

**GTAA**

**2003**

Annual Noise  
Report



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# Noise Management - Glossary

**Aerodrome** Airport

**Airport elevation** 569 feet above sea level

**ATAC** Air Transport Association of Canada

**CAEP** Committee on Aviation Environmental Protection

**CAR** Canadian Aviation Regulations

**Chapter 2** Noise certification class for jet aircraft-noisier and older technology

**Chapter 3** Noise certification class for jet aircraft-quieter and newer technology

**Chapter 4** Noise certification class for jet aircraft-quietest and latest technology

**CRJ** Canadair Regional Jet

**dBA** A-weighted decibel

**FAR** Federal Aviation Regulations (U.S.)

**Glideslope** Descent profile during final approach

**GTA** Greater Toronto Area

**GTAA** Greater Toronto Airports Authority

**GTAA CC** Greater Toronto Airports Authority  
Consultative Committee

**GTOW** Gross Take-off Weight

**Hushkit** Engine modification to reduce noise

**ICAO** International Civil Aviation Organization

**ILS** Instrument Landing System

**Kg** Kilogram

**Leq** Continuous equivalent sound level (average noise level)

**Movement** Aircraft arrival or departure

**NEF** Noise Exposure Forecast

**NMC** Noise Management Committee

**Nmi** Nautical mile (1.152 statute mile or 1.853 kilometres)

**NMT** Noise Monitoring Terminal

**Non-noise certificated** Noise certification class for jet aircraft - noisiest and oldest technology

**Power plant** Propeller, turboprop, turbojet, or turbofan engine

**Rwy** Runway

**Runway 05/23** 11,120ft east-west runway (heading 057 degrees & 237 degrees magnetic)

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

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

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

**Runway 15R/33L** 9,080ft north-south runway (heading 147 degrees & 327 degrees magnetic)

**Subsonic** Relating to speeds less than that of sound

**Threshold** Beginning portion of runway usable for landing

**TNC** Technical Noise Committee

**Toronto Pearson** Toronto Pearson International Airport

**Transponder** Radio receiver/transmitter



# Message from the Chair



On behalf of the Greater Toronto Airports Authority's Noise Management Committee (NMC), I am pleased to present the inaugural edition of an annual noise report. This report is intended to provide airport stakeholders with annual information on the activity at Toronto Pearson International Airport as well as report on the initiatives of the NMC.

Since assuming management of Toronto Pearson International Airport, the Greater Toronto Airports Authority (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 radius of the airport.

While the GTAA maintains and promotes Toronto Pearson as an economic asset for the Greater Toronto Area (GTA), it remains sensitive to the issue of aircraft noise and its effects on surrounding communities. Part of this commitment to the community has involved the establishment of the NMC, a community-based committee that functions as a forum where members of the community and the Authority can openly discuss noise-related issues. Acting in an advisory capacity to the GTAA, the committee meets at least five times a year and members of the public are invited to attend and provide comments directly to committee members.

For the NMC, 2003 has been a year of notable achievements. The operators of the Canadair Regional Jet have maintained a departure procedure for the CRJ that has proven beneficial both from an environmental standpoint as well as an operational perspective. The GTAA is in the process of submitting a proposal to Transport Canada to formalize the permanent implementation of this procedure.



Also in 2003, with the support of the NMC, the GTAA increased the number of community Noise Monitoring Terminals (NMT) in surrounding municipalities. A total of 15 NMTs are operating to provide accurate data concerning aircraft operating into and out of Toronto Pearson. The GTAA plans to increase the number of existing NMTs during the next several years.

“While the GTAA maintains and promotes Toronto Pearson as an economic asset for the Greater Toronto Area (GTA), it remains sensitive to the issue of aircraft noise and its effects on surrounding communities.”

Steve Shaw  
Chair  
Noise Management  
Committee

I would like to extend my thanks to the members of the NMC for their time, energy and ideas. The committee has proved to be an important community forum to ensure continual improvement to the GTAA's noise management program. Issues have been raised that have been difficult and have resulted in keen and strong debates, but I am pleased that through these we continue to work to be a good neighbour.

Sincerely,



Steve Shaw  
Chair, Noise Management Committee  
GTAA Vice President, Corporate Affairs and Communications

## NOISE MANAGEMENT COMMITTEE (NMC) MEMBERS - 2003

**Brampton** - Councillor John Sprovieri, Councillor Avtar Aujla, Mr. Ike Rahemtulla, Mr. Brad Green (Alternate)

**Mississauga** - Councillor Maja Prentice, Councillor Cliff Gyles, Councillor George Carlson, Mr. Gordon Stewart, Ms. Tina Rizzuto-Willan

**Toronto** - Councillor Suzan Hall, Councillor Rob Ford, Mr. Ross Vaughan

**Technical Members** - NAVCANADA- Mr. Pat Lawler, Transport Canada- Mr. Dave Bayliss, Pilot-Captain Brian Harkness, ATAC- Mr. Fred Jones, Province of Ontario- Mr. Paul Steckham, City Brampton- Mr. David Waters, City of Mississauga- Mr. John Calvert

# NMC Terms of Reference

## NOISE MANAGEMENT COMMITTEE

The NMC will act in an advisory capacity to the GTAA on all issues relating to Toronto Pearson's Noise Management Policy with a view to improving the GTAA's noise mitigation program

### PURPOSE

The Noise Management Committee (NMC) will provide a consultative / communication forum for community stakeholders to meet with Greater Toronto Airports Authority (GTAA) Management and other aviation community representatives to discuss issues relating to the mitigation of aircraft noise in the community. The NMC will be an advisory body for the GTAA Chief Executive Officer.

It will include representatives of the three surrounding municipalities and allow for the GTAA to hear concerns expressed in a public forum and to take action as considered appropriate.

### COMMITTEE RESPONSIBILITIES

#### MANDATE

The NMC 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."

#### COMMUNICATION AND DISSEMINATION / EDUCATION OF STAKEHOLDERS

The NMC will act in an advisory capacity to the GTAA on all issues relating to Toronto Pearson's Noise Management Policy with a view to improving the GTAA's noise mitigation program, and promote the objectives of the Authority respecting all aspects of noise management.

The NMC will provide a forum for the discussion of noise related matters and will decide on the best methods of distributing information to stakeholders and to stakeholder groups on an issue by issue basis.

#### LINKAGES

The NMC members that represent community stakeholders will be required to actively seek the opinions of their constituents on noise related matters and to represent these concerns in the committee forum. Similarly, committee members will be required to disseminate the results of committee discussions to their constituent bodies.

Linkage to the GTAA Consultative Committee (GTAA CC), Toronto Pearson's main consultative communication forum, will be provided through common membership. One member from the GTAA and one member from the Community will serve on both committees and will act as a liaison between both committees. The GTAA will continue to perform this liaison through the committee chair.

The NMC will also have linkage to the Technical Noise Management Committee (TNC) to provide a two-way communication on the operational aspects of noise monitoring, enforcement, and mitigation. This linkage will be provided through the GTAA Vice President, Operations and Chief Engineer.

### SCOPE

The NMC will advise on matters related but not limited to the following:

- Aircraft Operation procedures impacting aircraft noise in Toronto Pearson's Operating Area.
- The examination of alternatives for noise mitigation.
- The enforcement of aircraft noise violations.
- Municipal land use within the GTAA operating area.

The NMC will report and make recommendations to the GTAA Chief Executive Officer. The CEO may refer recommendations to the appropriate committee of the GTAA Board of Directors, to the GTAA CC, to the Technical Noise Management Committee or other bodies as appropriate for consideration.

### NMC Mandate

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.

**Ground Lease (section 8.12.02)**

Members will have the opportunity to vote on recommendations and minutes will show conclusion and resolution. Minutes will be published in a timely fashion. The Committee will be given feedback on these recommendations.

**MEMBERSHIP**

**CHAIRPERSON:** GTAA Chief Executive Officer or designate.

<b>COMMUNITY MEMBERS:</b>	<b>VOTING</b>
City of Brampton (3)	1 elected representative, 1 resident, and 1 additional to be appointed at Council discretion.
City of Toronto (3)	1 elected representative, 1 resident, and 1 additional to be appointed at Council discretion.
City of Mississauga (5)	2 elected representatives, 2 residents, and 1 additional to be appointed at Council discretion.



Municipalities will be permitted to appoint alternate councillors or residents, who are encouraged to attend meetings regularly. Alternates can vote in absence of the regular member.

