise Review by Helios following consultation and study of various measures to reduce noise impacts (Recommendation 3C and 6A).

SUMMARY OF WHAT WE HEARD

Of the three ideas that involve flight path changes (i.e. Ideas 1, 2 and 4), Idea 4 received the highest level of support. Close to 80 per cent of 459 respondents that provided full or partial feedback were either supportive or neutral as it relates to increasing use of continuous descent operations during quiet periods; 59 per cent indicated they are supportive while 20 per cent were neutral. Close to 20 per cent did not support the idea of increasing the use of continuous descent.

When respondents were asked if they expect the proposal to result in an increase or decrease to their noise exposure, close to 39 per cent expect an increase, 32 per cent expect it to stay the same while close to 29 per cent expect it to decrease.

For more detail on survey responses and analysis, please see Appendix C: Feedback and Survey Analysis available at ***torontopearson.com/conversations***

NEXT STEPS

With the potential to bring aircraft higher on the existing downwind track, this change is viewed as a net benefit for communities exposed to this stage of flight. While the base leg portion—which is amongst the existing traffic distribution—will bring some repeatability, it will also enable aircraft to approach at a higher altitude.

Upon review of the public feedback received, the implementation of new RNAV approach procedures to enable increased use of continuous descent will proceed as proposed—targeting an implementation date in early 2019. Changes will be published in the Canada Air Pilot 4.

As with all of the ideas, NAV CANADA is committed to following up after implementation to report on operational usage, associated noise complaints, measured noise levels as part of the Post-Implementation Community Impact Assessment.

Idea

05

SUMMER WEEKEND RUNWAY ALTERNATION PROGRAM

Many top-tier international airports provide residents with predictable respite from aircraft noise by rotating runway usage. The practice of runway rotation is most common when traffic levels are lower and the runways can be operated with greater flexibility.

A program like this at Toronto Pearson could provide residents throughout the GTA with some predictable relief during low-traffic periods.

As part of the technical analysis, we looked at two operational concepts: first, a program involving all runways (dedicated east/west or dedicated north/south), and the second, a program involving only the east/west runways.

Both concepts were reviewed with the same criteria to determine viability.

Any potential program must:

- adhere to a published schedule; the program would alter from the schedule only when operations would need to alter due to wind, weather or runway availability;
- maintain its ability to meet capacity requirements in terms of hourly arrival and departure demand; and
- consider the values and guiding principles provided by the Residents' Reference Panel.

A program that includes all runways was not feasible as north/south runway operations have capacity limitations that would not meet traffic demand. However, a program with only the east/west runways was deemed feasible.

