2010 Noise Management Report

Toronto Pearson International Airport

GTAA

For You. The World.

Toronto Pearson
International Airport | Aéroport International

A Message from the Chair

The Greater Toronto Airports Authority recently set out its new vision for Toronto Pearson – to become North America's premier portal to a world of possibilities. Simply put, our ambition is to make Toronto Pearson the leading gateway airport into North America.

In fulfilling this vision, Toronto Pearson will expand the reach of our community by improving access to all areas of the globe for academic, business and cultural endeavours. This, in turn, will support jobs and economic development for the Greater Toronto Area (GTA).

One of the keys to helping us achieve our vision is the dynamism and vibrancy of the GTA. The GTA is the economic engine of Canada, enabling millions of people to work in a culturally diverse, exciting and immensely productive environment. Thousands of people flock to the GTA each year in pursuit of jobs, education and a promising future for themselves and for their families. As a result, the very fabric of our region has changed. People who were once from a myriad of cultures and nations across the globe are now neighbours, classmates, colleagues, and friends.

It is this dynamic that has given rise to an increase in demand for air travel in and out of Toronto Pearson – Canada's largest airport. Not only are we seeing an increase in demand for travel to South Asia, the Far East, Latin America and the Middle East, but we are also seeing an increase in the size of aircraft and the frequency of flights.

This growth is exciting and presents an enormous opportunity for us all. We are also aware of the impact these changes have on our community, particularly on our neighbours. While we have an obligation to respond to demands for growth and access to the globe, we also have an obligation to manage the airport in a measured, responsible fashion. In this report, we document what we are doing to manage noise issues in a time of significant growth. Managing growth, noise and other environmental impacts is not a task that we at Toronto Pearson take lightly, nor is it a task that is ever finished.

I would like to thank the members of our Community Environment and Noise Advisory Committee (CENAC), as well as all the members of the Toronto Pearson team who have worked so hard to manage noise and environmental issues. Together, we work to find a balance between the complexities of aircraft and airport operations and the objectives of our adjacent neighbours.

Toby Lennox
Chair Community Environment and Noise Advisory Committee
GTAA Vice President, Corporate Affairs and Communications

Toronto Pearson International Airport

The vision of the Greater Toronto Airports Authority (GTAA) is to make Toronto Pearson "North America's premier portal to a world of possibilities." It's an ambitious goal, but one which will be achieved by becoming even more focussed on the needs of our guests and customers, the world's air carriers. It is our mission to attract, serve and delight them by consistently delivering value through innovative products and services.

The GTAA was incorporated in 1993 and assumed management of the airport in 1996, under terms set out in our lease with the Canadian federal government. Our goal then was to create a facility worthy of the great city that depends on us for connections to the world. Since then, we've put the pieces in place to make Toronto Pearson the main entry point for the entire continent.

In 2010, Toronto Pearson welcomed almost 32 million guests. The next busiest Canadian airport processed approximately half that number. On most days, more than 1,100 arrivals and departures take place. Forecasted figures anticipate Toronto Pearson managing the movement of 41 million passengers annually by 2015, which translates into a year-over-year increase of approximately three per cent. The airport currently has 76 passenger airlines operating from Terminals 1 and 3, and more than a dozen cargo airlines, connecting Toronto to more than 180 destinations around the world.

Toronto Pearson not only performs a gateway function, serving the needs of our guests, it also acts as an enabler for surrounding businesses and residents. The GTAA believes in maintaining good relations with neighbouring communities. We are committed to transparency and the engagement of area residents in our discussions on the topic of noise mitigation. The GTAA meets with the community on a regular basis through the Consultative Committee (CC) and the Community Environment and Noise Advisory Committee (CENAC). We have also committed ourselves to publishing this report to inform stakeholders on the progress of initiatives made in the consultative process with the community.

Noise Management

Since assuming management of Toronto Pearson in 1996, the GTAA has taken responsibility, in accordance with its Ground Lease with the federal government, for the management and mitigation of aircraft noise for aircraft operating to and from Toronto Pearson within a 10 nautical mile (18.5 km) radius of the airport.

The GTAA has a dedicated Noise Management Office that works toward noise mitigation by monitoring aircraft operations, investigating complaints, and identifying potential violations of operating restrictions and noise abatement procedures. The GTAA also works with the aviation community, neighbouring municipalities and local residents through CENAC to consult with these parties on noise and environmental issues, and to communicate its ongoing efforts to manage and mitigate aircraft noise at Toronto Pearson. In addition, the GTAA discusses noise mitigation strategies within the GTAA Technical Noise Committee and the GTAA Consultative Committee. Information about these committees is provided later in this document.

Ongoing initiatives aimed at mitigating aircraft noise at Toronto Pearson include:

- Restricting operating hours of all aircraft based on noise certification levels, such that quieter aircraft operate with fewer restrictions and noisier aircraft are more restricted during the night.
- Managing the total number of nighttime movements to meet Transport Canada allowances.
- Using departure and arrival procedures to minimize noise impacts in neighbouring communities by ensuring that pilots approach runways and depart runways on specified routes and operate their aircraft in ways to mitigate aircraft noise.
- Working with surrounding municipalities to ensure that areas impacted by aircraft noise are zoned appropriately and that sensitive land uses, such as residential, are not permitted in higher noise-impacted areas.
- Working with community representatives on the CENAC to maintain public dialogue about aircraft noise through regularly scheduled committee meetings, a series of noise forums and educational workshops, and ongoing communications from the GTAA available on TorontoPearson.com, including this annual Noise Management Report.

Understanding Noise

Sound is transmitted through the air in waves, like ripples that move outward across a pond when a stone splashes in its midst. When we perceive sound, we judge it to be desirable or undesirable. Sounds deemed undesirable are often referred to as noise.

The decibel is the universally accepted measurement of sound amplitude or volume: in our example, amplitude represents the height of the ripples on the pond. Because the sounds we experience vary in volume between 1 and 100,000 units, the logarithmic scale of the decibel (dB) is used to express this range because it reduces perceivable sound volumes within a manageable scale of 20–120 dB.

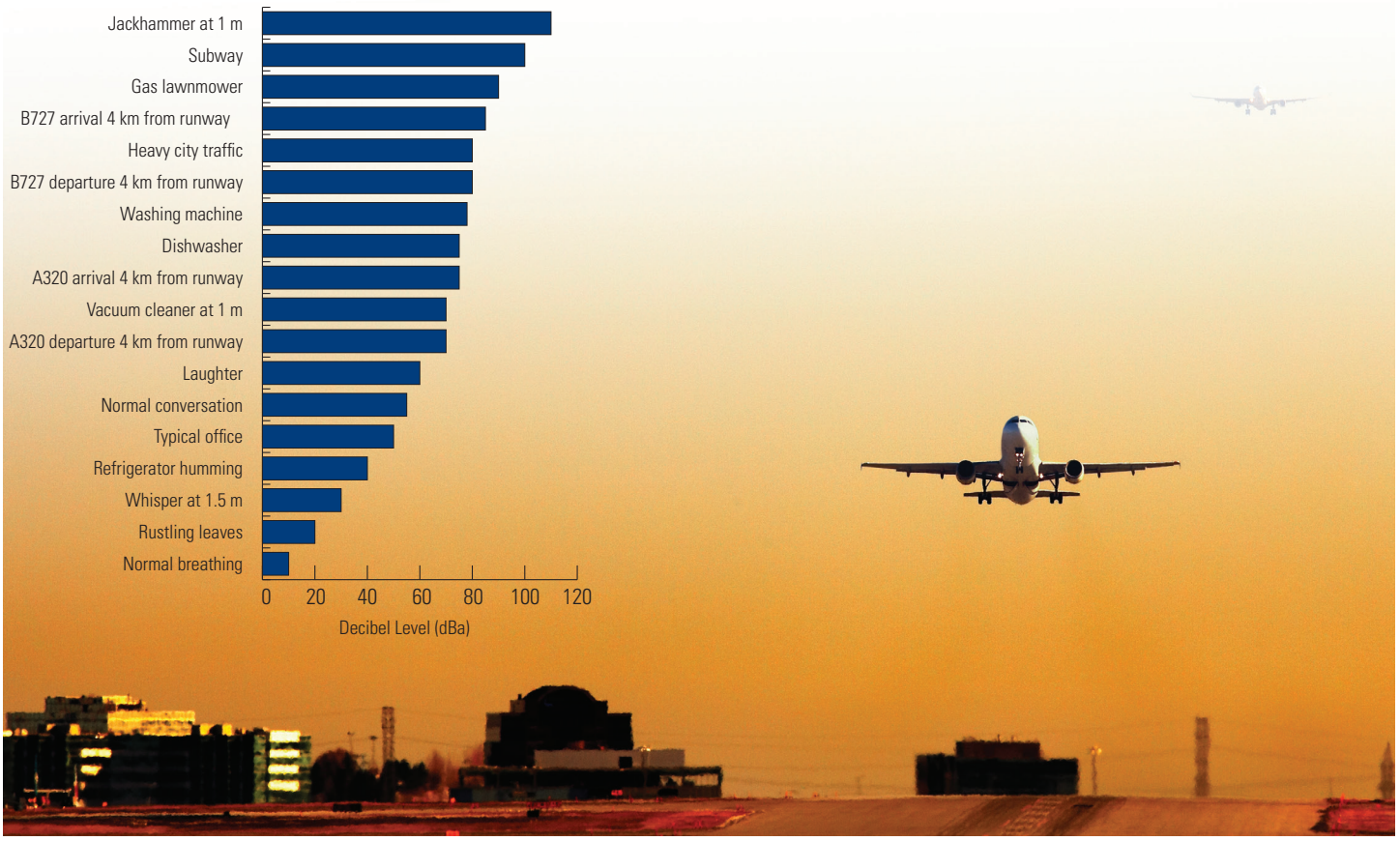
In addition, the human ear has greater sensitivity to a certain range of frequencies or pitches. Thus, sounds are usually measured in A-weighted decibels (dBA), which stresses the range of sounds that register most noticeably in the human ear.