- | <b>COMMUNITY MEMBERS:</b>  | <b>NON -VOTING</b> |
|--|--------------------|
| <ul style="list-style-type: none"> <li>● 1 staff representative from each of Brampton, Toronto and Mississauga</li> <li>● Consultative Committee representative</li> <li>● Province of Ontario Staff representative</li> </ul> |                    |

- | <b>TECHNICAL MEMBERS:</b>   | <b>NON-VOTING</b>   |
|---|---|
| <ul style="list-style-type: none"> <li>● Transport Canada regional staff representative</li> <li>● Nav Canada and ATAC representatives</li> </ul> | Technical members, Nav Canada and ATAC, will support (NMC). |

<b>GTAA MEMBERS:</b>	<b>NON-VOTING</b>
As Required	

**ATTENDANCE**

Regular attendance is expected of members. If a member misses more than two consecutive regularly scheduled meetings, then the appointing community will be advised.

**PROCEDURES / OPERATION**

Meetings will be held on a bi-monthly basis in the Administrative Offices of the GTAA. The Committee will meet the second Wednesday of alternating months at 4:00 p.m.



Should there be a need to re-schedule the meeting will take place on the following Wednesday.

There will be a published agenda, which will be delivered one week in advance of published meetings dates. Items for discussion should be submitted to the Committee Chairperson two weeks prior to meeting.

Quorum shall consist of six voting members, including the chair. In the event quorum is not attained, meetings will proceed on an informal basis.

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

### **SECRETARIAT SERVICES**

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



The NMC advises the GTAA President and CEO, and promotes the noise management policy's objectives. The mandate for this committee is set out in the basic agreement between the GTAA and the federal government.

# NMC Noise Management Initiatives

Recommendation	Initiative	Status
Noise & Emission Reduction	Jet Turn Procedure	In progress
Noise Mitigation	Under 34000-kg Nighttime Restrictions	In progress
Noise Monitoring	New Community Noise Monitoring Terminals	In progress

## FEDEX - NIGHTTIME EXEMPTION

the GTAA granted a nighttime exemption to Federal Express (FedEx) to allow for the consolidation of its domestic operations at Toronto Pearson.

### (CRJ) Regional Jet Turn Procedure

To reduce fuel emissions while on the ground and in the air without increasing the overall noise regime at the airport, operators of the Canada Regional Jet proposed a departure procedure for the CRJ similar to that flown by turboprop aircraft. This procedure has been utilized for over 3 years and has proved beneficial both from an environmental standpoint as well as an operational perspective. The Jet Turn Procedure is currently in use as the GTAA submits a proposal to Transport Canada to formalize the permanent implementation of this procedure.

### Under 34,000 kg Nighttime Restriction

Historically, the night flight restrictions have been applied only to jet aircraft over 34,000 kg. Jet aircraft under 34,000 kg, turboprop and propeller powered aircraft were exempt from the restrictions. With the support of the Noise Management Committee (NMC), the GTAA submitted a proposal to Transport Canada to have the night flight restrictions apply to all categories of aircraft, regardless of weight or power plant. This proposal was approved by Transport Canada in December 2003 and will be published in the Canada Air Pilot, therefore providing the GTAA with better management control over night flight operations.

### Noise Monitoring Terminals (NMTs)

To improve the monitoring of aircraft noise and increase the effectiveness of aircraft noise analysis, the GTAA has committed to increasing the number of Noise Monitoring Terminals (NMTs) in each of the surrounding municipalities. The location of each NMT will be based on recommendations from the NMC in conjunction with their respective municipalities. Over the next few years the number of community noise monitors will be increased from 15 to 24 NMTs.

### FedEx - Nighttime Exemption

In October 2003, the GTAA granted a nighttime exemption to Federal Express (FedEx) to allow for the consolidation of its domestic operations at Toronto Pearson. Due to the confidentiality issues related to the business negotiations between the GTAA and FedEx, this information was not publicly available or provided to the NMC until after approval was granted. The Committee was concerned with the process that allowed the exemption without prior consultation and, as a

result, is exploring options that would allow for the dissemination of sensitive information to its members, while maintaining the necessary level of confidentiality with respect to business negotiations.

## Public Education and Consultation

### PUBLIC FORUMS

In 2003, the GTAA hosted a total of three public forums in each of its adjacent municipalities to allow residents the opportunity to voice their concerns.

#### Public Forums:

In addition to the regularly scheduled NMC meetings, the GTAA hosted public forums in each of its adjacent municipalities. These meetings provided a forum for community residents to express comments and concerns to representatives of the GTAA, Nav Canada, Transport Canada and the airline industry. At these events, the GTAA and community residents are able to exchange information related to airport operations as they relate to the Noise Management Program. Public Forums were held on the following dates:

- Toronto - May 8th, 2003
- Brampton - May 28, 2003
- Mississauga - October 23, 2003

#### Workshops:

The GTAA also hosted workshops on a variety of topics related to airport operations as they pertain to the Noise Management Program. These workshops served to educate interested residents on GTAA programs and initiatives. Input from participants at the workshops was forwarded to the NMC for its review, and where appropriate, action was taken to improve the effectiveness of the GTAA's Noise Management Program. Workshops were conducted on:

- March 26, 2003
- November 26, 2003

# Regulations and Policies

Regulations and policies pertaining to noise management originate from various regulatory bodies, including those standards set by the International Civil Aviation Organization (ICAO), Transport Canada and the GTAA.

## REGULATIONS

The GTAA follows regulations as set out in the Aeronautics Act and the Canadian Aviation Regulations (CARs)

The *Aeronautics Act* and the *Canadian Aviation Regulations* (CARs) support the ICAO standards and set Canadian procedures relating to noise certification and aircraft operations.

Specific sections governing operations of an aerodrome include:

### *The Aeronautics Act - Section 4.9(f)*

*The Governor in Council may make regulations respecting aeronautics and, without restricting the generality of the foregoing, may make regulations respecting noise emanating from aerodromes and aircraft.*

The Aeronautics Act also states that other standards, procedures or specifications can be incorporated by reference.

### *The Canadian Aviation Regulations (CARs)*

*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) VFR or visual approaches;*
- (i) simulated approach procedures; and*
- (j) the minimum altitude for the operation of aircraft in the vicinity of the aerodrome.*

# Noise Operating Restrictions

## Restrictions:

The GTAA restricts the hours of arriving and departing jet aircraft heavier than 34,000 kg GTOW. Non-certified aircraft are prohibited between 8 p.m. and 8 a.m. Chapter 2 aircraft are scheduled between 7 a.m. and midnight, while Chapter 3 aircraft may be scheduled between 6:30 a.m. and 12:30 a.m. There are a limited number of arrivals of the quietest Chapter 3 aircraft scheduled between 12:30 a.m. and 1:00 a.m. and between 6:00 a.m. and 6:30 a.m. Transport Canada has imposed a limit on all aircraft movements between 12:30 a.m. and 6:30 a.m. This limit is based on an annual basis (November - October).

The GTAA Airport Duty Manager may grant operating extensions on the day of operation for flights delayed by weather, emergencies, air traffic control issues or mechanical difficulties. Chapter 3 aircraft may be approved up until 3 a.m. depending upon the circumstances and runways available. A limited number of exemptions for Chapter 3 aircraft are approved



conditional on the GTAA's ability to remain within the total number of flights associated with Transport Canada's imposed limit. Non-noise certified aircraft, Chapter 2 operations will not be granted operating extensions.

## Preferential Runway Assignment:

Subject to operational safety (wind, weather, runway conditions, approach aid availability), preferential runways have been allocated for use between midnight and 6:30 a.m. Preferred departures are in the following order of priority: Runways 23, 33R and 24R. Preferred arrivals are 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.

## Engine Run-ups:

Occasionally, airline maintenance staff must perform engine run-ups after engine repairs have been completed. At all times, these run-ups must be approved by the GTAA Airport Duty Manager and completed at designated locations. Between midnight and 7 a.m., these ground operations are only approved at locations furthest from residential areas and for those aircraft scheduled to depart the next morning. All Chapter 2 aircraft, including those under 34,000 kg GTOW, are prohibited from performing aircraft maintenance run-ups between 2 a.m. and 5 a.m.

# Noise Abatement Procedures

## COMMUNITY INVOLVEMENT

The GTAA works on an ongoing basis with neighbouring communities to address issues

### Departures:

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 above airport elevation before making enroute turns. Propeller aircraft must comply with jet procedures between 11 p.m. and 7 a.m., except regarding climb procedures. During the day they may turn as low as 500 feet above airport elevation to accommodate increased hourly operations.

### Arrivals:

Both propeller aircraft and jet aircraft must remain at 2,400 feet above airport elevation until they line up with their runway, generally seven to ten nautical miles from the airport. They must then maintain a three-degree glide slope approach until touchdown, and minimize noisy reverse thrust after touchdown.