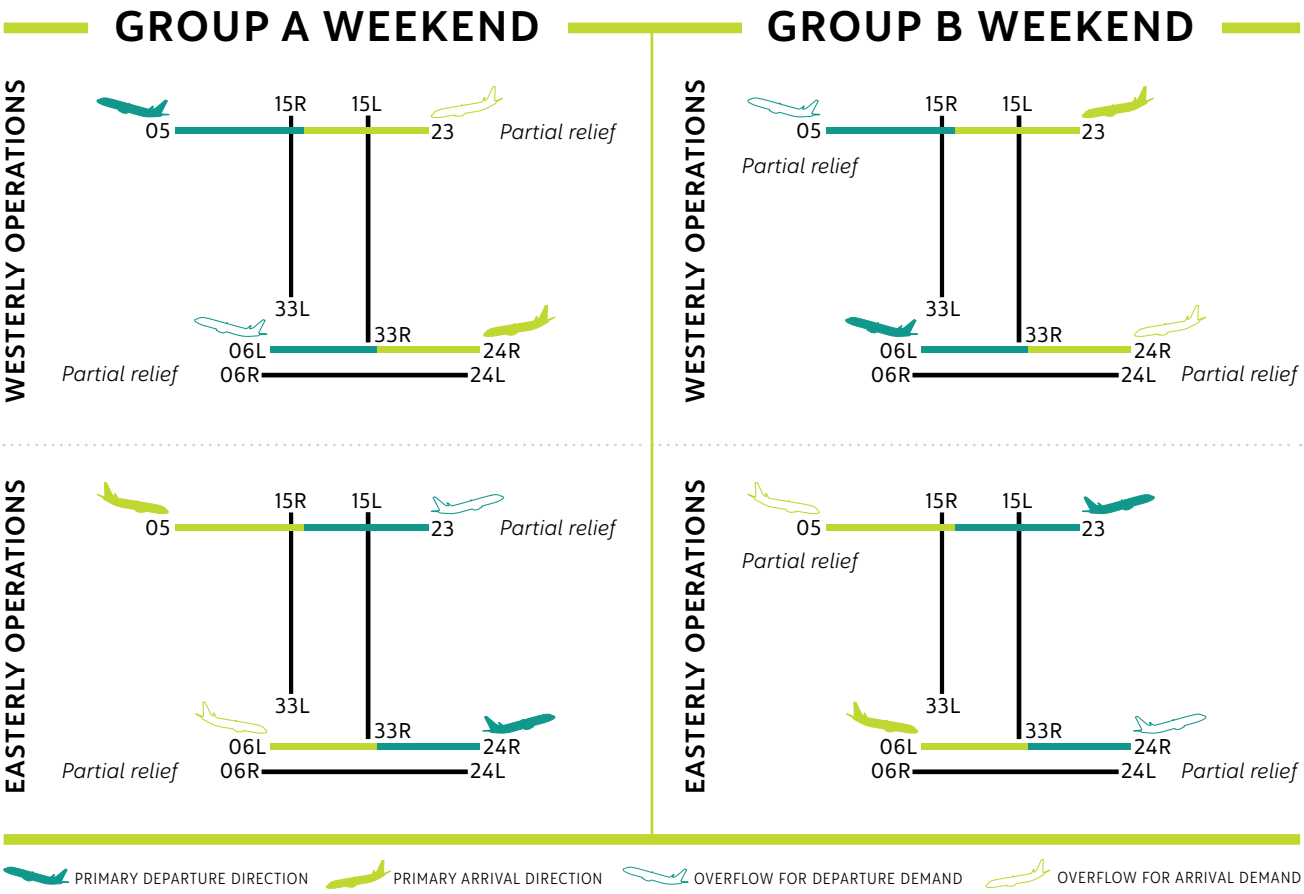
WHAT WAS PROPOSED

Based on an east/west operation, the proposed summer weekend runway alternation program will:

- run from May to October (26 weekends)—this could mean full or partial respite on 13 weekends over the summer, when residents are outdoors, or are more likely to open their windows;
- run from 6:30 a.m. to 11:59 p.m. outside of nighttime preferential runway hours;
- publish a reliable schedule, with up to 98 per cent certainty (based on historical wind information) as to which weekends residents can expect relief; and
- provide predictable noise reduction to communities under the east/west final approach and initial departure paths.

Please note:

- the proposed summer weekend runway alternation program will not provide respite to communities under the east/west downwind segments;
- all three east/west runways may be required to accommodate traffic during busier periods on the weekend, i.e. when a triple operation is required;
- the north/south runways are not included in the program, but like always, will be used if the weather conditions or safety dictates a change in operations. Runway selections are always reliant on safety and weather related factors.



EXPECTED BENEFITS AND IMPACTS

Over the course of the 26 weekends, the program would more evenly distribute the departures and arrivals across the runways.

Communities to the **northwest and southeast** may see a potential percentage decrease in operations overhead during the program weekends. Additionally, these communities will also benefit from some weekends of respite.

Communities to the **northeast and southwest** will potentially experience increased operations overhead during the program weekends. Given the lower overall traffic levels in the summer, it is likely that any increase would only be incremental and not significantly change the current experience in these communities. These communities will also benefit from some weekends of respite.

Again, while the north/south runways are not included as part of the program, these runways will continue to be used as they currently are (as required when wind, weather, or runway availability dictates).

*Visit **torontopearson.com/conversations** for more in-depth analysis and resources.*

SUMMARY OF WHAT WE HEARD

A total of 475 respondents provided full or partial feedback through the survey on Idea 5–Summer Weekend Runway Alternation Program.

Approximately 33 per cent of feedback for Idea 5 was submitted by respondents in communities south of the airport. The Idea 5 proposal does not include the north/south runways, and residents living south of the airport will not experience a change. Therefore, analysis of Idea 5 survey questions excludes the feedback from residents south of the airport.

Analysis of the remaining feedback shows that 26 per cent of respondents believe that a summer weekend runway alternation program would positively benefit them, while the rest of the respondents were comparably split between a belief that such a program would have a negative impact (35 per cent) or were unsure about the impacts or benefits to their neighbourhoods (39 per cent).

Three questions posed about Idea 5 were centred around the concept of noise fairness and the willingness to accept more frequent air traffic in order to receive predictable respite. There was a strong correlation between responses on these questions. If a resident was unwilling to accept more frequent air traffic on some weekends to provide respite for themselves on alternating weekends, they were also unlikely to accept more frequent air traffic to provide respite for others and did not believe that an every-other-weekend trade off was worth it. The majority of respondents were not willing and did not believe a trade off was worth it (55 per cent) or were somewhat willing but unsure about the benefits of a trade off (30 per cent).

However, when respondents were directly asked if they object to a test of a summer weekend runway alternation program, the majority of respondents did not oppose (52 per cent).

*For more detail on survey responses and analysis, please see Appendix C: Feedback and Survey Analysis available at **torontopearson.com/conversations***

NEXT STEPS

Feedback provided through the Six Ideas survey tool regarding Idea 5–Summer Weekend Runway Alternation program is mixed.

The Residents' Reference Panel discussed noise sharing specifically and recommended that the GTAA should only pursue a noise sharing program if respite afforded to communities is meaningful and predictable. Idea 5—Summer Weekend Runway Alternation Program is, in essence, a noise sharing program. The technical analysis of the Idea 5 proposal predicts an operational adherence rate of 98 per cent, which the GTAA considers both predictable and meaningful.

Testing

The Idea 5—Summer Weekend Runway Alternation Program test will run from July to September 2018.

The GTAA will proceed with a test of Idea 5. The test will validate the technical analysis prediction and include opportunity for the community to confirm if the program meets its standards for meaningful and predictable respite.

The duration of the test will allow sufficient time for operational data collection, including data through differing weather conditions. It will also afford the community time to fully experience the program, which will better inform their feedback.

Information about the Idea 5 test, including the schedule, benefits and impacts, and how to provide input throughout the testing period will be made available online at ***torontopearson.com/conversations***

A final decision about the permanent implementation of a summer weekend runway alternation program will follow the testing and assessment of community feedback.