Within the logarithmic A-weighted decibel scale, a three dBA decrease is barely perceptible to most people, while a five dBA decrease is clearly perceptible. Further, a decrease of 10 dBA is perceived as being half as loud. For example, a library that generates 40 dBA of ambient noise is considered half as loud as a typical office that generates 50 dBA of ambient noise.

Yet, noise is often considered annoying even when it occurs at much lower volumes than desirable sounds. For example, an arriving Airbus A320 flying overhead four kilometres from the runway may generate the same 70 dBA level as a vacuum cleaner one metre away, but the aircraft may seem more annoying because people expect to hear the noise of the vacuum and, therefore, are willing to accept it. In addition, quieter noises that occur frequently may be considered as annoying as infrequent, louder noises. Finally, one person's response to aircraft noise may be entirely different than another's. The responses are deeply personal.

It is also important to realize that sound volume can vary by up to five dBA depending on humidity, temperature and wind direction. Due to these factors, the sound of the same aircraft can appear to vary at the same location on different days.

Common Sound Levels



Aircraft Noise Certification Levels

Over the past 30 years, improvements in aircraft design and technology have resulted in significant reductions in the aircraft noise caused by engines and by the movement of air over the airframe of the aircraft. To date, noise reduction initiatives have focused primarily on reducing engine noise. However, new airframe designs appear capable of cutting aircraft noise further.

International standards for aircraft noise certification have been developed by the International Civil Aviation Organization (ICAO) and are prescribed in the ICAO International Standards and Recommended Practices Annex 16 to the Convention on International Civil Aviation, Volume1 - Aircraft Noise for the global aviation industry.

Of all jet aircraft operations at Toronto Pearson, 99.9 per cent were manufactured under the Chapter 3 noise standards that required all subsonic jet aircraft types certificated after October 1977 to meet more stringent maximum noise levels. Aircraft types that conform to Chapter 3 noise emission standards include the Boeing 747- 400, new generation B737, B757, B777 and Airbus 319, A320, A330 and A340, among others.

In June 2001, on the basis of recommendations made during the fifth session of the Committee on Aviation Environmental Protection (CAEP/5), the ICAO Council adopted a new Chapter 4 noise standard that is more stringent than standards contained in Chapter 3. This new standard requires a minimum of 10 decibel cumulative reduction over Chapter 3, meaning that aircraft noise levels are reduced a total of 10 decibels when noise at the three takeoff flyover, takeoff sideline and approach measurement points are summed. Since January 2006, this latest standard applies to newly manufactured aircraft types and to Chapter 3 aircraft for which Chapter 4 certification is requested. Some examples of aircraft types that meet Chapter 4 are Airbus 319, A320 and A330 and Boeing 777. At Toronto Pearson, over 94 per cent of jet aircraft meet the Chapter 4 standard but may not have been formally re-certificated to Chapter 4.

Noisier, older jet aircraft originally certificated before 1977 are known as Chapter 2 and include Douglas DC-9, Boeing 727, older model B737, and older Learjet and Gulfstream business jets. Some of these jets were retrofitted or hushkitted to meet Chapter 3 standards. During 2010, only one half of one per cent of jet aircraft operations at Toronto Pearson were by aircraft that have been hushkitted to meet Chapter 3 standards.

Jets that are non-noise certificated are the oldest and noisiest models. These include military aircraft that make fewer than 100 visits to Toronto Pearson each year. There are separate noise certification standards for small propeller aircraft and helicopters.

Noise Mitigation Measures

Regulations and Policies

Regulations and policies pertaining to noise management originate from various organizations, including those standards set by the ICAO, Transport Canada and the GTAA.

The federal Aeronautics Act and the Canadian Aviation Regulations (CARs) support the ICAO standards and set Canadian procedures relating to aircraft noise certification and operations. It is important to note that aviation is federally regulated, and therefore municipal bylaws, such as noise bylaws, are not applicable to aviation activity.

Specific sections governing operations of the airport include:

Aeronautics Act - Section 4.9(f) The federal government may make regulations respecting aeronautics and noise emanating from airports and aircraft.

Canadian Aviation Regulations (602.105) - No person shall operate an aircraft at or in the vicinity of an aerodrome except in accordance with the applicable noise abatement procedures and noise control requirements specified by the Minister in the *Canada Air Pilot* or *Canada Flight Supplement,* including the procedures and requirements relating to:

a) Preferential runways
b) Minimum noise routes
c) Hours when aircraft operations are prohibited or restricted
d) Arrival procedures
e) Departure procedures
f) Duration of flights
g) The prohibition or restriction of training flights
h) Visual flight rules (VFR) or visual approaches
i) Simulated approach procedures
j) The minimum altitude for the operation of aircraft in the vicinity of the aerodrome

Noise Operating Restrictions

Time of Day Restrictions

The GTAA is required to develop and maintain a comprehensive aircraft Noise Management Program that includes a plan for managing the number of flights during restricted hours, between 12:30 a.m. and 6:29 a.m. To ensure that flights during the restricted period remain proportionate to overall traffic levels, Transport Canada has imposed annual limits on the total number of restricted period flights at Toronto Pearson, calculated annually between November and October. Operating the only airport in Canada with these restrictions, the GTAA carefully manages these flights to ensure that the limit is not exceeded.

The noisiest and older non-noise certificated jet aircraft are prohibited from operating between 8 p.m. and 8 a.m., while Chapter 2 and equivalent aircraft are prohibited from operating between midnight and 7 a.m. A limited number of the quieter Chapter 3 or equivalent aircraft operate as exemptions that are scheduled within the restricted hours (12:30 a.m. to 6:29 a.m.). Their approval is conditional upon the GTAA's ability to remain within the annual limit for restricted period flights. The GTAA may grant operating extensions on the day of operation for flights delayed by weather, emergencies, security, air traffic control issues or mechanical difficulties.

Noisier Chapter 2 aircraft, non-noise certified aircraft and equivalent operations are not granted operating extensions.

Engine Run-ups

Occasionally, airline maintenance staff are required to perform engine run-ups after engine repairs have been completed. At all times, these run-ups must be approved by the GTAA in advance and conducted at designated times and locations that have been determined to minimize their impact on the surrounding communities. Between midnight and 7 a.m., engine run-ups are approved only for aircraft scheduled to depart that morning at locations farthest from residential areas. Engine run-ups are prohibited for all noisier Chapter 2 aircraft between 2 a.m. and 5 a.m.

Preferential Runway Assignment

Runways are labelled by the first two digits of their compass bearings. For example, a pilot approaching Toronto Pearson from the southwest and cleared to land on Runway 05 would follow compass heading 057.

Toronto Pearson has five runways: 05-23, 06R-24L, 06L-24R, 15R-33L, and 15L-33R. Each runway has two designators as each runway can be used in either direction. The right (R) and left (L) designators identify which of a pair of runways a pilot is cleared to use.

Aircraft using these runways take off and land into the wind for safety reasons; therefore, runway use is dependent on the direction and speed of the wind. In addition, weather, runway conditions, and approach aid availability may affect Nav Canada's determination of which runways will be used at any time. To minimize noise, the GTAA works with Nav Canada to maintain strict flight procedures for arriving and departing aircraft.

Subject to existing conditions, preferential runways have been allocated for use between midnight and 6:29 a.m. The following runways are preferred for aircraft departures in the following order of priority: Runways 23, 33R and 24R. The following runways are preferred for aircraft arrivals in the following order of priority: Runways 05, 15L and 06L. Operations on other runways are limited as much as possible during this time period. Preferential runway assignments have been for many years to ensure that the fewest number of people in the surrounding communities are impacted by aircraft operating at night.

Noise Abatement Procedures

Noise abatement procedures governing flights operating at Toronto Pearson are approved by Transport Canada and are legally binding on aircraft operators. While the airport and airlines act to minimize noise during departures and arrivals, sometimes they may have to deviate from noise abatement procedures when unusual conditions, such as thunderstorms, arise.