While air crews act to minimize noise during departures and arrivals, sometimes they may have to deviate from noise procedures if there is any question of safety.

FIGURE 1: NOISE ABATEMENT PROCEDURES

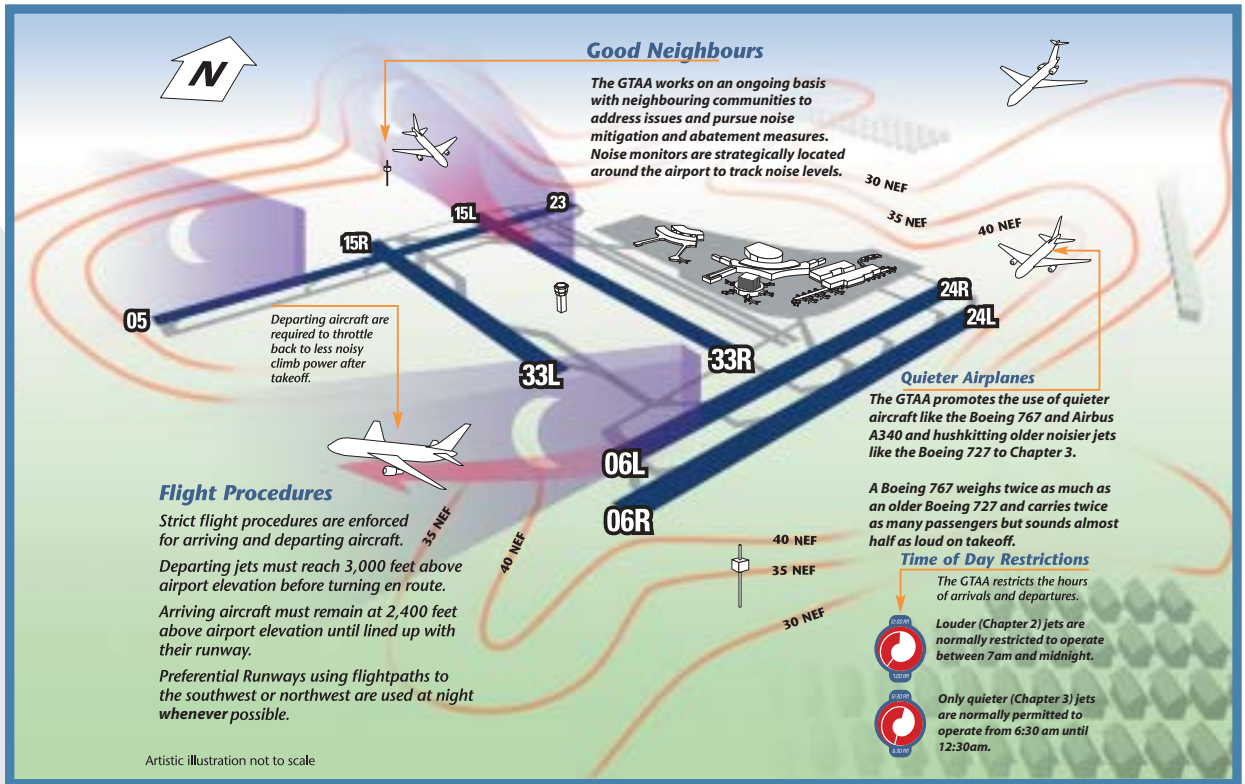


Figure: Illustration of noise abatement procedures in place at Toronto Pearson.

# Aircraft Noise Certification

## CHAPTER 4 NOISE STANDARD

In June 2001, the ICAO Council adopted a new Chapter 4 noise standard which is more stringent than that contained in Chapter 3. The new standard will apply to newly certificated aircraft and to Chapter 3 aircraft. This initiative is beginning in January 2006

The GTAA follows the guidelines of managing noise as prescribed by the International Civil Aviation Organization (ICAO) Annex 16 Volume I, Chapter 3, created to develop standards that would be uniform for the global aviation industry. Chapter 3 noise standards of ICAO require that all subsonic jet aircraft types certificated after October 1977 meet more stringent maximum noise levels. In the United States, aircraft that meet similar noise standards under FAR Part 36 are referred to as Stage 3. Aircraft that conform to those noise emission standards include the Boeing 747-400, new generation 737, 757, and Airbus 319, 320, 330 and 340, among others. Noisier, older aircraft, known as Chapter 2 or Stage 2, include Douglas DC-9, Boeing 727, older model 737, and older Learjets and Gulfstream business jets. Some of these jets can be hushkitted to meet Chapter 3 standards. Jets that are non noise certificated are the oldest models. These include military aircraft that make fewer than 100 visits to Toronto Pearson each year. Transport Canada has adopted timetables for conversion of large air carrier jet fleets to Chapter 3 standards. Since April 1, 2002, only jet aircraft greater than 34,000 kg that comply with Chapter 3 standards are permitted to operate at Toronto Pearson. Although the GTAA and the NMC have opposed Chapter 2 exemptions, Transport Canada retains the right to approve exemptions to this phase out.

In June 2001, on the basis of recommendations made by the Committee on Aviation Environmental Protection (CAEP/5), the ICAO Council adopted a new Chapter 4 noise standard which is more stringent than that contained in Chapter 3.

Commencing in January 2006, the new standard will apply to newly certificated aircraft and to Chapter 3 aircraft for which re-certification to Chapter 4 is requested.

FIGURE 2: AIRCRAFT NOISE CERTIFICATION

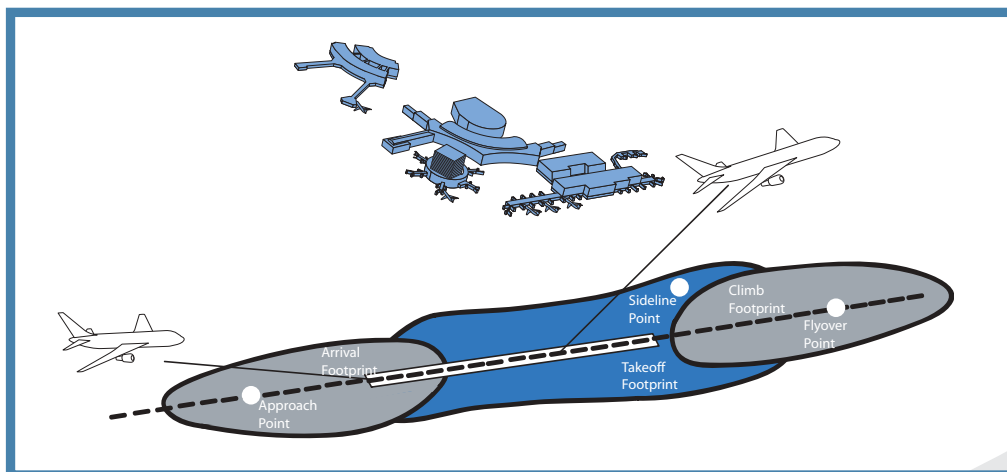


Figure 2: Illustration of the three noise measurement locations required to determine engine certification.

# Airport Operating Area and Noise Exposure Forecast

## TORONTO PEARSON OPERATING AREA

Established by the GTAA, the Toronto Pearson Airport Operating Area uses well-defined natural or man made boundaries to approximate the 30 NEF Contour on the ground

Transport Canada has developed a “Noise Exposure Forecast” (NEF) model which calculates long term aircraft noise exposure based on actual or forecasted flights. Contour lines are drawn on a map (Figure 3) 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 or forecasted flights.

Transport Canada has indicated that areas as low as 25 NEF may be affected by aircraft noise. Areas of 30 NEF or greater are considered incompatible for new residential development. The GTAA has established the Toronto Pearson Airport Operating Area which uses well-defined natural or man made boundaries to approximate the 30 NEF Contour on the ground. This operating area and associated policies that limit incompatible land uses are included in the Official Plans of the municipalities that surround the airport.

