

**Brief for the
Standing Committee on Transport, Infrastructure and Communities
Assessing the
Impact of Aircraft Noise in the Vicinity of Major Canadian Airports**

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This brief supplements my testimony to the Committee, on November 27, urging it to:

- Assess the impact of aviation noise on human health;
- Review and strengthen the Civil Aviation Regulations pertaining to noise; and
- Address the need for a long-term aviation plan and strategy for southern Ontario.

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1. Health Impacts of Noise

1.1 Introduction

Other countries have recognized that the health impacts of aviation noise are real and I hope that Canada will too. Other governments have responded to community concerns in a manner that allows airports to continue providing vital services to the nation, while safeguarding the health of impacted communities. While Toronto Pearson has undoubtedly provided economic benefits to the region and the country as a whole, the health impacts of its relentless growth have been borne solely by the local communities. A more balanced approach is needed.

The following material has convinced me that the health impacts of airplane noise are real and that there is a need for action to protect affected communities. I hope that the Committee will come to the same conclusion.

1.2 Health Canada's Position

Health Canada's position is contained in a bulletin entitled, Aircraft Noise in the Vicinity of Airports. [1]

We are told that, "Health Canada provides advice to the public and regulatory authorities, such as Transport Canada, on the health effects of aircraft noise. This ensures that health risks are taken into account when decisions are made that affect our exposure to aircraft noise."

Health Canada gives the following Advice to Airport Communities,

"If you live near an airport, or are planning to move near one, a good first step is to get specific details about aircraft noise levels in the neighbourhood. You can do this by contacting your local airport for a copy of the noise contour (noise map) for your area. From there, you can compare your local noise contour to the contours recommended in the following document: Land Use in the Vicinity of Airports (TP 1247) Part IV Aircraft Noise."

Pearson's noise contour map was produced before the GTAA took over operation of the airport, in 1996. During this time, flights increased 25%. While it's true that today's aircraft are quieter, night flights are the killer; they increased by almost 100%. Moreover, this noise map predates the operation of the second north/south runway that impacts our community and is clearly way out of date. The GTAA has consistently refused to publish updated versions.

Clearly, Health Canada is out of touch with reality and is dispensing information that is not at all useful to airport communities.

The bulletin [1] further states, "Scientific studies on adults have shown that short-term exposure to intense noise can cause temporary effects, including increases in heart rate and blood pressure. However, there is no consistent evidence that chronic noise leads to hypertension."

1.3 Other Health Organizations' Positions

Other health organizations disagree.

The World Health Organization states, "There is sufficient evidence from large-scale epidemiological studies linking the population's exposure to environmental noise with adverse health effects. Therefore, environmental noise should be considered not only as a cause of nuisance but also a concern for public health and environmental health ... at least

1 million healthy life years are lost every year from traffic-related noise in the western European countries.” [2]

Moreover, a paper published in the British Medical Journal, in 2013, [3] concludes, “Despite limitations related to potential misclassification of exposure, we found a statistically significant association between exposure to aircraft noise and risk of hospitalization for cardiovascular diseases among older people living near airports.”

Furthermore, on April 2017, the Toronto Public Health Department published a report [4] entitled, How Loud is Too Loud? Health Impacts of Environmental Noise in Toronto. The report states, “There is increasing concern about the impacts of environmental noise on health, especially in urban areas. The growing body of evidence indicates that exposure to excessive environmental noise does not only impact quality of life and cause hearing loss but also has other health impacts, such as cardiovascular effects, cognitive impacts, sleep disturbance and mental health effects.”

Consideration of the health effects of environmental noise associated with development projects is now city policy.

While Toronto Public Health has taken action, Health Canada still sits on the fence, despite the fact that Pearson Airport keeps increasing flights, particularly at night when the impacts are most severe.

Additionally, the Centre for Disease Control and Prevention (CDC) in the United States has declared insufficient sleep a **public health problem**. According to a recent CDC study, more than a third of American adults are not getting enough sleep on a regular basis. [5] But, insufficient sleep is not exclusively a U.S. problem; it also concerns other industrialised countries such as the United Kingdom, Japan, Germany and Canada. [6]

Finally, according to Matthew P. Walker, a cognitive psychologist who heads the University of California Berkeley’s Sleep and Neuroimaging Lab, “There does not seem to be one major organ within the body, or process within the brain, that isn’t optimally enhanced by sleep (and detrimentally impaired when we don’t get enough).”

Health Canada knows all of this, why are they still sitting on the fence?