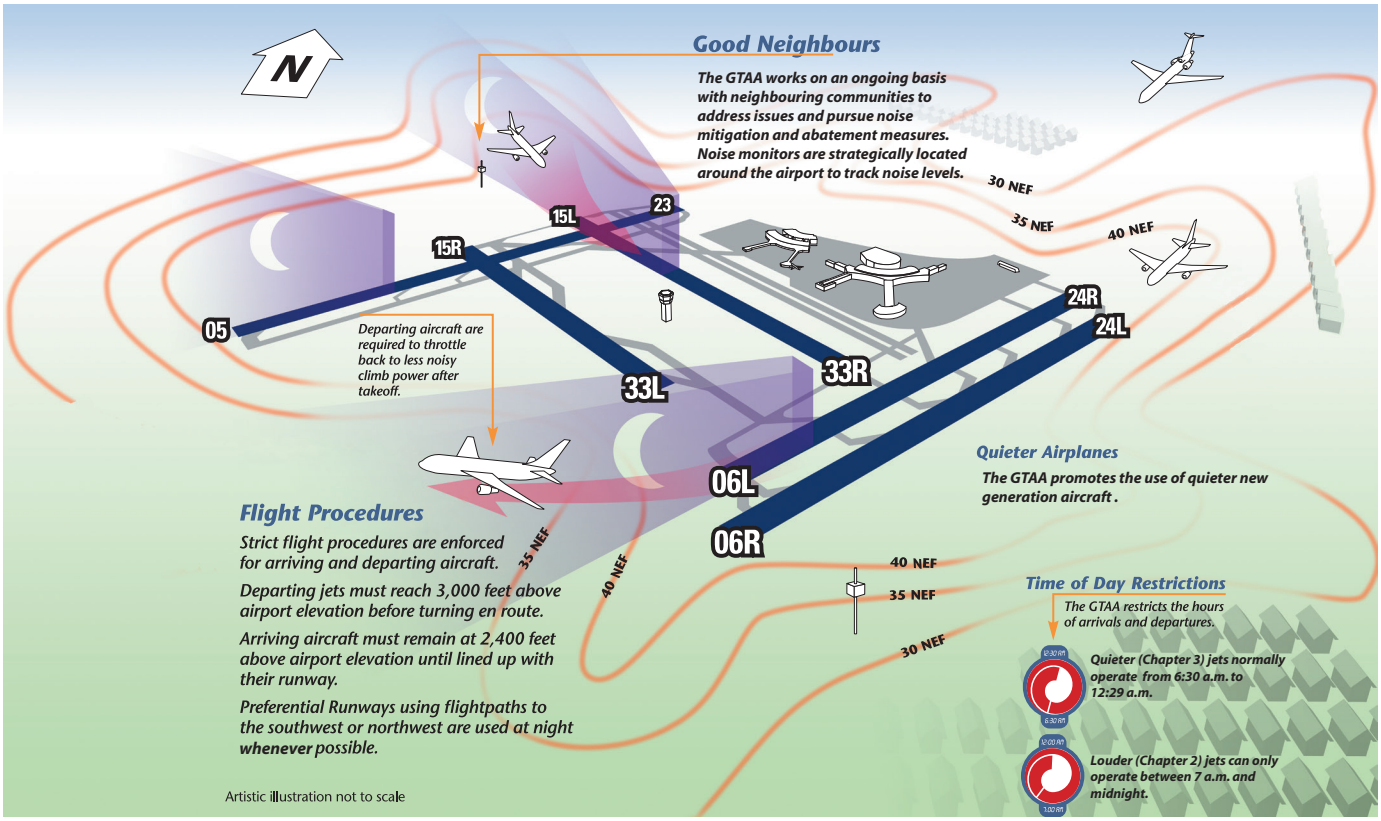
Departures

Pilots of jet aircraft are required to throttle back from take-off power to less noisy climb power shortly after take-off and must follow specified headings or ground tracks to 3,000 feet (914 m) above airport elevation before making en-route turns. Pilots of propeller aircraft must comply with jet procedures between 11 p.m. and 7 a.m. During the day, these pilots may turn as low as 500 feet (152 m) above airport elevation to accommodate increased hourly operations. A procedure for smaller, quieter Chapter 3 jet aircraft was established in 2000 and formalized in 2005 after five years of trials and analysis. Using this early turn procedure, pilots of these aircraft are permitted to turn to assigned headings at 500 feet (152 m) above airport elevation between 7 a.m. and 11 p.m. when departing on Runways 05, 06R, 06L, 23, 24R and 24L.

Arrivals

Pilots of arriving jet aircraft must remain at 2,400 feet (732 m) above airport elevation until they line up with their runways, generally seven to 10 nautical miles (13 to 18.5 km) from the airport. They must then maintain a three-degree glide slope approach until touchdown, and minimize noisy reverse thrust after touchdown. Pilots of propeller aircraft must comply with jet arrival procedures between 11 p.m. and 7 a.m.

Noise Abatement Procedures



Land Use Planning

To ensure that compatible land uses are planned and developed near the airport, the GTAA works closely with surrounding municipalities to ensure that areas impacted by aircraft noise are zoned appropriately and that sensitive land uses, such as residential, are restricted in higher noise impacted areas.

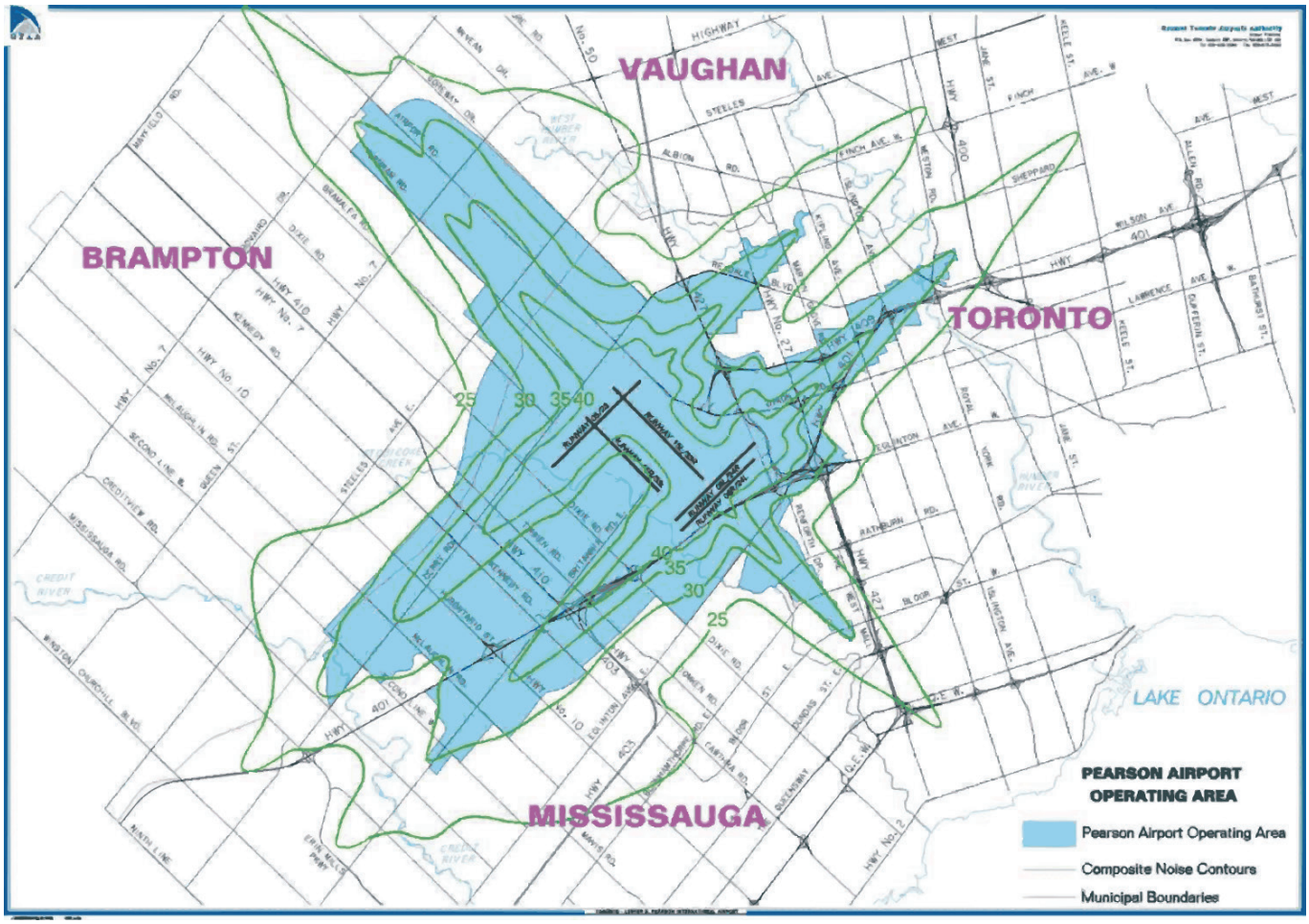
Noise Exposure Forecast

Transport Canada has developed a Noise Exposure Forecast (NEF) model to calculate long-term aircraft noise exposure based on actual and forecasted flights, and the assessed level of noise annoyance in those areas. Contour lines are drawn on a map (see figure below) connecting points of equal noise impact representing 25, 30, 35 and 40 NEF. It is important to remember that the NEF contour does not measure decibel levels for individual flights, but is a cumulative noise value of overall actual and forecasted flights, and noise annoyance. Transport Canada has taken the position that areas with an NEF as low as 25 may be affected by aircraft noise. Areas with an NEF of 30 or greater are considered incompatible for sensitive land uses, such as residential development.

Airport Operating Area

The GTAA and local municipalities have established the Toronto Pearson Airport Operating Area (AOA), which uses well-defined natural and constructed boundaries to approximate the 30 NEF contour on the ground. This operating areais included in official plans and have approved associated policies that limit incompatible land uses within these areas.