FIGURE 3: AIRPORT OPERATING AREA

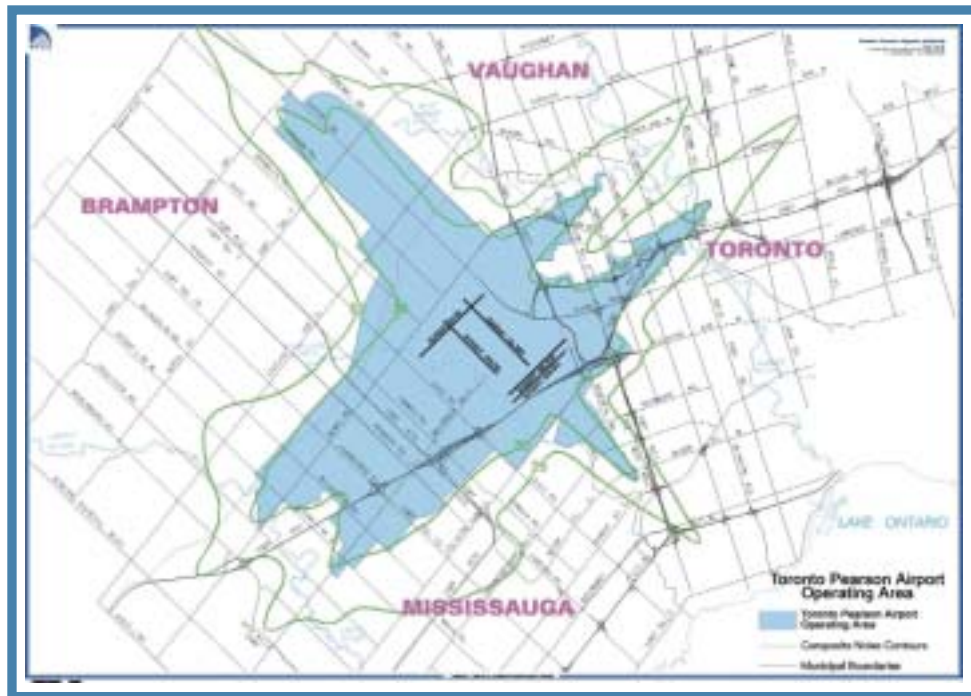


Figure 3: Depiction of the operating area for Toronto Pearson International Airport as well as 30 and 25 NEF.

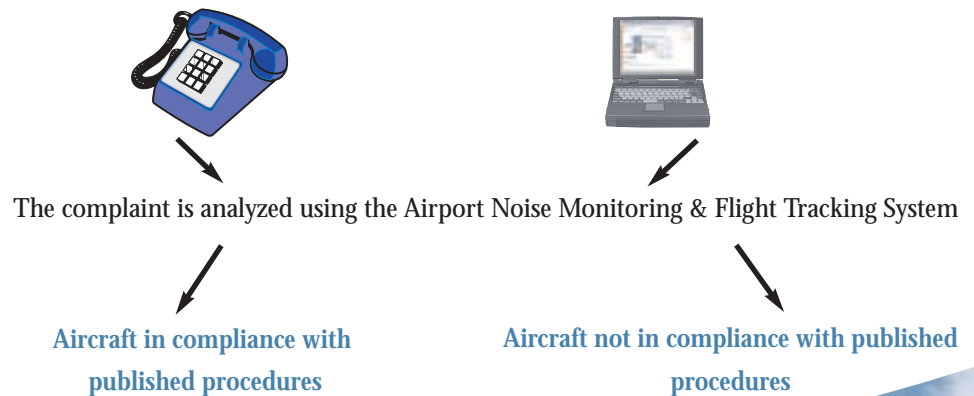


# Noise Management Office

The GTAA maintains a Noise Management Office to monitor airport operations in relation to the Noise Management Program. The primary responsibility of the Noise Management Office is to register and respond to noise complaints. To register a noise complaint concerning arriving or departing aircraft within 10 nautical miles of Toronto Pearson, contact the GTAA at (416) 247-7682. Noise complaints can also be registered through the GTAA web site at [www.gtaa.com](http://www.gtaa.com). For complaints concerning en route aircraft or those beyond 10 nautical miles from the airport, call Transport Canada at (416) 952-0335.

## How a noise complaint is handled

A Noise complaint is registered by telephone or through the GTAA web site.



If requested, a response is provided to the individual who registered the complaint.

If requested, a response is provided to the individual who registered the complaint advising that an investigation has been initiated. NAV CANADA and the offending air carrier will be contacted by the GTAA's Enforcement Office.

## Enforcement

Only Transport Canada has the authority to issue fines to aircraft operators found to be in contravention. Transport Canada publishes the names of corporations violating the Aeronautics Act and the Canadian Aviation Regulations (CARs), including noise violations. Corporate offenders along with a summary of the offence and the resulting sanctions are published on the Transport Canada web site at:

[www.tc.gc.ca/civilaviation/regserv/enforcement/publications/corporate/summary.htm](http://www.tc.gc.ca/civilaviation/regserv/enforcement/publications/corporate/summary.htm)

# NMT Locations

The GTAA uses Noise Monitoring Terminals as a part of the overall Noise Management Program. Together with specialized software, the Noise Management Office has the ability to collect data on a number of items which relate to aircraft noise.

FIGURE 4: NMT LOCATION MAP

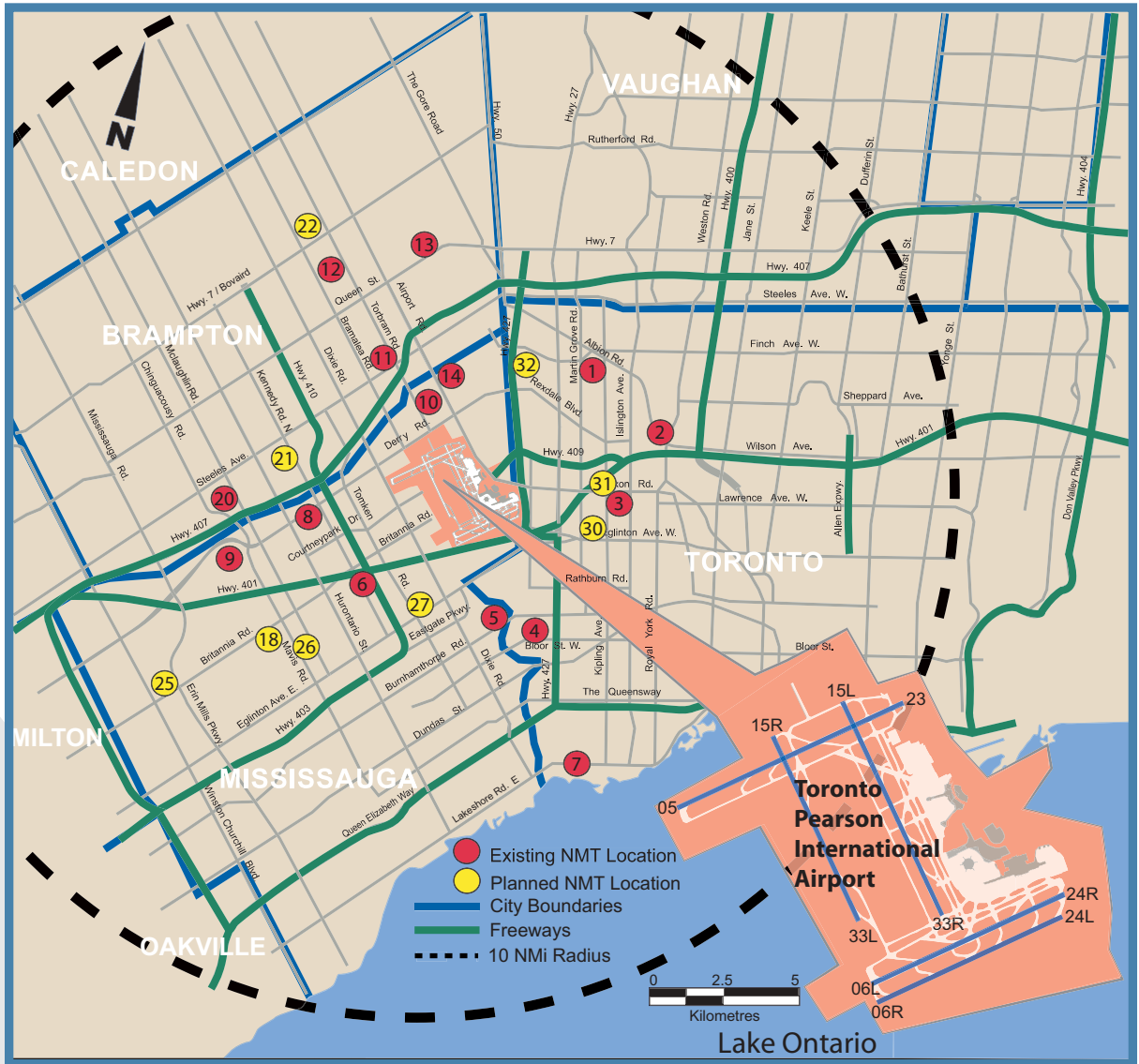


Figure 4: Locations of current and planned NMTs.