06

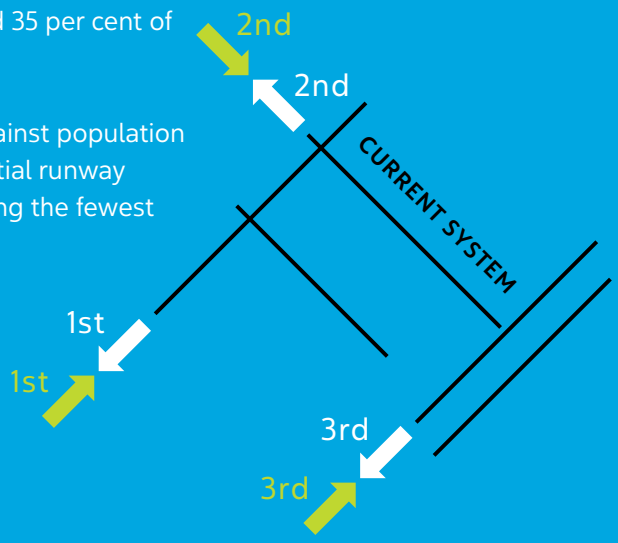
NIGHTTIME PREFERENTIAL RUNWAY REVIEW

The GTAA's Noise Management Program Benchmarking and Best Practices Study found that many major international airports have a preferential runway program aimed at overflying the least populated areas.

Toronto Pearson has a preferential runway system from midnight to 6:30 a.m. with the objective of flying over the fewest number of people possible during these hours when noise is considered more bothersome. The preferential runway system was implemented in the 1970s, and since then, the population around the airport has changed and additional runways have been built.

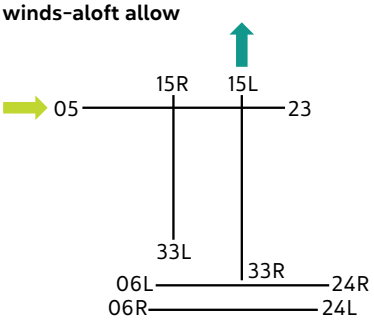
Based on 2015 statistics, communities impacted by Runway 23 departures Runway 05 arrivals received about 55 per cent of departures and 35 per cent of arrivals during the preferential runway hours.

The technical analysis studied various runway configurations against population and noise modeling data. It concluded that the current preferential runway system needed to be updated to meet the objectives of overflying the fewest number of people possible.

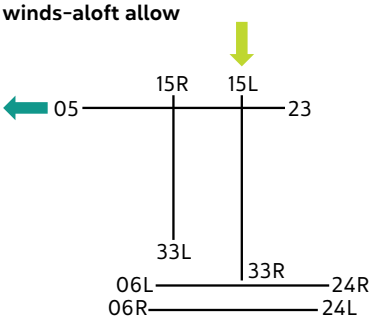


RECOMMENDED NIGHT PREFERENTIAL RUNWAYS

1ST CHOICE:
Whenever crosswind, tailwinds & winds-aloft allow

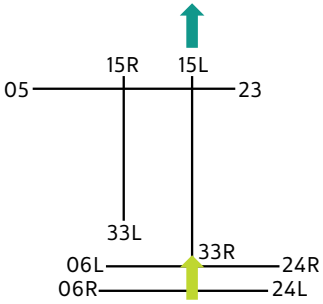


2ND CHOICE:
Whenever crosswind, tailwinds & winds-aloft allow

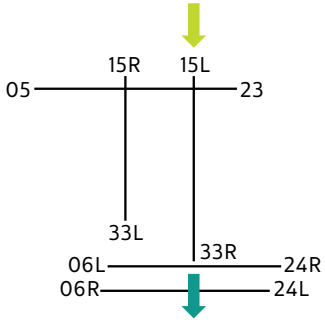


Selection driven by weather conditions and infrastructure availability when 1st or 2nd choice are not operable. Ultimately any single or pair of runways can be used.

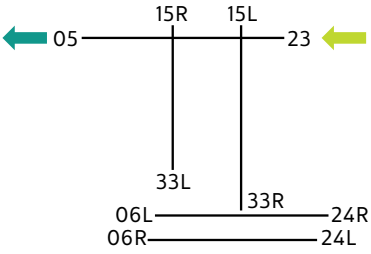
Operation for
NORTHERLY WIND



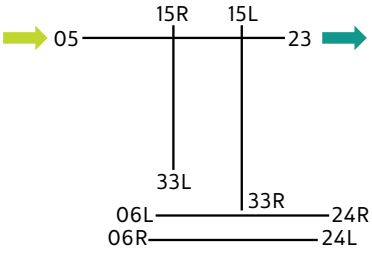
Operation for
SOUTHERLY WIND



Operation for
WESTERLY WIND



Operation for
EASTERLY WIND



WHAT WAS PROPOSED

The proposed preferential runway system will:

- minimize the total population impacted by aircraft noise at night;
- enable more consistent use of runways identified as the preferential runways;
- provide alternatives for into the wind configurations for each direction; and
- provide residents with greater clarity on preference runway pairings.

Combined with Ideas 1 and 2 (new nighttime arrival and departure paths) the new system will minimize the total population impacted by an average noise (Lnight) of over 45 decibels (dBA). The threshold of 45 dBA was selected because it would likely be difficult to distinguish it from ambient noise in an urban environment at night. Anything above that level could be considered a disturbance because it is higher than the background noise.

EXPECTED BENEFITS AND IMPACTS

The proposed changes to the preferential runway system will minimize the population affected by nighttime aircraft noise and provide residents with more clarity on which runways will be used under which conditions.

As is the case today, non-preferential runways may be used when required by weather, wind, or runway availability.

Communities in the north

- May see increased traffic as Runway 33R will be the first choice for departures, and Runway 15L will be the second choice for arrivals.

Communities in the northeast

- Residents impacted by Runway 23 arrivals or Runway 05 departures will continue to experience night flights as they currently do because these operations are frequently required for wind-dictated reasons.