1.4 A Gratuitous Community Impact Experiment

In 2017, as a result of runway maintenance work, which started on March 28, and lasted until May 16, communities located south of Toronto Pearson airport were exposed to double the normal airplane traffic and noise.

Predictably, this generated a significant increase in noise complaints. The number of people that picked up their phones to complain increased from 213, in March (7 per day), to 1156 in April (36 per day). In May the number of callers responding to the increased noise exposure was 525, or 312 more than in March. Therefore, during the first two weeks of May, the response rate was 20 more per day than in March. This means that during the runway maintenance period, the average rate of daily responses to airplane noise was just over four times what it was immediately before.

The north/south runways, which took the brunt of the increased noise exposure, saw a doubling of traffic in 2017, from 6.8% of all flights, in 2016, to 13.5% in 2017. The communities south of the airport also saw a doubling of aircraft traffic from 12,275 in 2016 to 25,192 in 2017.

Although traffic doubled, the noise responses in Etobicoke-Centre and Etobicoke-Lakeshore more than quadrupled. They literally went through the roof (from **157** in 2016, to

1197, in 2017) far exceeding what would have been predicted from a linear response to noise.

These results suggest that the noise exposure/response relationship is non-linear. People respond not only to the amplitude of noise events, but also their frequency.

Night flights were particularly troublesome during this gratuitous test period. Sleep deprivation and high blood pressure became serious concerns. Everyone in the community felt the impact; and that dreadful experience made us aware of what could happen in the future.

During the next 20 years, as Pearson's night budget continues to grow, night flights are predicted to double. But it's not just the flights during the period that the GTAA defines as night (00:30 to 06:30); it's all the flights during the real night, which for most people is between 23:00 and 07:00. We now know how painful that future scenario can be and it is unacceptable to people living south of the airport.

1.5 The Fringe Element

Every airport that I have studied receives the bulk of noise complaints from a handful of individuals. Rather than dismissing these frequent complainers as fringe elements, airports should be paying more attention to them. Is such obsessive behaviour not a mental illness? Medical experts have been telling us that environmental noise can cause mental illness [4]. Yet, neither Transport Canada, nor Health Canada, has paid attention to it.

I suppose it's more effective for airports to deride these individuals as troublemakers rather than victims of their operations. This group of individuals is the elephant in the room! I urge the Committee to not ignore it.

1.6 The Consequences of Insufficient Sleep

The RAND Corporation, a non-profit institution that helps improve policy and decision making through research and analysis, has conducted a recent study on the economic impacts of insufficient sleep. [7] Its key findings are:

- Insufficient sleep increases mortality risk by up to 13 per cent.
- Insufficient sleep is costly for employers by reducing workplace productivity.
- Up to \$680 billion is lost each year across five OECD countries due to insufficient sleep. The breakdown is as follows:

Canada	U.S.	U.K.	Germany	Japan
\$21.4 B	\$411 B	\$50	\$60 B	\$138 B

The estimated total cost of inadequate sleep in Australia, in 2016–2017, was \$45.21 billion, comprising \$17.88 billion in financial costs and \$27.33 billion in loss of well being. [8]

1.7 References

[1] Health Canada Bulletin, updated January 2010, "Aircraft Noise in the Vicinity of Airports"

[2] World Health Organization Report, "Burden of disease from environmental noise Quantification of healthy life years lost in Europe", 2011.

[3] Residential exposure to aircraft noise and hospital admissions for cardiovascular diseases: multi-airport retrospective study published in the BMJ 8 October 2013, by Andrew

W Correia quantitative analyst, Junenette L Peters assistant professor, Jonathan I Levy professor, Steven Melly geographic information systems specialist, Francesca Dominici professor, associate dean of information technology.

[4] How Loud is Too Loud? Health Impacts of Environmental Noise in Toronto; Toronto Public Health Technical Report, April 2017, by Kelly Drew, Ronald Macfarlane, Tor Oiamo, Meghan Mullaly, Desislava Stefanova, Monica Campbell.

[5] Liu, Yong, Wheaton, Anne G, Chapman, Daniel P, Cunningham, Timothy J, Lu, Hua, & Croft, Janet B. (2014). Prevalence of Healthy Sleep Duration among Adults — United States. MMWR Morb Mortal Wkly Rep 2016, 65, 137-141.