# Airport Noise Monitoring and Flight Tracking

Figure 5: Realtime noise monitoring display utilized by the GTAA. Displayed are various aircraft labelled with corresponding identification, altitude above sea level, aircraft type, ground speed, transponder code, origin and destination respectively in descending order. Arriving aircraft are shown in yellow and departing aircraft in red.

FIGURE 5: REALTIME NOISE MONITORING DISPLAY

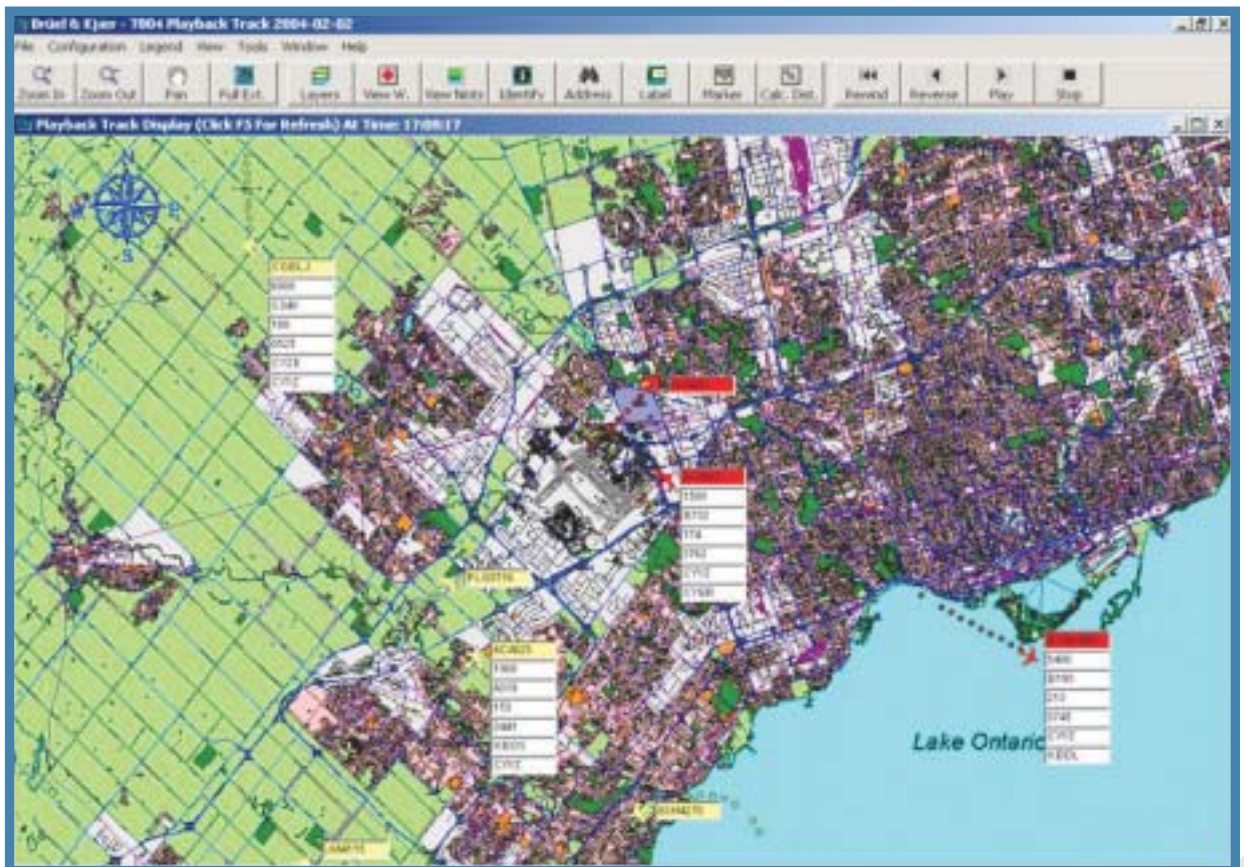


FIGURE 6: PASSENGER VOLUME

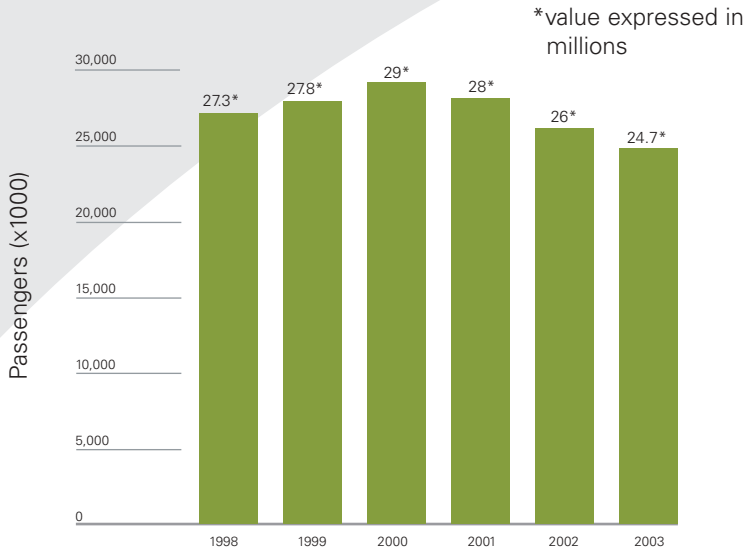


Figure 6: Depicts that passenger traffic had increased steadily from 1994 through to 1999 when a levelling off occurred through to 2001. The decline in passenger traffic in the latter portion of 2001 which continued in 2002 can be attributed to a number of factors that affected the airline industry, primarily the events of September 11, 2001.

**PROGRAM ENHANCEMENT**

The GTAA adopted the noise management program maintained by Transport Canada prior to the airport transfer and has been continually reviewing the program with a view to enhancing it where appropriate.

FIGURE 7: AIRCRAFT MOVEMENTS

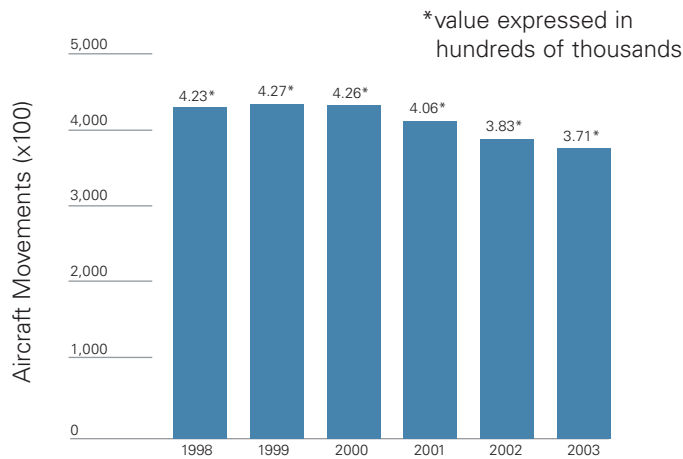


Figure 7: Depicts the number of aircraft movements. A reduction in aircraft movements through 2001 and 2002 was caused by the same factors that affected the number of travellers using the airport.

**FIGURE 8: PERCENTAGE OF MOVEMENTS BY MOST COMMON AIRCRAFT TYPE**

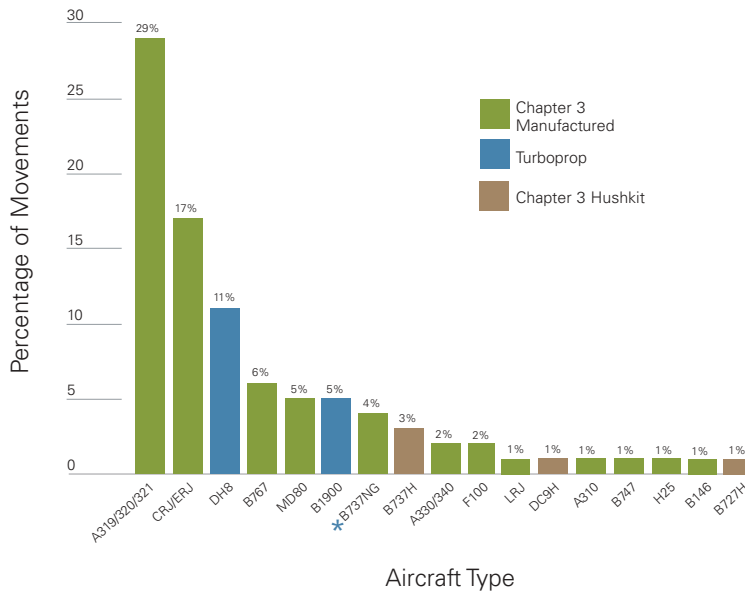


Figure 8: Shows the annual percentage of specific movements by aircraft type which operate at Toronto Pearson. In 2003, 95 per cent of all jet aircraft operations were the manufactured, quietest Chapter 3 aircraft. Hushkitted aircraft accounted for approximately 5 per cent of all jet aircraft operations.