Communities in the northwest

- May see an increased traffic as Runway 05 will be the first choice for arrivals, while Runway 23 will be the second choice for departures.
- A test of the new preferential runway system would enable us to gather data on how it will compare to historical use to better understand the actual impacts.

Communities in the south

- Departures to the south or arrivals from the south will continue to be used when required by winds or when a preferential runway is unavailable, for example, due to maintenance work.

Communities in the southeast

- Runway 24R arrivals and Runway 06L departures are not part of the preferential runway system, but may be used if other runways are unavailable, for example during maintenance work.
- Residents in the area impacted by Runway 23 arrivals or Runway 05 departures may continue to experience night flights as in the past.

Communities in the southwest

- Runway 06L arrivals and Runway 24R departures will no longer be a part of the preferential runway system, though they are rarely used today.
- Residents will likely see a similar amount of traffic, as these runways may be used at times if other runways are unavailable, for example during maintenance work.
- Residents in the area impacted by Runway 05 arrivals or Runway 23 departures may continue to experience night flights as in the past.

*Visit **torontopearson.com/conversations** for more in-depth analysis and resources.*

SUMMARY OF WHAT WE HEARD

A total of 477 respondents provided full or partial feedback through the survey on Idea 6—Nighttime, Preferential Runway System Review.

Respondents were asked about their experience with aircraft noise at night. Approximately 71 per cent of the respondents indicated that they were impacted by night flights almost every night or were often impacted by night flights. The remaining 29 per cent were rarely impacted or were not bothered at all by night flights.

As Idea 6 is also designed to improve reporting on the effectiveness of the preferential runway system, residents were asked whether they believed this type of reporting would be beneficial to them.

Of the 461 respondents to this question, a majority agreed that this would be beneficial to them (56 per cent), whereas the remaining respondents were split between the belief that the reporting would not be beneficial (23 per cent) or were uncertain of the benefits (22 per cent).

Analysis shows that 21 per cent of respondents believe that the proposed preferential runway system would positively benefit them, while 43 per cent believed that such a program would have a negative impact, and 43 per cent were unsure about the impacts or benefits to their neighbourhoods.

However, when residents were directly asked if they object to a test of the proposed preferential runway system, 50 per cent of respondents did not oppose, while 37 per cent objected to a test program, and 13 per cent indicated that they were uncertain.

For more detail on survey responses and analysis, please see Appendix C: Feedback and Survey Analysis available at ***torontopearson.com/conversations***

NEXT STEPS

As part of the Growing Responsibly: 2018-2022 Noise Management Action Plan, the GTAA has committed to exploring enhancements to the existing Night Flight Restriction Program. The proposed changes to the preferential runway system will minimize the population affected by nighttime aircraft noise.

The GTAA will proceed with the test program of Idea 6 that will follow the implementation of NAV CANADA's new nighttime arrival and departure procedures (Ideas 1 and 2).

Testing

The Idea 6—Preferential Runway System Review test is anticipated to take place from late 2018 to mid 2019.

The test duration will allow sufficient time for operational data collection, including through differing weather conditions. It will also afford the community time to fully experience the program.

The GTAA and the Residents' Reference Panel co-created guiding principles that included the importance of clear communications and information sharing with the communities impacted by airport operations. As part of the proposed test, the GTAA will regularly report on Idea 6 test effectiveness.

Information about the Idea 6 test, including benefits and impacts, will be made available online at ***torontopearson.com/conversations***

A final decision about the permanent implementation of the new preferential runway system will follow the testing.

PUBLIC

CONSULTATION

OVERVIEW

NAV CANADA and the GTAA committed to a public participation process that provided the community with factual, accurate information and the opportunity to provide input before any major change is implemented.

As the Six Ideas had the potential to result in flight path and runway utilization changes, the Airspace Change Communications and Consultation Protocol was used as a base for the consultation approach.

2.9 M
Print Advertisements Circulated

250K
Social Media Advertisements Viewed

8,761
Unique Website Views

18,400
E-newsletter Subscribers Reached

166K
Households Notified by Phone

177
Elected Officials Engaged

23
Community and Stakeholder Groups Invited

4
Briefings with Government Leaders and Community Groups

15
Public Meetings Were Hosted in the Greater Toronto Area

430
Residents Representing 27 Communities Attended the Consultations

BRIEFINGS AND EVENTS

ELECTED OFFICIALS

Elected officials are advocates for their communities and an important stakeholder in the Six Ideas consultation. NAV CANADA and the GTAA engaged elected officials to inform, review, and advise on the Six Ideas and the potential benefits and impacts to the communities they represent.

NAV CANADA and the GTAA also looked to them for advice on outreach to community leaders and groups, and assistance with circulating information to their constituents using their own communication vehicles.

In total, 177 elected officials were provided notice in advance of the consultation period and were regularly updated during the consultation period. The breakdown of the elected officials includes:

- 40 Federal Members of Parliament and Ministers
- 26 Members of Provincial Parliament
- 45 City of Toronto Councillors including the Mayor
- The Chair of Peel Region
- 10 Brampton Councillors including the Mayor
- 12 Mississauga Councillors including the Mayor
- Chair of Halton Region
- Mayor of Burlington
- 10 Halton Hills Councillors including the Mayor
- 10 Milton Councillors including the Mayor
- 12 Oakville Councillors including the Mayor
- 9 Vaughan Councillors including the Mayor

Elected officials were also invited to attend an in-person briefing hosted by NAV CANADA and the GTAA in Ottawa on February 26, 2018 and/or a webinar on February 27, 2018 in advance of the first consultation on March 3, 2018.