Airport Operating Area

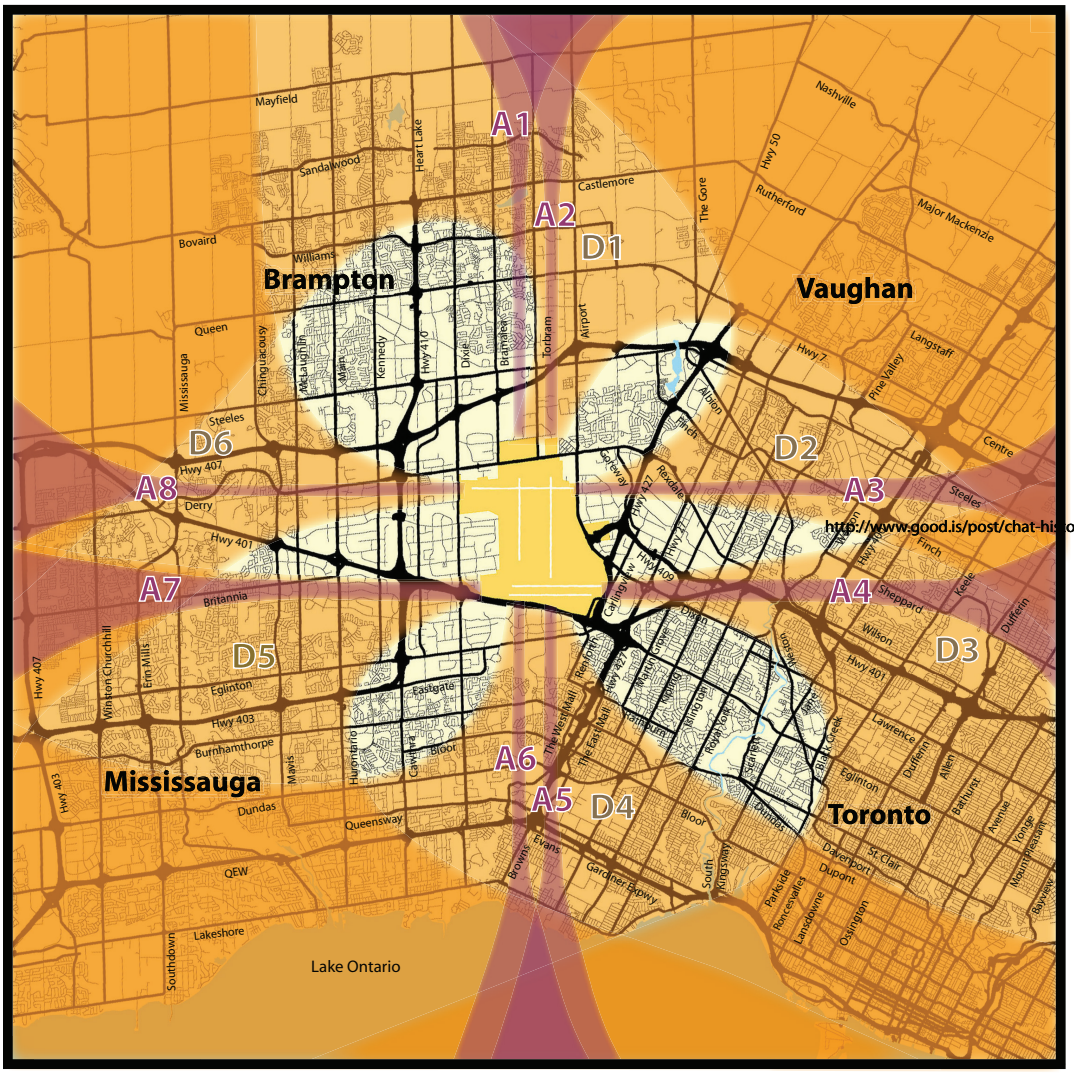


Jet Flight Path Movements Chart

In an effort to better communicate with local residents and provide new tools that describe aircraft activity near Toronto Pearson, the GTAA has developed a Jet Flight Path Movements Chart to illustrate the general flight patterns of the majority of Toronto Pearson's jet aircraft operations.

While this chart does not indicate the level of noise generated by aircraft activity in an area nor the level of community annoyance, it does provide valuable information when used in conjunction with other traditional aircraft noise maps and resources. This chart is based on a program successfully employed at Sydney Airport in Australia.

2010 Jet Flight Path Movements Chart



Flight Zone Names	Daily Average Movements	Percentage of All Movements	Daily Range of Movements	Days With No Movements	Associated Runway(s)
A1	2	0.2%	0-186	351	15R
A2	5	0.5%	0-43	235	15L
A3	90	9.5%	0-297	92	23
A4	157	16.5%	0-410	93	24L & 24R
A5	2	0.2%	0-49	297	33R
A6	24	2.5%	0-437	293	33L
A7	90	9.4%	0-370	114	06L & 06R
A8	106	11.2%	0-415	82	05
D1	42	4.4%	0-464	56	33L & 33R
D2	50	5.3%	0-248	119	05
D3	133	13.9%	0-424	122	06L & 06R
D4	3	0.3%	0-236	282	15L & 15R
D5	110	11.6%	0-316	101	24L & 24R
D6	138	14.5%	0-441	64	23
Arrivals (A1-A8)	476	50.0%			
Departures (D1-D6)	476	50.0%			
Total Jet Movements	952	100.0%			

Notes:
1) The flight zones illustrated are intended to reflect the general flight path patterns of the majority of Toronto Pearson's jet aircraft operations. Some jet operations do occur outside these zones.
2) The information presented excludes non-jet aircraft (piston and turboprop) using Toronto Pearson, and any over flights unrelated to Toronto Pearson (en route aircraft flying through the area) to maximize the clarity of the presentation and to focus on the types of operations with the most significant noise impact.
3) The arrival flight zones reflect primarily the final approach phase of the arrival, excluding any earlier phases that may pass through the airport vicinity prior to joining the final approach path.
4) The departure flight zones do not reflect the flight paths of the smaller, quieter jet aircraft that are permitted to conduct early departure turns (similar to non-jet aircraft), although these operations are included in the table.
5) Although the yellow map areas, 'Areas with Less Frequent Jet Over Flights' are not within arrival or departure flight zones, they are not completely free of over flights. These areas may be over flown by jet aircraft operating outside of the general jet flight zones (see Note 1), non-jet and over flights not associated with Toronto Pearson (see Note 2), arrivals prior to joining the final approach path (see Note 3), and early turn jet departures (see Note 4).
6) The information reflects current traffic levels and flight zones only. It does not project future airport operations. Overall traffic levels can be expected to increase as demand for air travel services increases in the future.
7) This map only presents the general location and number of jet aircraft operations at . and is provided for general information purposes only. It does not quantify the noise impacts associated with those operations. The noise associated with operations within any of the flight zones may be heard outside of the zone itself. This information does not replace the Noise Exposure Forecast system used for land use planning purposes.

Community Environment and Noise Advisory Committee

The Community Environment and Noise Advisory Committee (CENAC), provides a consultative/communication forum for community stakeholders to meet with GTAA management and other aviation community representatives. The committee discusses issues relating to the mitigation of aircraft noise in the community and the operation of Toronto Pearson International Airport in an environmentally responsible manner.

Committee Responsibilities

Mandate

The CENAC mandate is set out in the Ground Lease (section 8.12.02) as follows:

"The Tenant shall ensure that mitigation of noise emanating from aircraft in the takeoff, ascent, descent, approach and terminal phases of flight is a part of the mandate of a noise management committee which the Tenant shall establish and which shall include at a minimum, the Tenant, the Minister or his designate, aviation industry representatives and appropriate provincial and municipal government representatives."

CENAC also examines environmental issues related to the ongoing operation of Toronto Pearson International Airport.

Communication and Education of Stakeholders

CENAC acts in an advisory capacity to the GTAA on all issues relating to Toronto Pearson's Noise Management and Environment Policies with a view to improving the GTAA's related programs and promoting the objectives of the Authority in respect to all aspects of noise and environment management.

CENAC provides a forum for the discussion of noise- and environment-related matters, and decides on the best methods of distributing information to stakeholders on an issue-by-issue basis.

Linkages

CENAC members that represent community stakeholders actively seek the opinions of their constituents regarding noise-related matters and to represent these concerns in the committee forum. Similarly, committee members disseminate the results of committee discussions to their constituent bodies.

Linkage to the GTAA Consultative Committee (CC), Toronto Pearson's main consultative communication forum, is provided through common membership. The GTAA performs this liaison through the committee chair. CENAC also has linkage to the Technical Noise Committee (TNC) to provide a two-way communication regarding the operational aspects of noise monitoring, enforcement, and mitigation. This linkage will be provided through the GTAA GM, Airside Operations.

CENAC provides the communication liaison between the community and the GTAA Board of Directors through GTAA management.

Scope

CENAC advises on matters related, but not limited, to the following:

- Aircraft Operation procedures impacting aircraft noise in Toronto Pearson's Airport Operating Area
- The examination of alternatives for noise mitigation
- Municipal land use within the Operating Area
- The review of the GTAA's environmental programs and adherence to ISO targets
- The examination of potential environmentally sensitive measures at Toronto Pearson

CENAC reports and makes recommendations to the GTAA. The GTAA may refer recommendations to the appropriate committee of the GTAA Board of Directors, to the CC, to the TNC or other bodies as appropriate for consideration. Members have the opportunity to vote on recommendations. Minutes report conclusions and resolutions. The committee will be given feedback regarding these recommendations.

CENAC may appoint ad hoc sub-committees to deal with specific issues as they arise.

Terms of Reference will be reviewed and updated as required to ensure that CENAC mandate and membership remain current and appropriate.

Membership

CHAIR: (Voting)

• The GTAA President and CEO or his designate (one): Committee Chair

COMMUNITY MEMBERS: (Voting)

• City of Brampton (three): one elected representative, one resident, and one additional to be appointed at city discretion
• City of Mississauga (five): two elected representatives, two residents, and one additional to be appointed at city discretion
• City of Toronto (three): one elected representative, one resident, and one additional to be appointed at city discretion

Municipalities will be permitted to designate alternates when a member is unable to attend a meeting. Councillors, residents, or councillors' staff representatives are permitted to stand-in as an alternate for an elected representative who is unable to attend a meeting. Designated alternates are encouraged to attend meetings regularly and can vote in the absence of the regular member.

Each nominating body will set the term of membership with a suggested minimum of two years.

Resource Members: (Non-Voting)

• Transport Canada regional staff representative
• NAV CANADA representative
• Air carrier industry representation
• One staff representative from each of the cities of Brampton, Mississauga, and Toronto
• Province of Ontario Staff representative
*Resource Members will support CENAC and will be appointed to the committee by their constituent group.