Accounting for 46 per cent of all flights in 2003 were the Airbus A319, A320 & A321 in addition to the Canadair Regional Jet (CRJ) and the Embraer Regional Jet (ERJ). These aircraft were all manufactured to meet Chapter 3 requirements and are among the quietest aircraft that operate at the airport.

Jet aircraft that have been hushkitted to conform to Chapter 3 regulations, such as the Boeing 737-200 and McDonnell Douglas DC-9 accounted for 4 per cent of all flights.

**FIGURE 9: COMPARISON OF AIRCRAFT MOVEMENTS & COMPLAINTS BY RUNWAY OPERATION**

ARRIVALS			DEPARTURES		
Runway	Movements	Complaints	Runway	Movements	Complaints
Arrive 23	34038	60	Depart 05	14972	7
Arrive 24R	55575	35	Depart 06L	46388	197
Arrive 24L	8364	13	Depart 06R	1578	22
Arrive 33R	610	25	Depart 15L	1096	34
Arrive 33L	5940	179	Depart 15R	37	0
Arrive 06R	5486	3	Depart 24L	945	11
Arrive 06L	29268	25	Depart 24R	39635	199
Arrive 05	37756	117	Depart 23	59275	171
Arrive 15R	940	50	Depart 33L	5998	63
Arrive 15L	4721	47	Depart 33R	14022	272
<b>Total Arr</b>	<b>182698</b>	<b>554</b>	<b>Total Dep</b>	<b>183946</b>	<b>976</b>
				<b>Movements</b>	<b>Complaints</b>
Total All Runways				366644	1530
Non Runway Complaints **					42
Total Complaints					1572

\*B737NG includes B737-300 series to 800 series aircraft. Other aircraft types with less than 1 per cent are not shown

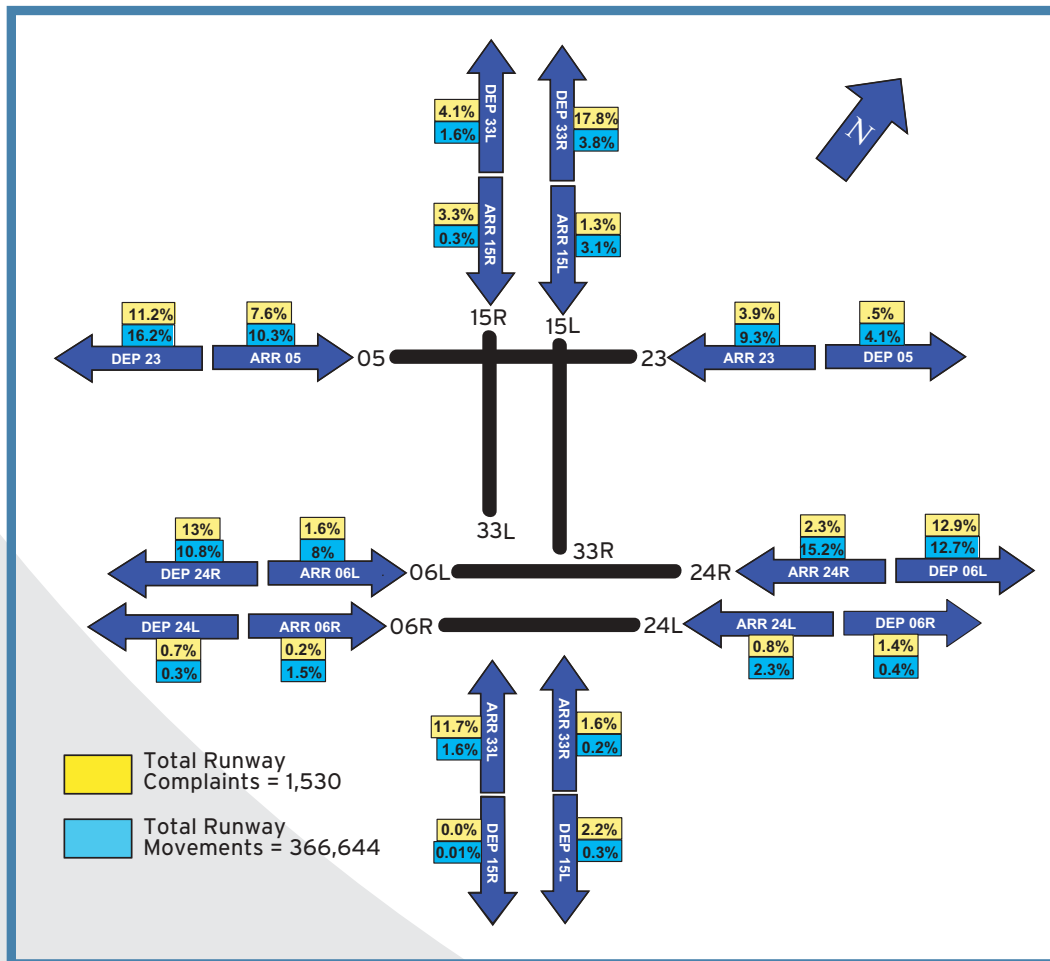
\*\*Other Operations relate to missed approaches, ILS inspections, maintenance runups and helicopter operations.

**PREFERENTIAL  
RUNWAY  
ASSIGNMENT**

Subject to operational safety, preferential runways have been allocated for use between midnight and 6:30 a.m.

Figures 9 & 10: A comparison of aircraft movements by runway to the number of complaints. In 2003 there were a total of 1,572 complaints registered with the GTAA's Noise Management Office. 1,530 of these complaints were registered against a particular runway operation. The remaining 42 complaints were registered against missed approaches, ILS flight inspections, engine maintenance runups and helicopter operations. Complaints in the table are related to source of operation, not by geographic location (i.e., depart 33R rollback complaints are from south of the airport).

**FIGURE 10: COMPARISON OF NOISE COMPLAINTS BY RUNWAY OPERATION**



**ENFORCEMENT**

The GTAA manages aircraft noise by strictly enforcing the type of aircraft using Toronto Pearson International Airport as set out under applicable federal regulations and by enforcing noise abatement procedures.

**FIGURE 11: MONTHLY COMPARISON OF RUNWAY MOVEMENTS & NOISE COMPLAINTS**

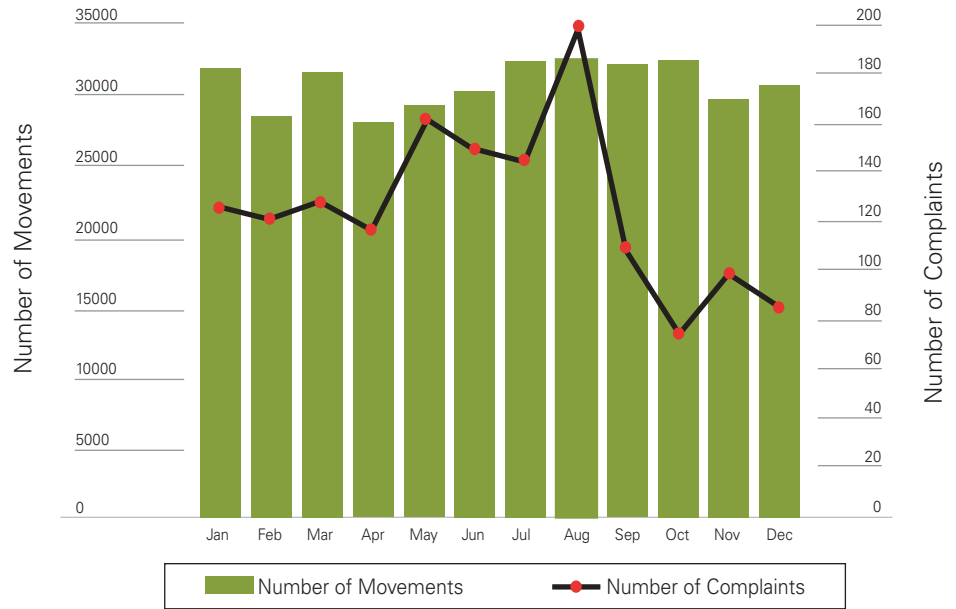


Figure 11: Illustration of the monthly complaints compared to monthly runway movements. The number of complaints varies throughout the year, however the top 4 months of complaints registered occurs during the summer months when exposure to noise by the surrounding community is greatest.