Additionally, all regional elected officials received email updates. Many shared the general updates to their broader constituency through their own email lists and websites, helping grow the outreach process.

*For more detail on emails sent to elected officials, please see Appendix D: Communications available at **torontopearson.com/conversations***

COMMUNITY AND STAKEHOLDER GROUPS

Outreach to engaged community stakeholders was made prior to the commencement of the public consultation. This audience included stakeholders who were originally part of the 2015 Stakeholder Roundtables, CENAC members, and representatives of new community groups that had formed since 2015.

- Alderwood Airplane Noise
- Ardwold Gate Ratepayers' Association
- Better Flight Paths
- Bloor West Village Residents' Association
- Casa Loma Residents' Association
- Community Alliance for Air Safety (CAAS)
- Don Mills Residents Inc.

- Helena and Wychwood Residents' Association
- Hillcrest Residents' Association
- Iroquois Ridge Residents' Association
- Lawrence Park Ratepayers' Association
- Leaside Property Owners' Association
- Lytton Park Residents' Organization
- Markland Wood Homeowners' Association
- Mississauga Oakridge Ratepayers' Association
- Neighbours Against the Airplane Noise
- Residents' Aviation Noise Group Oakville
- Rockwood Homeowners' Association
- South Eglinton Ratepayers' and Residents' Association
- South Hill District Homeowners' Association
- St. Andrew's Ratepayers' Association
- Thompson Orchard Community Association (TOCA)
- Toronto Aviation Noise Group (TANG)

Groups listed above were invited to two technical briefings in advance of the public consultation. A total of 12 community representatives attended the briefings.

The GTAA and NAV CANADA encouraged community and stakeholder groups to share consultation information through their communications channels to raise awareness and to promote attendance at the public meetings in their respective neighbourhoods. Information provided included links to the consultation website and information on meeting locations, dates and times, copies of consultation materials, and copies of advertisements that could be included in their own communications.

For more detail on emails sent to engaged stakeholders and community groups, please see Appendix D: Communications available at ***torontopearson.com/conversations***

GTA RESIDENTS

NAV CANADA and the GTAA made significant efforts to engage community members across the GTA who could potentially be impacted by the Six Ideas.

Website

In March 2018, **torontopearson.com/conversations** was launched and also served as a platform to collect feedback. The website included the background, the results of the Technical Analysis, and the current proposals for each idea. All consultation materials were shared online, and all communications tools directed residents to the website to provide their feedback through the survey.

Open Houses

A total of 15 public meetings were held in communities specifically chosen based on their potential to see change from the Six Ideas. They included:

- 2 full-day Saturday meetings held in a central location close to the airport, and,
- 13 drop-in style open house meetings held in the evening.

At all meetings, detailed information boards and reference materials were available. In addition, information kiosks staffed by subject matter experts allowed residents to receive an individualized, location-specific briefing on the proposals using their specific address or postal code.

The full-day Saturdays also included two daily technical briefings followed by a question and answer period. The technical briefing was recorded and the video was shared on the website for community members who could not attend.

Paper copies of the online survey were available for those who came out to any of the meetings to fill out and leave behind at the event.

Consultation Event Schedule

Saturday, March 3, 2018
10:00 a.m. to 4:00 p.m
Westin Toronto Airport, Sutton Ballroom
950 Dixon Rd.
Etobicoke, ON M9W 5N4

Tuesday, March 6, 2018
7:00 to 9:00 p.m.
Vic Johnson Community Centre–Hazel McCallion Hall
335 Church St.
Streetsville, ON L5M 2C2

Wednesday, March 7, 2018
7:00 to 9:00 p.m.
St. Volodymry Cultural Centre
1280 Dundas St. W
Oakville, ON L6M 4H9

Thursday, March 8, 2018
7:00 to 9:00 p.m.
Swansea Town Hall–Rousseau Room
95 Lavinia Ave.
Toronto, ON M6S 3H9

Tuesday, March 20, 2018
7:00 to 9:00 p.m.
Edithvale Community Centre
131 Finch Ave. W
Toronto, ON M2N 2H8

Monday, March 26, 2018
7:00 to 9:00 p.m.
Neilsen Park Creative Arts Centre
56 Neilson Dr.
Etobicoke, ON M9C 1V7

Tuesday, March 27, 2018
7:00 to 9:00 p.m.
Victory Hall
3091 Victory Cres.
Mississauga, ON L4T 1L5

Wednesday, March 28, 2018
7:00 to 9:00 p.m.
Langstaff Community Centre
155 Red Maple Rd.
Richmond Hill, ON L4B 4P9

Tuesday, April 3, 2018
7:00 to 9:00 p.m.
Gellert Community Centre, Kingsman Hall
10241 Eighth Line RR2
Halton Hills, ON L7G 4S5

Wednesday, April 4, 2018
7:00 to 9:00 p.m. Vellore Village Community Centre
1 Villa Royale Ave.
Woodbridge, Ontario

Thursday, April 5, 2018
7:00 to 9:00 p.m.
Milton Sports Centre
605 Santa Maria Blvd.
Milton, ON L9T 6J5

Saturday, April 7, 2018
10:00 a.m. to 4:00 p.m.
Four Points by Sheraton, Windsor Hall
6257 Airport Rd.
Mississauga, ON L9V 1E4

Tuesday, April 10, 2018
7:00 to 9:00 p.m.
Albion Library
1515 Albion Rd.
Etobicoke, ON M9V 1B2

Wednesday, April 11, 2018
7:00 to 9:00 p.m.
Flower City Seniors Centre, Lawn Bowling Facility
8870 McLaughlin Rd.
Brampton, ON L6Y 5T1

Thursday, April 12, 2018
7:00 to 9:00 p.m.
Leaside Memorial Community Gardens
1073 Millwood Rd.
Toronto, ON M4G 1X6

Community members were encouraged to register to attend any meeting through Eventbrite. This tool allowed for reminder emails to be automatically sent the day before the meeting to all those who registered. Furthermore, the day following each meeting, all who attended or who registered and did not attend, were sent a follow-up email directing them to the Six Ideas website and survey. In total, more than 430 residents attended the meetings across the GTA.