GTAA Members: (Non-Voting)

• As required

Procedures/Operation

By the last meeting of the calendar year, the committee will approve a meeting schedule for the following year. Meetings will be held at least on a quarterly basis in the administrative offices of the GTAA. Meetings can be rescheduled at the discretion of the committee at least two weeks in advance of the scheduled meeting date. The meeting schedule, and any subsequent changes, shall be made publicly available. There will be a published agenda, which will be delivered one week before published meeting dates. Items for discussion should be submitted to the Chair prior to the meeting.

Quorum shall consist of six voting members, including the Chair. In the event quorum is not attained, the meeting will proceed on an informal basis. Regular attendance is expected of members. If a member, and/or their alternate, misses more than two consecutive regularly scheduled meetings, the appointing community will be advised.

For most CENAC business, a consensus approach will be followed. For those issues where a vote is requested, only "community" members and the Chair will have voting rights. Items requiring a vote will be outlined on the agenda and, where possible, material will be provided to members in advance of meetings.

Meetings will be open to the public and to the media.

Minutes of the meetings will be circulated to CENAC members as early as possible after each meeting. Further distribution of the minutes will be decided by CENAC.

The GTAA Corporate Affairs and Communications department will provide secretariat services. The GTAA will provide a budget for the administrative support of this committee.

Public Consultation and Education

2010 Meeting Schedule

CENAC Meeting - Wednesday, February 3, 2010
- Wednesday, April 7, 2010
- Wednesday, June 16, 2010
- Wednesday, September 8, 2010
- Wednesday, November 10, 2010

The GTAA is committed to public consultation and working with neighbouring residents to improve the Noise and Environment Management Program at Toronto Pearson.

Annual Noise Management Report

This annual Noise Management Report summarizes the aircraft noise mitigation efforts of the GTAA and CENAC. This report is published to educate and communicate with the surrounding communities. It is available online at www.TorontoPearson.com and is distributed to interested residents and all local elected officials.

Technical Noise Committee

Another important component of the Noise Management Program at Toronto Pearson is the Technical Noise Committee (TNC). The TNC meets on a regular basis to assess the effectiveness of existing noise abatement procedures and to discuss the technical merits of proposed noise mitigation initiatives that are generated by individual members, CENAC and public input from workshops or forums.

The committee consists of many airport and aviation stakeholders, including representatives from the GTAA, Transport Canada, Nav Canada, and the airlines. TNC is a valuable round-table forum where industry specialists consider new technologies and proposals that could be used to augment the airport's noise mitigation program. Specific discussion topics include aircraft and airport operating procedures, Toronto Pearson's night flight restriction program, aircraft noise monitoring systems, and noise mitigation enforcement processes.

GTAA Consultative Committee

The GTAA also holds regularly scheduled Consultative Committee meetings that provide an important forum for airport stakeholders to discuss issues affecting Toronto Pearson and its surrounding communities and businesses. Aircraft noise issues and noise mitigation initiatives may be discussed by this committee, which is given regular updates regarding CENAC's work.

Membership on this committee consists of city councillors, regional staff, board of trade representatives, and local residents. Resource members from the GTAA, the airline industry, Transport Canada, Nav Canada, and city staff also attend meetings.

Noise Management Office

The GTAA Noise Management Office (NMO) monitors airport operations in relation to the Noise Management Program using the Airport Noise Monitoring and Flight Tracking System and its community-based Noise Monitoring Terminals. In addition, NMO staff register aircraft noise complaints using a database system that categorizes noise complaints and automatically correlates these complaints with flight tracking data and complainant data. Staff then investigate complaints, report their findings, and respond to complainants.

NMOs also respond to CENAC inquiries, provide information and analysis as required, research noise mitigation initiatives, and provide technical expertise for committee meetings and committee members. This ongoing collaboration between NMO and CENAC is a key element of the Noise Management Program at Toronto Pearson.

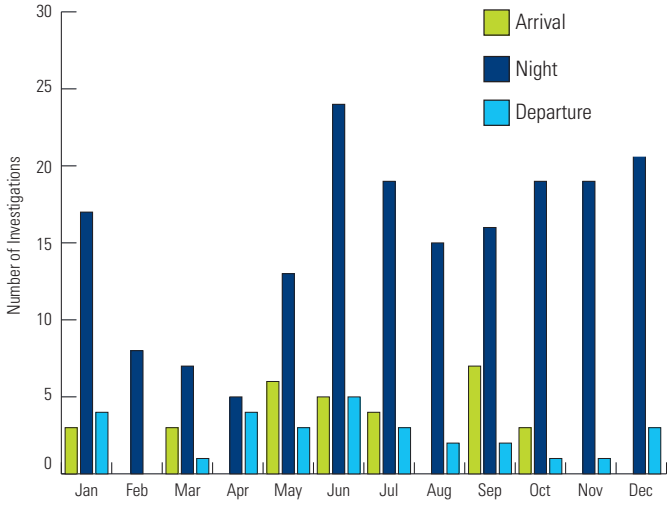
Registering Complaints

To register an aircraft noise complaint within 10 nautical miles (18.5 km) of Toronto Pearson, contact the NMO at (416) 247-7682. Noise complaints can also be registered at www.TorontoPearson.com. For complaints concerning en route aircraft or those beyond 10 nautical miles (18.5 km) of the airport, call Transport Canada at (416) 952-0235.

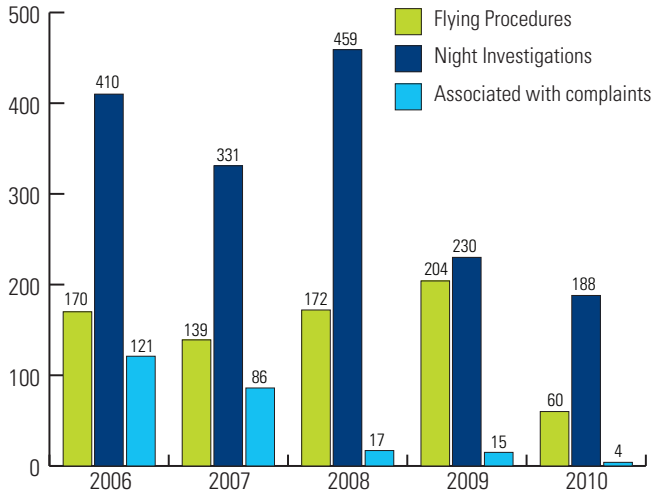
Investigations and Enforcement

The GTAA investigates potential violations of noise abatement procedures, restricted hours operations and maintenance engine run-ups. Investigations conducted by the GTAA result from both registered public complaints and ongoing tracking and monitoring carried out by the GTAA. If GTAA staff believe a violation has occurred, the details of the case are forwarded to Transport Canada for final disposition, as the Ministry has the sole authority for determining financial penalties. For any violation, Transport Canada may assess a maximum fine of $25,000 against a company and $5,000 against a pilot. In addition, at the urging and in support of the CENAC, Transport Canada publishes the names of corporations violating the Aeronautics Act and the Canadian Aviation Regulations, including noise violations, on its website: http://www.tc.gc.ca/eng/civilaviation/standards/standards-enforcement-publications-corporate-summary-2990.htm.