[6] National Sleep Foundation, International Bedroom Poll.
<https://sleepfoundation.org/sleep-polls-data/other-polls/2013-international-bedroom-poll>

[7] Why Sleep Matters – the economic costs of insufficient sleep – A cross-country comparative analysis, by Marco Hafner, Martin Stepanek, Jirka Taylor, Wendy M. Troxel, Christian van Stolk, RAND Corporation, 2016.
https://www.rand.org/pubs/research_reports/RR1791.html

[8] The economic cost of inadequate sleep, by David Hillman, Scott Mitchell, Jared Streatfeild, Chloe Burns, Dorothy Bruck and Lynne Pezzullo, published in the Sleep Research Society Journal, SLEEPJ 2018, 1-13.

<https://academic.oup.com/sleep/article/41/8/zsy083/5025924>

2. Noise Regulations

2.1 Introduction

The Canadian Civil Aviation Regulations (CARs) were promulgated, in 1996, by SOR96-433 and last amended on September 15, 2017. The CARs define requirements for all aspects of civil aviation, but only three pertain to noise: 602.105, 602.106 and 602.150.

2.2 CAR 602.105

CAR 602.105 defines the operating procedures to be followed by pilots near airports, such as: preferential runways, minimum noise routes, restricted operation, arrival and departure procedures. More detailed requirements are contained in the Canada Air Pilot or Canada Flight Supplement.

2.3 CAR 602.106

CAR 602.106 defines noise-restricted runways at each of the major airports in Canada. At Toronto-Pearson, runways 05, 06L, 06R, 15L, 15R are designated as noise-restricted for takeoff. Runways 15L and 15R are the ones that affect my family and community. But, these are noise-restricted in name only. At Montreal-Trudeau all runways are designated as noise-restricted for takeoff, but, again, it doesn't mean anything. All planes can use them because the bar has been set too low. CAR 602.106 provides no protection to airport communities.

The threshold for noise-restricted runway has been set too low, creating the situation where all planes flying today can takeoff from them. The threshold needs to be raised to prohibit Chapter 4 aircraft (and noisier) from taking off on noise-restricted runways.

Chapter 4 refers to (Annex 16) of the Convention on International Civil Aviation, which is used to certify planes that meet the noise criteria. Chapter 2, is the noisiest standard to which the DC8 and B727 were certified to. Chapter 3, raises the bar by a few dB and planes such as the B737 and A820 were certified to it. Chapter 3 planes are no longer allowed to fly in some European airports, where the bar has been raised to Chapter 4 (a few dB quieter than Chapter 3) and Chapter 14 (a few dB quieter than Chapter 4).

2.4 CAR 602.150

CAR 602.150 requires that all large planes using Canadian airports, other than Gander, must have a noise certificate that satisfies the requirements of Chapter 3.

Chapter 2 aircraft were phased out in 2002. At a time when most developed countries have phased out Chapter 3 aircraft, CAR 602.150 also offers no protection to airport communities. The bar needs to be raised to prohibit the use of chapter 3 aircraft, at all Canadian airports.

However, even with such changes, the CARS are still lacking.

2.5 What We Need

Additional CARs are needed to address the following:

- Night Curfew
- Single event noise limits for night flights
- A new night period
- Limits on night flights
- Night noise quota
- Aviation Noise Ombudsman

Night Curfew

Many airports around the world have night curfews. The largest curfew airports include: Frankfurt, Munich, Paris-Orly, Sydney, Warsaw and Zurich. Montreal is the only major airport in Canada with a night curfew. It bans all large aircraft (more than 40 tonnes) from flying at night. Heathrow will impose a night curfew once the third runway becomes operational. In all cases, both the cities and the airports have continued to thrive after curfew imposition. The sky did not fall, as many aviation experts had predicted.

Single-event Noise limit

No aircraft should be allowed to operate at night if it registers 70 dB at any of the noise-monitoring terminals located in residential communities. The ambient noise level at night drops to about 50 dB, and even a 70 dB sound is audible inside a house.

A New Night Period

Eight hours of sleep is a basic human right and the CARs need to specify the night period as being from 23:00 to 07:00 for airports across the country. What we have at Pearson (00:30 to 06:30) is unacceptable.

Limits on Night Flights and Noise Quotas

If a night curfew is implemented by regulation across Canada, the need for night-flight limits and night noise quotas is obviated. However, in the absence of a night curfew, these become imperative. England's London airports all have night-flight limits and noise quotas. The noise quota at Heathrow, for example, is 4,880, which means that if all planes flying at night had a noise index of 1, Heathrow would be limited to 4,880 flights, rather than 5,800,

which is the limit. To fully utilize the flight limit, quieter planes must be flown – those with a noise index less than 1.