For more detail on meeting attendance, please see Appendix D: Communications available at ***torontopearson.com/conversations***

PROMOTION

COLLATERAL MATERIALS

A brochure outlining the Six Ideas was provided to all meeting attendees. The brochure was also made available on the consultation website.

For a copy of the Six Ideas brochure, please see Appendix B: Six Ideas Consultation and Reference Materials available at ***torontopearson.com/conversations***

EMAIL CAMPAIGN

Communications were sent by email to a list of more than 1,400 community members who had requested to be kept current on all initiatives undertaken by the GTAA. The email notified them of the Six Ideas consultation and the meeting dates, locations, and registration information. The email list included CENAC members, CENAC meeting attendees, community members who have attended meetings where GTAA was invited to participate, community partners such as rotary club members, and community members who signed up to the distribution list through the 2017 Residents' Reference Panel Civic Lottery Process.

TORONTO PEARSON'S COMMUNITY E-NEWSLETTER

Notification of the consultation, including the launch of the website, was included in Toronto Pearson's e-newsletter, *Checking In*, which is distributed to over 17,000 subscribers interested in airport issues.

Updates were provided in the February, March, and April editions which included meeting locations and links to the website with a wrap up story in the May edition. All editions of *Checking In* can be found at **torontopearson.com/checkingin**

PRINT ADVERTISEMENTS

Half-page, colour advertisements appeared in Toronto Metroland community newspapers and the Saturday edition of the Toronto Star two weeks before the start of the consultation period and then were repeated again approximately one month later. Advertisements were also posted in 10 multi-cultural publications and two French language publications. Newspaper circulation across the GTA totalled more than 2.9 million copies. Advertisements were also placed in two community papers: the Rockwood Homeowners' Association and the April edition of Leaside Life.

For more detail on publications, distribution, and dates of advertisements, please see Appendix D: Communications available at ***torontopearson.com/conversations***

EARNED MEDIA

Several news/association outlets provided coverage of the consultation effort, including:

- The Etobicoke Guardian
- Milton Canadian Champion
- MyFM 101.3 Radio

WEBSITE

All traditional and social media collateral materials directed people to **torontopearson.com/conversations**

The Conversations page served as the main landing page and provided an overview of the project to date. From there, people could access more detailed and specific information about the Six Ideas, public meetings, roles and responsibilities in noise management, airport terminology glossary, and presentations and supporting materials.

The landing page was visited more than 8,600 times (unique views). Social media accounted for approximately half of the traffic to the website. Approximately 25 per cent of people went directly to the website, which meant that traditional outreach communications tactics (print media, monthly e-newsletter, emails) were also effective in reaching residents and driving traffic to the website.

Most visitors clicked on the additional links to garner more information. The combined unique views of all the subpages were 8,761. The most viewed subpage was the public meetings page that provided information to dates and locations for Open Houses, with approximately 1,900 views. The remainder of the subpages were relatively equal and spread out in terms of page views.

PAID SOCIAL MEDIA PLACEMENT

The main social media platforms used for the Six Ideas outreach were Twitter and Facebook. In total, the NAV CANADA and GTAA ads were viewed more than 250,000 times with, approximately 118,000 unique views, meaning that many were exposed to the ad more than once on their devices. Of those 118,000 social media ad views, approximately four per cent of people clicked through to the website to learn more.

AUTOMATED PHONE NOTIFICATION

Two automated phone notification campaigns were conducted, reaching approximately 166,000 households to notify of the upcoming meetings and directing them to the website for more information. The first was launched on March 1 to a total of 82,999 households. On March 23, a second round was launched to another 83,000 households. A total number of 58,581 community members heard the full message.

*For more detail on Automated Phone Notification statistics, please see Appendix D: Communications available at **torontopearson.com/conversations***

COMMUNITY FEEDBACK

ABOUT THE SURVEY

In total, 866 valid survey responses were received during the seven-week consultation period that ran from March 3 to April 20, 2018. Two versions of the survey were available online. Residents had the opportunity to provide feedback on specific ideas or to complete a longer questionnaire that sought feedback on all Six Ideas. The latter was significantly more popular with 831 respondents filling the longer questionnaire.

For more detail on survey responses and analysis, please see Appendix C: Feedback and Survey Analysis available at ***torontopearson.com/conversations***

In both versions of the survey, questions for each idea included both multiple choice and/or scaled answer questions, as well as open-ended questions. The long questionnaire also included a section with general questions to better gauge the respondent's perception of current operational impacts.

Feedback provided through the general questions and open-ended questions was analyzed to identify common concerns experienced by residents.

The feedback provided on individual ideas was analyzed and taken into consideration by GTAA and NAV CANADA in the determination of recommendations and next steps.

Respondents were asked to identify the area that they live in by providing their postal codes to help identify common feedback in geographic clusters.

For more detail on idea specific feedback, please refer to The Six Ideas: Proposals, Feedback, and Next Steps section.

COMMON THEMES

Respondents had the opportunity to identify the operations that most concerned them by answering the general questions or explaining their concerns in the open-ended questions.