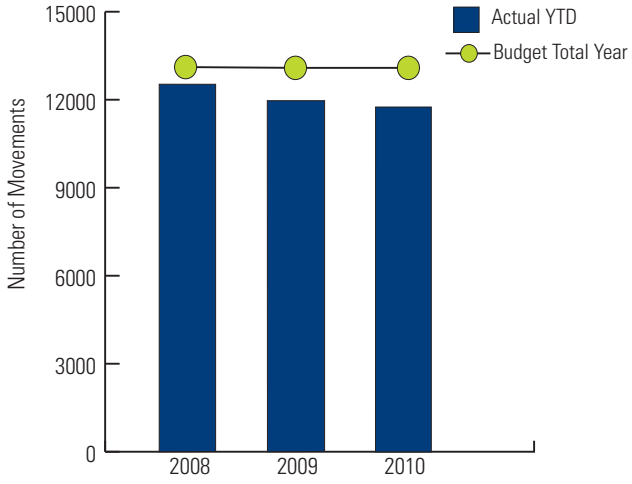
Monthly Enforcement Investigations



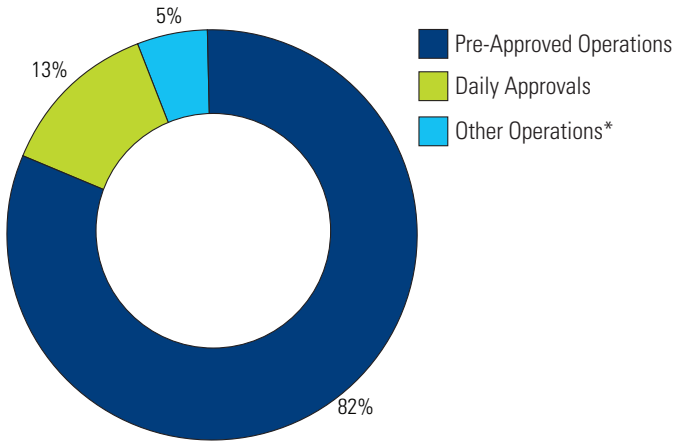
Yearly Enforcement Investigations



Night Flight Management



Restricted Hours Operations November 2009–October 2010



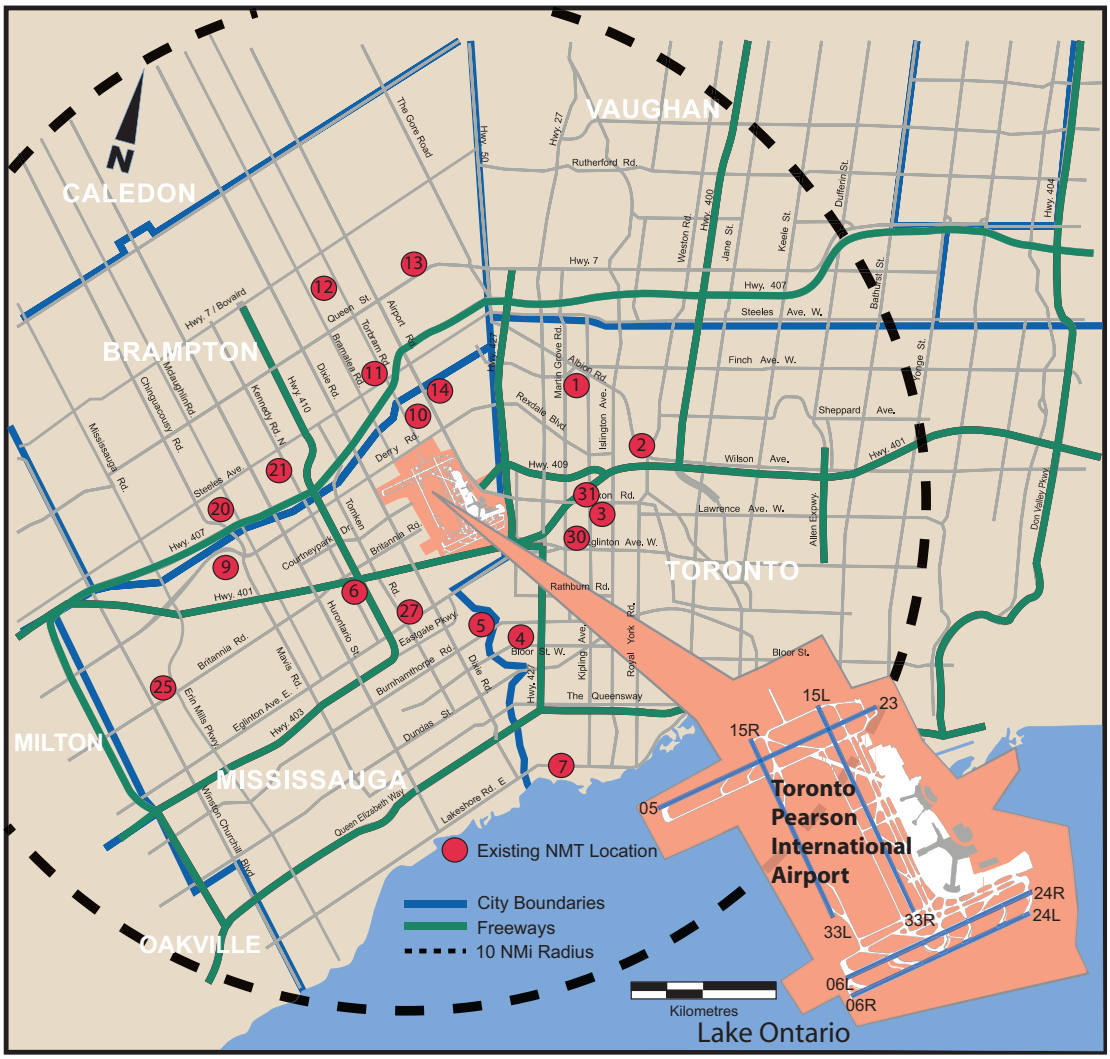
*Other Operations include medevac flights, weather alternate flights, military and police.

Noise Monitoring Terminals

The GTAA uses Noise Monitoring Terminals (NMTs) within the Noise Management Program to quantify aircraft noise throughout the Airport Operating Area. Using specialized software, NMO staff collect and analyze noise levels generated by aircraft operating at Toronto Pearson. NMT data is used by NMO staff when investigating resident complaints.

The Airport Noise Monitoring and Flight Tracking System, currently in use in the NMO, which include the NMTs, is being upgraded in 2011. At the start of the project, the GTAA undertook a study to ensure that NMTs in the communities surrounding the airport are placed in locations that meet both the current and future operational needs of the airport and the needs of the community. As part of this initiative, CENAC members participated in the review of noise monitoring locations. The GTAA and CENAC agreed that of the existing NMT sites in the surrounding community, 16 have been identified as essential. Of these, 14 will be upgraded with new NMT hardware, and two will be re-located for safety and operational needs. Two additional locations will be investigated for future NMT placement as required. The remaining sites will be decommissioned and the existing NMT hardware recycled as appropriate.

Noise Monitoring Terminals Location Map

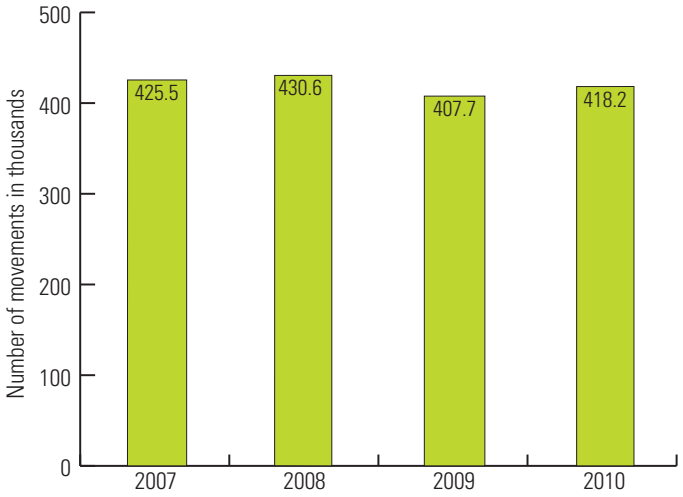


Existing Locations

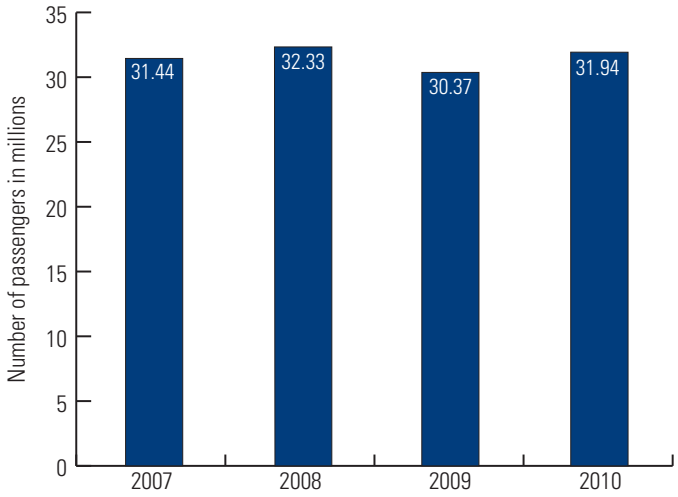
1 West Humber
2 Humberlea
3 St. Eugene's
4 Markland
5 Garnetwood
6 401/403
7 James S. Bell
9 Meadowvale
10 Bren Road
11 Bramalea South
12 Grenoble
13 Goreway
14 Marvin Heights
20 South Fletchers
21 Peel Village
25 St. Elizabeth Seton
27 Tomken Twin
30 Richview
31 Blackfriar