**FIGURE 12: NOISE COMPLAINTS BY OPERATION**

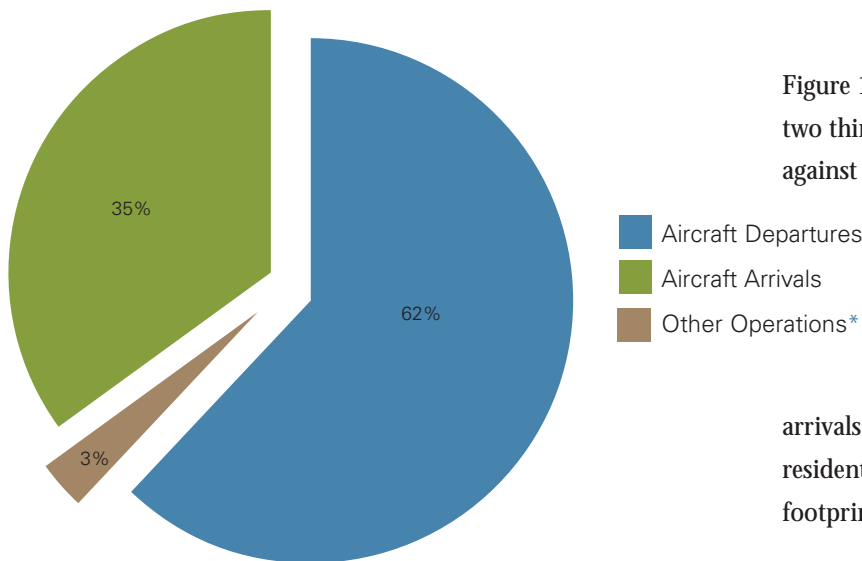


Figure 12: Illustration that approximately two thirds of complaints are registered against departures, while arrivals account for the remaining one third of the complaints. This can be attributed to the fact that departures are generally noisier than arrivals and impact a greater number of residential areas due to its larger noise footprint.

\* Other Operations relate to missed approaches, ILS inspections, maintenance runups and helicopter operations.

FIGURE 13: MONTHLY COMPARISON OF NOISE COMPLAINTS AND CALLERS

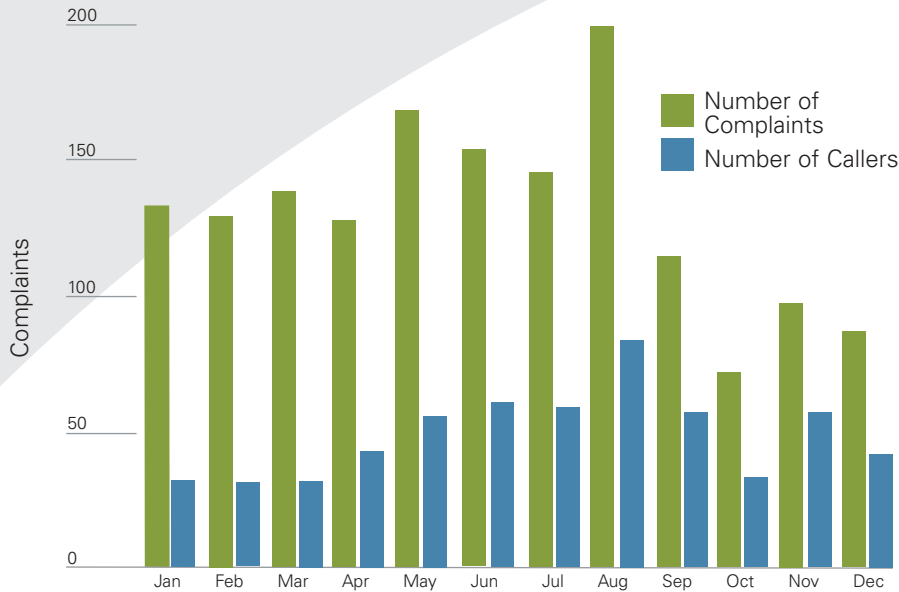
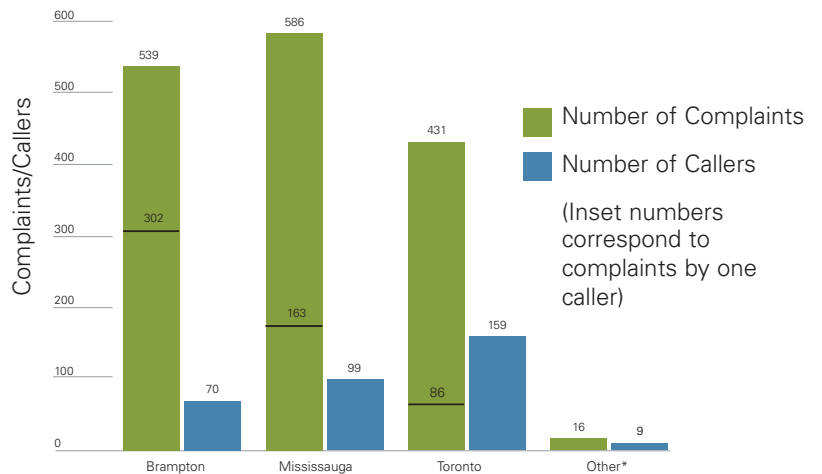


Figure 13: Illustration of the number of complaints compared to the number of callers.

Total Complaints = 1572  
Total Callers = 337

Figure 14: Depiction of the total number of noise complaints and callers by municipality. In this case, Brampton had 70 complainants who registered 539 individual complaints. In 2003, one Brampton resident accounted for 302 of the total complaints registered. In Mississauga there were 99 complainants registering 586 individual complaints, with 163 complaints registered from one Mississauga resident. In Toronto there were 159 complainants accounting for 431 complaints. 86 individual complaints were registered from one resident in Etobicoke.

FIGURE 14: COMPARISON OF NOISE COMPLAINTS & CALLERS BY MUNICIPALITY



\* Other complaints registered were from Halton Hills, Oakville and Vaughan.



FIGURE 15: TOP 5 CALLERS VS. ALL OTHER CALLERS

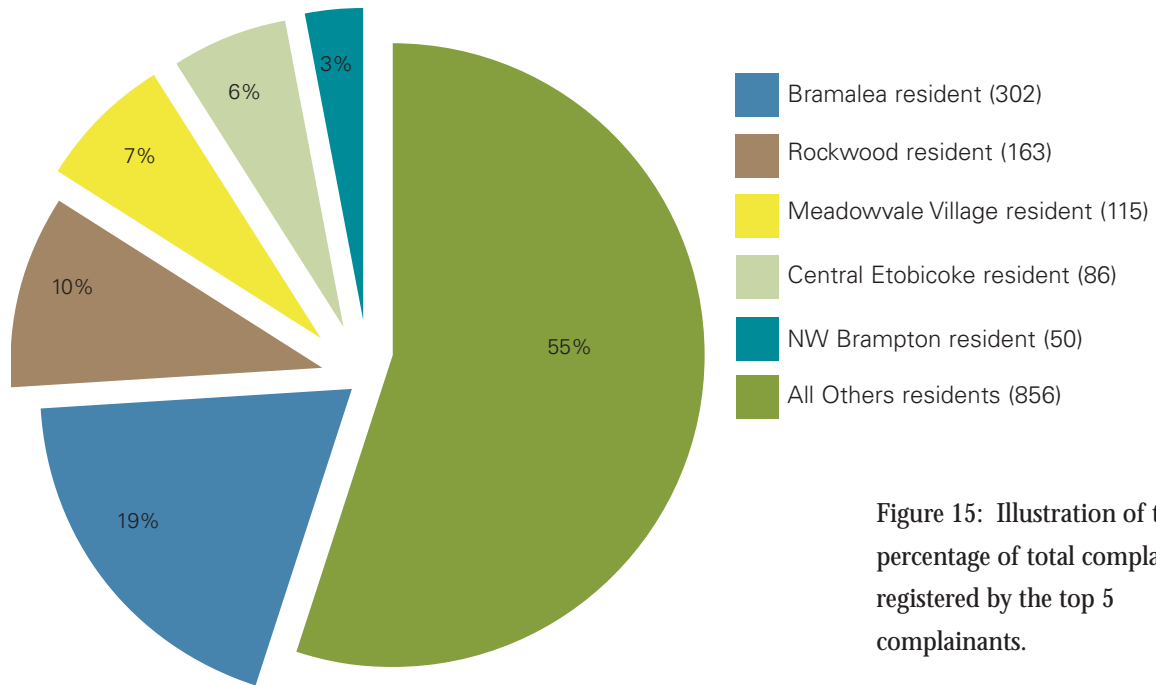


Figure 15: Illustration of the percentage of total complaints registered by the top 5 complainants.