Continuously growing night-flights at Pearson is an admission by Transport Canada that there are absolutely no community health consequences. With the growing body of evidence demonstrating a causal link between environmental noise and numerous human health concerns, such position is no longer tenable.

Aviation Noise Ombudsman

Would Pearson Airport have been allowed to expand night flights without limits, if an aviation noise ombudsman had been in place? Probably not!

The need for an Ombudsman is simple: the playing field is tilted in favour of the aviation industry, and our communities have been struggling to level it, without success. Please see Section 4 for details.

When it comes to aviation safety, Canadians rely on the Transportation Safety Board to investigate safety issues objectively and to make recommendations to the Minister to improve safety, when warranted.

But when it comes to community health, Canadians are asked to rely on the good will of the industry. However, the industry has demonstrated that such reliance is misplaced. For this reason, Canadians need an independent watchdog to ensure that the industry plays by the rules. Of course, this underscores the need for the rules to be clearly spelled out in the Civil Aviation Regulations, as outlined above.

3. Long-term Plan and Strategy

3.1 Introduction

In 1989, the government established an Environmental Assessment Panel to address Pearson's expansion plans and the need for new airports to serve the long-term needs for southern Ontario. [1]

In 1992, after publishing its interim report, the Panel was dissolved because the government rejected its recommendations. Consequently, the long-term needs and solutions, which comprised the second phase of its mandate, were not addressed.

3.2 The Need Hasn't Gone Away

A quarter century later, the GTA needs another airport more than ever, but no one is looking at long-term needs and solutions. As a result, our communities face a bleak future. The airport maintenance work of 2017, which disrupted normal traffic patterns, has given us a taste of that future, and none of us want it to materialize.

London, England, with a population nearing nine million, has three international airports (Heathrow, Gatwick and Stansted), while the Greater Toronto Area, with a population nearing six million, only has one. This tells us that we're already in a crisis situation.

Action on a long-term plan and strategy for the GTA can no longer be delayed. A new airport doesn't materialize overnight. It takes decades before it can become a reality.

In the interim, Transport Canada has to explore ways of using other airports in the region to provide much needed relief to Pearson and our communities.

3.3 Reference

- 1 AIR TRAFFIC MANAGEMENT IN SOUTHERN ONTARIO, Interim Report of the Environmental Assessment Panel, by David Kirkwood, November, 1992

4. Why We Need an Ombudsman

4.1 Introduction

The GTAA has only one objective: to grow Toronto-Pearson to be THE entry point on the continent; and they're doing it to win bragging rights. The health and well being of airport communities is of little or no concern to them. They have sold their objective on the basis that what is good for Pearson is good for the communities, the region and the country. They only pay lip service to the needs of neighbouring communities that bear the brunt of the negative impacts of that growth objective.

The GTAA now even talks about a **social licence** to grow. Who gave them that social licence? As this document demonstrates, they certainly have not earned it. To me, it indicates the degree of arrogance and bullying that the GTAA has developed, particularly in the last few years. It is an organization that is accountable to no one.

Concerned citizens and community groups get an opportunity to express their concerns at the Community Environmental and Noise Advisory Committee (CENAC), where they are politely listened to and soon forgotten. I have attended several of these meetings and its clear to me that the only reason they carry on with them is that they are a condition of the Land Lease. These meetings are mostly about appearance and very little about substance. Every three months we get updates on noise complaints; and that's what managing noise is about at CENAC.

4.2 My Experience at Dialogue with the GTAA

Having gotten nowhere with the CENAC, I took my concerns directly to Ms. Hillary Marshall, Vice-President, Stakeholder Relations and Communications at the GTAA.

I wrote to her on April 16, 2018, to enquire about Noise Exposure Forecasts, the very same document that Health Canada refers concerned citizens to. The problem is that the only NEF that has been published by the GTAA predates the operation of the second north/south runway (33L/15R), which came into operation about twenty years ago. The GTAA steadfastly refuses to publish updated NEFs, even though other Canadian airports do.

In her response, dated July 26, 2018, Ms. Hillary tells me that the GTAA is working on a new approach, but that it needs to be approved by Transport Canada before they can publish new noise contours.

Ever the promoter, she used the opportunity to tell me about all the wonderful things that they are doing, not because they need to, but because it's the right thing to do. For example, she stated, "Even with an already quiet fleet, as part of our 2018-2022 Noise Management Action Plan, we will be introducing a Quieter Fleet Incentive Program to continue to encourage airline to operate only their quietest fleet at Toronto Pearson. In fact, since the announcement of this initiative, Air Canada has committed to retrofit their A320 series aircraft with vortex generators within the next two years. We are pursuing this not because of any regulatory requirement, but because it is the right thing to do, to better manage the airport's operational impacts."