Facts and Figures

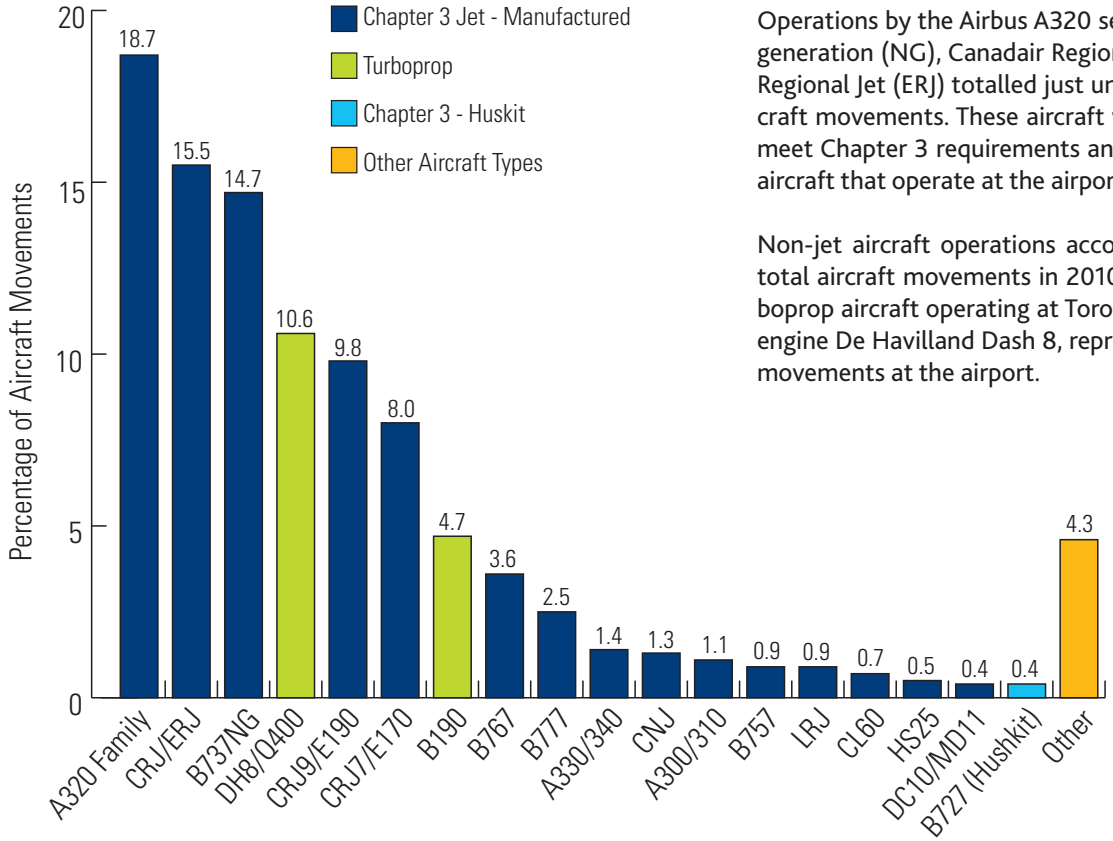
Aircraft Movements



Passenger Movements



Annual Percentage of Specific Movements by Aircraft Type

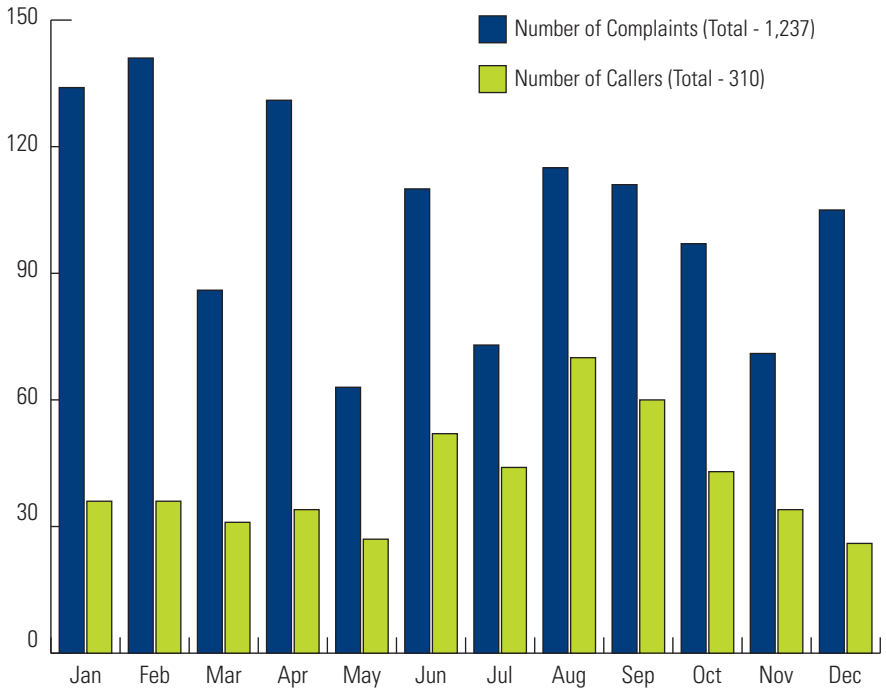


Operations by the Airbus A320 series, the Boeing 737 next generation (NG), Canadair Regional Jet (CRJ) and Embraer Regional Jet (ERJ) totalled just under 50 per cent of all aircraft movements. These aircraft were all manufactured to meet Chapter 3 requirements and are among the quietest aircraft that operate at the airport.

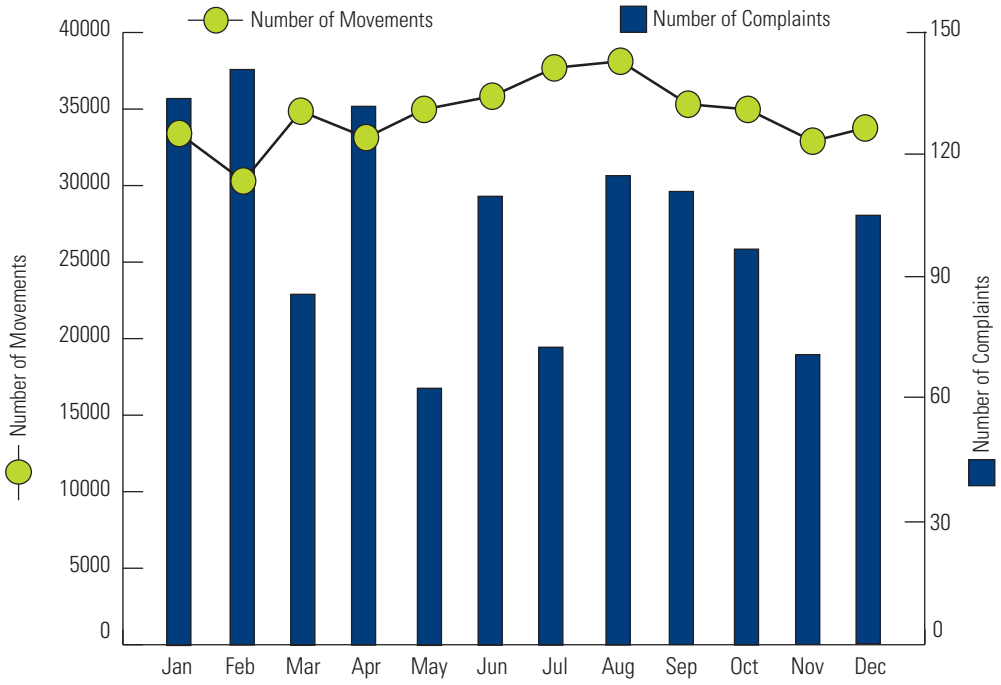
Non-jet aircraft operations accounted for 17 per cent of total aircraft movements in 2010. The most common turboprop aircraft operating at Toronto Pearson was the twin engine De Havilland Dash 8, representing 11 per cent of all movements at the airport.

Facts and Figures

Monthly Comparison of Noise Complaints and Callers

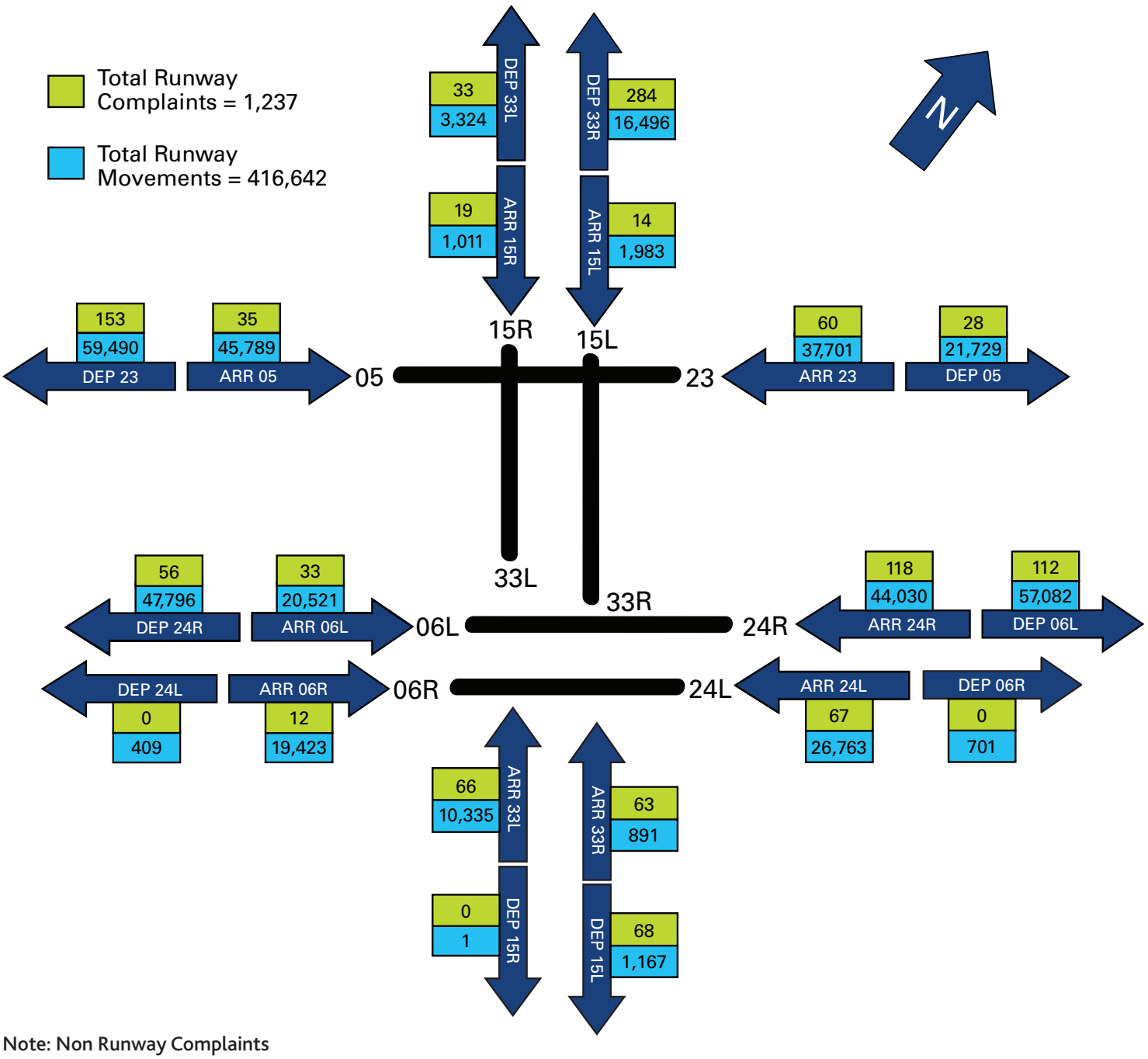


Monthly Comparison of Noise Complaints and Runway Movements



Facts and Figures

Comparison of Noise Complaints
by Runway Operation



Note: Non Runway Complaints
6 missed approaches, 5 ILS inspections, 5 unknown.