FIGURE 16: NOISE MONITORING TERMINAL MONTHLY Leq (dBA)

NMT	Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nbv	Dec
<b>Toronto</b>													
1	West Humber	58.6	59.3	58.7	58.4	58.4	59.9	60.5	60.3	59.7	60.2	60.2	58.8
2	Humberlea	57.2	57.9	58.5	58.7	60.4	59.7	59.9	60.3	60.2	59.8	59.9	59.3
3	St. Eugene's	55.4	56.8	54.9	56.5	56.2	55.3	53.8	54.3	55.9	57.0	58.2	57.1
4	Markland	54.2	54.5	54.7	55.6	56.8	55.6	54.8	58.4	55.9	55.6	56.6	55.8
7	James S. Bell	55.1	56.5	54.7	56.8	55.9	56.0	56.5	56.0	-	-	57.5	54.9
<b>Mississauga</b>													
5	Garnetwood	54.4	54.3	54.1	54.7	56.1	53.5	53.9	52.0	54.8	55.2	57.8	55.8
6	Hwy 401 & Hwy 403	60.1	61.1	63.1	63.5	63.5	70.7	65.1	62.3	62.1	62.0	62.0	60.7
8	Derry East	-	-	-	-	-	-	-	-	-	-	-	-
9	Meadowvale	56.8	56.5	56.2	57.4	58.5	58.5	58.5	-	58.9	59.2	58.5	57.9
10	Bren Road	58.5	59.4	60.6	60.7	60.6	61.6	59.6	60.9	61.4	60.9	61.4	60.1
14	Marvin Heights	56.9	58.2	56.6	57.2	56.9	56.7	58.3	59.6	56.5	59.4	60.6	57.9
<b>Brampton</b>													
11	Bramalea South	56.8	57.1	57.2	57.9	58.1	57.8	56.2	59.5	57.6	57.6	59.1	56.7
12	Grenoble	53.9	56.0	52.8	54.0	54.4	54.2	57.3	56.2	54.4	55.8	58.3	54.4
13	Goreway	-	-	-	54.4	-	-	-	55.7	-	-	-	-
20	South Fletchers	-	-	61.8	61.7	61.9	61.8	61.5	61.5	61.9	62.8	63.4	62.3

Figure 16: Table of the measured monthly average noise levels at each Noise Monitoring Terminal. Noise data presented includes the contribution of all noise sources and not aircraft generated noise exclusively. The varying locations of the NMTs in the community contribute to the variation in noise levels, whereby some NMTs may be closer than others to regular arrival and departure flight paths.

- NOTES: 1. NMT 8 out of service due to construction adjacent to location.  
 2. NMT 13 periodically out of service for maintenance purposes.  
 3. Noise level data provided for NMTs that were active over 75% of the time.

FIGURE 17: COMMUNITY NOISE TABLES

**NMT 1**

Date	24hr LEQ dBA	Runway Utilization	
		Operation	Duration (hrs)
Mar. 7	58.6	A23	16
Aug. 24	62.0	A23	15
Mar. 21	58.2	D05	8
Aug. 25	60.6	D05	8

NMT1 is approx. 3.0 nmi. from Rwy 23 threshold

**NMT 2**

Date	24hr LEQ dBA	Runway Utilization	
		Operation	Duration (hrs)
Mar. 7	58.8	A24R	18
Jul. 20	60.3	A24R	17
Feb. 3	59.5	D06L	16
Aug. 10	61.0	D06L	9

NMT 2 is approx. 3.4 nmi. from Rwy 24R threshold

**NMT 5**

Date	24hr LEQ dBA	Runway Utilization	
		Operation	Duration (hrs)
Nov. 13	67.5	A33L	13
May 13	60.6	A33L	7
Dec 14	58.3	D15L	11
Sep.19	57.0	D15L	5

NMT5 is approx. 2.4 nmi. from Rwy 33L threshold

**NMT 6**

Date	24hr LEQ dBA	Runway Utilization	
		Operation	Duration (hrs)
Mar. 16	60.2	A06L	15
Aug. 8	62.3	A06L	13
Mar. 7	60.2	D24R	15
Aug. 24	63.1	D24R	12

NMT 6 is approx. 2.3 nmi. from Rwy 06L threshold

**NMT 9**

Date	24hr LEQ dBA	Runway Utilization	
		Operation	Duration (hrs)
Mar. 13	55.7	A05	24
Jul. 22	60.8	A05	24
Feb. 28	56.0	D23	9
Aug. 25	60.1	D23	15

NMT 9 is approx. 4.0 nmi. from Rwy 05 threshold

**NMT 11**

Date	24hr LEQ dBA	Runway Utilization	
		Operation	Duration (hrs)
Dec. 14	57.7	A15R	13
Sep. 22	60.8	A15R	7
Nov. 13	66.2	D33R	14
Jun 14	60.4	D33R	12

NMT 11 is approx. 2.4 nmi. from Rwy 15R threshold

Figure 17: Tables of the measured daily noise levels at specific Noise Monitoring Terminals. The noise values in the tables represent the varying noise energy over 24 hours expressed as a constant. These NMTs were selected to represent the typical daily average noise levels experienced during an overhead operation both during the winter and summer months. Noise data presented includes the contribution of all noise sources. Refer to Figure 4 for NMT location.

**FIGURE 18: NOISE ABATEMENT INVESTIGATIONS**

**134 Investigations**  
 46 Night  
 20 Arrival  
 68 Departure  
 Associated with complaints = 38

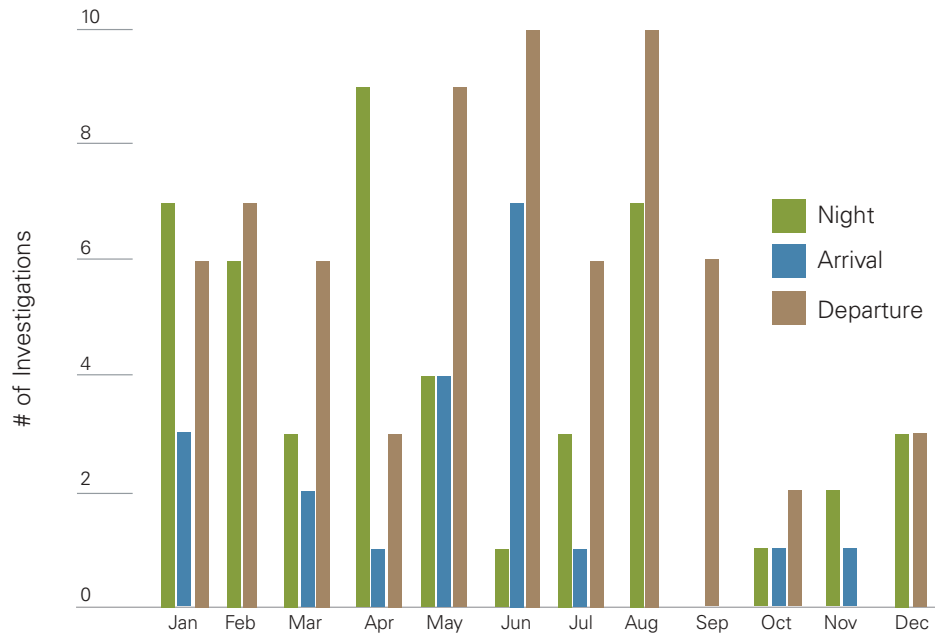


Figure 18: Breakdown of the 134 investigations conducted by the GTAA in 2003 concerning potential noise abatement violations. Of these, there were 46 investigations that resulted from night flight operations, 20 investigations resulting from arrival procedures and 68 investigations concerning potential departure violations. Of the 134 investigations conducted by the GTAA in 2003, 28 per cent were associated with complaints registered with the GTAA's Noise Management Office. When a violation is deemed appropriate, the case is forwarded to Transport Canada for final disposition as they have sole authority for determining financial penalties. Transport Canada publishes the names of corporate offenders on their web site: [www.tc.gc.ca/civil\\_aviation/RegServ/Enforcement/Publications/Corporate/summary.htm](http://www.tc.gc.ca/civil_aviation/RegServ/Enforcement/Publications/Corporate/summary.htm)

**Contact/Information:**

GTAA Noise Management Office: (416) 247-7682  
 Transport Canada Noise Complaints: (416) 952-0335  
 GTAA web site: [www.gtaa.com](http://www.gtaa.com)

Information about the GTAA's Noise Management Program is also published in the *GTAA Update* newsletter which is available on the GTAA web site.



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