CONCERNS BY OPERATION	COUNT OF SURVEY RESPONSES
Concerned about Arrivals	498
Concerned about Night Flights	427
Concerned about Departures	317

Many respondents used the open-ended questions to comment on: aircraft noise in general, current level of traffic at the airport, and the altitude of arriving aircraft when they are on final approach. Other comments addressed issues of health, environment, quality of life, and safety.

COMPLAINT THEMES	COUNT OF SURVEY RESPONSES
General Noise Complaint Issues	85
Concerned about Health and/or Environment	47
Concerned about Quality of Life	16
Concerned about Safety	11
Other	4

Other themes that emerged from the review of the open-ended questions focused on how Toronto Pearson currently operates and the organizations that play a role in operating it. Comments in this section included suggestions about runway usage, communications tactics, and comments for airport partners.

INDUSTRY THEMES	COUNT OF SURVEY RESPONSES
Idea-specific comments	94
Comments regarding NAV CANADA	49
Support status quo of runway operations	41
Comments regarding GTAA	40
Support for using runways differently	34
Expressed Distrust	26
Communications concerns and suggestions	26

QUESTIONS, CONCERNS, AND ANSWERS

Review of the open-ended survey comments as well as commentary we received during consultation events identified common questions, concerns, and misconceptions. In order to provide some clarity, the GTAA and NAV CANADA have prepared a summary of key questions and responses.

YOUR QUESTIONS & CONCERNS	AREA OF RESPONSIBILITY	RESPONSE
Night flights are a concern to me. **How is the airport managing night flights and will this change?**	Toronto Pearson	Toronto Pearson is open 24 hours per day, 365 days a year. The airport manages a Night Flight Restriction Program during restricted hours (12:30–6:30 a.m.) which includes an annual limit to the total number of night flight movements, imposed by Transport Canada. As part of our Growing Responsibly: 2018–2022 Noise Management Action Plan, the GTAA has committed to explore changes to our Night Flight Restriction Program, as we understand from the Noise Management Program Benchmarking and Best Practices Study that our Night Flight Restriction Program could evolve to be more in line with international best practice.
Airport operations and the impact they have on the environment and my health are concerning. *I am concerned about potential health effects from being exposed to aircraft noise so often.* **What studies has the airport undertaken to understand the environmental and health effects of operations?**	Toronto Pearson	In 2015, the GTAA released the results of the most recent Air Quality and Human Health Impact Assessment (AQ and HHIA) Report. This work helps us understand the impact of our operations by assessing the air quality in a defined area and studying the potential for any adverse health effects due to the air quality. The GTAA's 2015 study forecasts out to 2032. In support of the study, the GTAA formed a Community Advisory Committee (CAC) as a mechanism to seek input from industry and community stakeholders. Findings indicate that the general population is not likely at risk of adverse health effects due to Toronto Pearson's operations. All materials, including an executive summary, can be found online by visiting **torontopearson.com/Air_Quality_Study** With regard to the human health impacts of airport noise, this falls under Health Canada's jurisdiction. The last major study from Health Canada on aircraft noise is from 2010 and is available online. Following a commitment made at our CENAC meeting on June 21, 2017, the committee submitted a letter to Health Canada on September 21, 2017 recommending that they update their 2010 study. CENAC and the GTAA offered their support for any such study.

YOUR QUESTIONS & CONCERNS	AREA OF RESPONSIBILITY	RESPONSE
I've noticed a change in my neighbourhood; it seems like a new or moved flight path. **Did something change?**	NAV CANADA	While the airport has experienced growth in traffic over time, there has not been a change in airspace structure since 2012. However, other factors such as runway utilization, runway construction and weather may affect the amount of traffic you observe. If changes to airspace or established flight paths are considered that would impact the community in material ways, then public consultation as per the Airspace Change Communication and Consultation Protocol is required.
My community was impacted by the flight path change in 2012. **Can the south downwind be moved over the lake?**	NAV CANADA	The Independent Toronto Airspace Noise Review undertaken by Helios examined the possibility of moving the south downwind over the lake, but concluded that with today's capacity demands and the current technology available, moving the south downwind over Lake Ontario is not currently a viable option. The full report is available online at **torontoairspacereview.ca**
I support the airport changing the way they use the runways so that aircraft noise is more balanced. *I do not support the airport changing the way they use the runways.* **How will impacts on my community be considered when planning runway usage?**	Toronto Pearson	The air travel industry, aviation technology, and the makeup of the communities around the airport have all changed significantly in recent years, and will continue to evolve. Toronto Pearson's operations must also continue to adapt to reflect these changes. The GTAA will continue to consider community impacts when determining how we use all runways at Toronto Pearson. We're working to continuously improve noise mitigation in all communities around the airport. As per the Airspace Change Communication and Consultation Protocol, consultation would be required before changes could be made to how we operate.