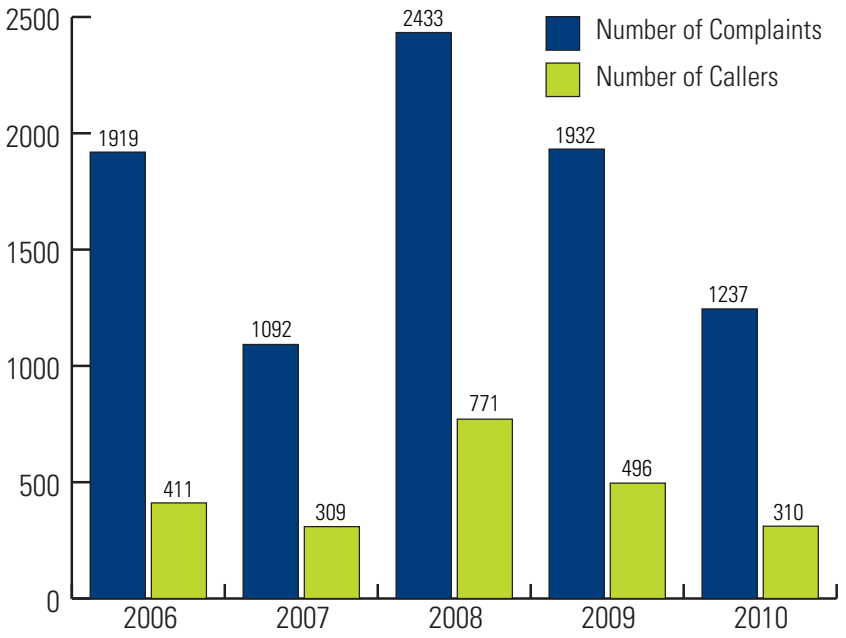
Facts and Figures

Comparison of Aircraft Movement and Noise Complaints by Runway Operation

ARRIVALS			DEPARTURES		
Runway	Movements	Complaints	Runway	Movements	Complaints
Arrive 23	37,701	60	Depart 05	21,729	28
Arrive 24R	44,030	118	Depart 06L	57,082	112
Arrive 24L	26,763	67	Depart 06R	701	0
Arrive 33R	891	63	Depart 15L	1,167	68
Arrive 33L	10,335	66	Depart 15R	1	0
Arrive 06R	19,423	12	Depart 24L	409	0
Arrive 06L	20,521	33	Depart 24R	47,796	56
Arrive 05	45,789	35	Depart 23	59,490	153
Arrive 15R	1,011	19	Depart 33L	3,324	33
Arrive 15L	1,983	14	Depart 33R	16,496	284
Total Arr	**20,8447**	**487**	**Total Dep**	**208,195**	**734**
		Total All Runways		**416,642**	**1,221**
		Non Runway Complaints*			**16**
		Total Complaints			**1,237**

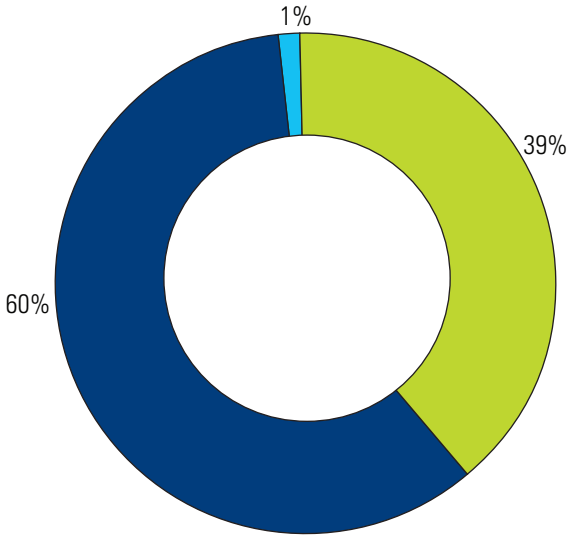
1,221 complaints were registered against a particular runway operation.
*The remaining 16 complaints were registered againts missed approaches, ILS inspections and unknown sources

Yearly Complaints vs. Callers

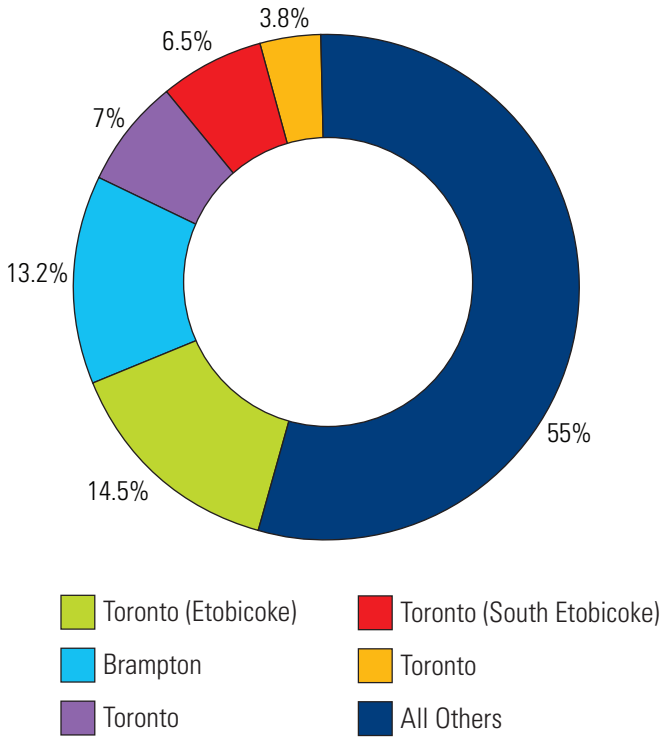


Facts and Figures

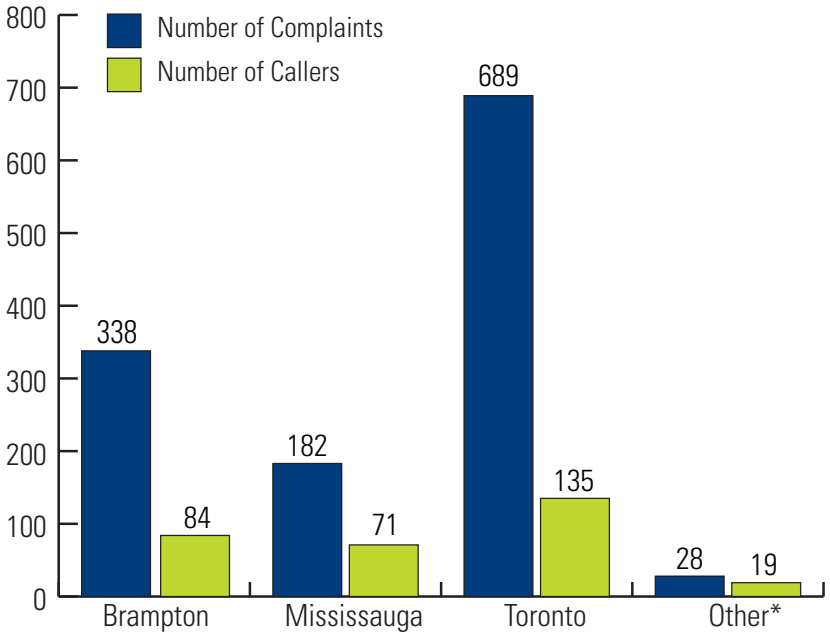
Noise Complaints by Operation



Top Five Callers vs. All Other Callers



Comparison of Noise Complaints by Municipality



*28 other complaints registered from: Halton Hills-1, Oakville-3, Vaughan-18, Caledon-1, North York-5

Glossary

Airport elevation 569 feet above sea level

CAEP Committee on Aviation Environmental Protection

CARs Canadian Aviation Regulations

CENAC Community Environment and Noise Advisory Committee

Chapter 2 Noise certification class for jet aircraft built before 1977 with noisier low-bypass and early high-bypass turbofan engines

Chapter 3 Noise certification class for jet aircraft built after 1977 with newer, quieter high-bypass turbofan engines; required standard for jet aircraft operating in Canada since April 1, 2002

Chapter 4 Noise certification class for jet aircraft built after January 1, 2006, with latest, quietest engine technology

dBA A-weighted decibel scale that defines sound volume within the range perceptible by the human ear

Glide slope Radio navigation aid that provides vertical guidance during final approach

GTA Greater Toronto Area

GTAA Greater Toronto Airports Authority

Hushkit Engine modification to reduce Chapter 2 certificated jet aircraft noise to Chapter 3 standards

ICAO International Civil Aviation Organization

ILS Instrument Landing System

Movement Aircraft arrival or departure

NEF Noise Exposure Forecast

Nmi Nautical mile (1.152 statute mile or 1.853 kilometres)

NMO Noise Management Office

NMT Noise Monitoring Terminal

Non-noise certificated Noise certification class for jet aircraft, such as military and historical aircraft, that use the noisiest and often the oldest engine technology

Rwy Runway

Runway 05/23 11,120-foot east-west runway (heading 057 degrees and 237 degrees magnetic)

Runway 06R/24L 9,000-foot east-west runway (heading 057 degrees and 237 degrees magnetic)

Runway 06L/24R 9,697-foot east-west runway (heading 057 degrees and 237 degrees magnetic)

Runway 15R/33L 9,088-foot north-south runway (heading 147 degrees and 327 degrees magnetic)

Runway 15L/33R 11,050-foot north-south runway (heading 147 degrees and 327 degrees magnetic)

TNC Technical Noise Committee