YOUR QUESTIONS & CONCERNS	AREA OF RESPONSIBILITY	RESPONSE
My community feels impacts from current operations, and I am concerned about increased impacts as the airport grows. **How is the airport going to balance growth and impacts?**	Toronto Pearson	Our region is growing, and that growth is driving air travel demand. While Toronto Pearson forecasts 85 million passengers in 2037, up from 47 million in 2017, aircraft movements will not grow at the same rate due to an industry-wide trend to shift to larger, high-density, fully occupied aircraft. In fact, over the next 20 years, Toronto Pearson expects average annual movement growth of 1.5 per cent per year compared to the 3.1 per cent per year growth in passenger numbers. The GTAA is committed to continuous improvement and recently released our updated Noise Management Action Plan that outlines ten new commitments related to consultation, environmental responsibility, operational changes, monitoring and reporting aircraft noise, and industry collaboration. We believe this plan will help us grow responsibly, in step with our neighbours.
I rely on Toronto Pearson for my travel needs and my livelihood. **How does the airport contribute to the economy?**	Toronto Pearson	As one of the world's premiere global hub airports, Toronto Pearson connects people and goods to all corners of the globe. A recently updated study on the economic impact associated with Toronto Pearson found that the number of direct jobs at the airport has grown from 40,000 to 49,000 since 2011. In total, Toronto Pearson generates or facilitates 332,000 jobs in Ontario, which accounts for $42 billion or 6.3 per cent of Ontario's GDP. By 2030, it's estimated that Toronto Pearson could generate and facilitate 542,000 jobs in Ontario.

YOUR QUESTIONS & CONCERNS	AREA OF RESPONSIBILITY	RESPONSE
I am concerned that the north/south runways will be included in the summer weekend runway alternation program. **Will a summer weekend runway alternation program include the north/ south runways?**	Toronto Pearson	The proposed Idea 5–Summer Weekend Runway Alternation Program **does not include** the north/south runways. The north/south runway configuration did not meet our criteria for success during the technical analysis phase and was therefore not included in the final Idea 5 proposal.
I am concerned about how I will get information about the upcoming tests of Ideas 5 and 6. **How will the tests be communicated transparently?**	Toronto Pearson	Ideas 5 and 6 tests will be promoted through a robust set of communications channels to ensure residents in neighbourhoods with the potential to see benefits and impacts are aware of the testing and understand how to get in touch throughout the testing period.
Your proposed flight path is over/closer to my area. **How did you choose this location?**	NAV CANADA	In examining potential changes to flight paths we have sought opportunities to reduce the number of people overflown when and where possible. The result is a set of flight paths that can be used during lower traffic that better target overflight of non residential areas. Unfortunately, there are very few options in an urban area to design flight paths that do not fly over a residential area at some point. Noise modeling analysis was used to compare typical current flight profiles against the proposed procedures to ensure that there would be a reduction in population impacted at noise levels above 60 dBA.

YOUR QUESTIONS & CONCERNS	AREA OF RESPONSIBILITY	RESPONSE
Low traffic periods at the airport are limited. **Why can't you use the flight path changes more regularly?**	NAV CANADA	Safely managing the many aircraft arriving to and departing from Toronto Pearson and other area airports is a challenge. However, during quiet traffic periods, there are options to avoid residential areas that are not possible when it is busy.
Not enough is being done through this process. **When can I expect to see improvements?**	Toronto Pearson NAV CANADA	The Six Ideas represent a significant step forward and are expected to result in improvements for many residents surrounding Toronto Pearson International Airport. Improving the noise environment for communities surrounding the airport is complex, but we remain committed to collaboratively working across the industry to make improvements and to keep the public informed and engaged on key issues.
Some of the solutions use RNAV. **Doesn't this mean you will be increasing concentration?**	NAV CANADA	RNAV can result in predictable, repeatable operations. Depending on how it is used, it can also facilitate opportunities to transition direct to a point *versus* using the downwind leg (an option that becomes available under certain conditions as part of Idea 4). In addition, the proposals will use RNAV to increase overflight of non-residential areas where possible and will support continuous descent which will result in some aircraft being significantly higher than they are today.

CONCLUSION

As we reflect on the hundreds of one-on-one conversations we've had with community members, elected officials, and our industry peers, we would like to thank all of you for getting engaged and sharing your voice.

We've listened and learned from you, and we understand that as an industry we need to do more to address the impacts of airport operations in collaboration with our community.

The mitigation of noise for communities surrounding the airport remains a complex issue, with varied interests and impacts from community to community. The joint public consultation process undertaken by NAV CANADA and the GTAA is an example of significant collaboration between industry stakeholders and communities to bring about improvements for residents across the GTA.

This model is one that both organizations are committed to as we continue to move forward. The Six Ideas offer practical opportunities to better manage noise, particularly at night and during low traffic periods.

While we are faced with real, large-scale challenges of managing growth, investing in cleaner technology, and prioritizing the safe movement of thousands of aircraft and their passengers, we also pledge to consider the needs of all stakeholders, including residents in surrounding communities.

We would like to express gratitude to our neighbours and industry partners for joining us as we explore opportunities to reduce impacts for communities. No effort can achieve its potential without full participation from all stakeholders, and your feedback has been an essential ingredient in this process. We look forward to continuing the conversation.

To learn more about the Six Ideas, please visit
torontopearson.com/conversations

> Thank you for your hard work on these initiatives."
>
> *–Six Ideas Consultation Survey Respondent*

ABOUT GREATER TORONTO AIRPORTS AUTHORITY (GTAA)

The Greater Toronto Airports Authority (GTAA) is the operator of Toronto Pearson International Airport. The GTAA continues to focus on growing Toronto Pearson's status as an international gateway: enhancing the customer experience, safety, security, the success of our airline partners and the regional economy.

The GTAA believes being a good neighbour means balancing operations by engaging with communities that surround the airport.

Toronto Pearson

ABOUT NAV CANADA

NAV CANADA is a private not-for-profit company, providing air traffic control, airport advisory services, weather briefings and aeronautical information services for more than 18 million square kilometers of Canadian domestic and international airspace. The Company manages 3.3 million flights annually and has over 40,000 customers.

NAV CANADA is internationally recognized for its safety record and innovative technology used by Air Navigation Service Providers (ANSPs) world wide.

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