In my reply of August 8, 2018, I took her to task on that. This is what I said.

“As you raised the Quieter Fleet Incentive Program, I take this opportunity to ask what are the incentives? I have read the Noise Management Action Plan and Ten Commitments to our Neighbours and couldn’t find the answer.”

“Taking credit for the Air Canada commitment to retrofit the A320 series aircraft by 2020, is a dubious claim as it was in response to pressure from Minister Garneau. You may also recall that, at the March CENAC meeting, a community member noted astutely that it was too little too late.”

“I’m sure you’re well aware that Lufthansa did that years ago, while we have to wait two more years. Moreover, Lufthansa was neither the first, nor the only one to retrofit their A320 fleets with vortex generators. Many others have already done it.”

I continued, “Although you want to make Pearson an international leader in aviation noise management, the Helios Best Practices Report shows that it is far from being a leader, and lags well behind the leaders in the most important metrics, such as night flights, night curfews, restricted hours of operation and community engagement. You need to be much more aggressive to achieve your goal and convince our communities that you mean it. I fully support your stated goal, and, as already indicated to members of your staff, I’m prepared to help in providing community input, an offer that was received positively.”

I also pointed out that, “the company that operates London’s Heathrow Airport, a private for-profit company, has committed to:

- 1) Phasing out Chapter 3-certificated airplanes completely by 2020;
- 2) Reducing the number of Chapter 4-certificated aircraft to less than 40% by 2020, with more than 60% being the quieter Chapter 14-certificated planes; and
- 3) Phasing out Chapter 4 airplanes completely by 2045.

By 2020, Heathrow will have a quiet fleet, while Pearson will have just silenced the noisy A320s, while still allowing, albeit infrequently, Chapter 2 aircraft. When will the GTAA make the same commitments for Pearson?”

“If a private, for-profit company can do it for Heathrow, why can’t the GTAA do it for Pearson? After all, you are a not-for-profit company and don’t have shareholders who might have different views about what is morally right.”

This was only a small part of my letter, and I reproduce it here to provide the flavour of the dialogue because her reply of September 24, 2018 is telling.

“Hello Tony,

Thank you for your letter. We are currently building the programs outlined in our five year Noise Management Action Plan which address many of the topics you’ve raised. We will continue to provide updates on our progress to the community as we deliver on this Plan.

I encourage you to sign up for our monthly community e-newsletter, Checking In, to stay up-to-date on the airport activities, upcoming meetings and consultations as well as updates on noise management initiatives.

Regards,

Hillary Marshall”

This reply told me that the dialogue is over. Ms. Marshall and the corporation she represents are not interested in having meaningful discussion with concerned citizens and communities. They prefer feeding us well-spun rhetoric. Their *modus operandi* is to do as little as possible to acquiesce the communities' anger, expressed regularly at CENAC meetings, while making it look like they are moving mountains, and doing it out of the kindness of their heart.

CENAC doesn't work, and no amount of tinkering is going to make it work, unless it becomes a stand-alone, independent committee, at arms-length from the aviation industry. Failing that, an independent, national watchdog mandated by the government, and funded by the industry, is the only way for community concerns to be addressed fairly and objectively.

Should the Committee, or its analysts, be interested in a copy of the full correspondence mentioned above, I would be happy to supply it at its request.

5. How We Got Here

5.1 Introduction

When I moved into this neighbourhood 44 years ago, there were no scheduled, commercial night flights at Toronto Pearson. Now, they're approaching 19,000 per year and that's only during the so-called night period (00:30 to 06:30). Flights during the real night (23:00 to 07:00) are much higher and account for about 15% of all flights.

This chapter gives a brief overview of the changes that have taken place at Toronto-Pearson, all with the agreement of Transport Canada and against the wishes and protestations of our communities.

5.2 In the Beginning

The first scheduled flight at Malton Airport was on 29/08/1939 – it was an arrival. Malton had no scheduled night flights, even after it became known as Toronto International, in November 1960, and the night period was still from 22:00 to 07:00. When it became known as Pearson, on 01/01/1984, the airport still had no scheduled night flights, but the night period was now from 23:00 to 07:00. Only emergency flights were allowed during that period, and only the preferred runway could be used.

5.3 The End of Night Curfew

In 1985, cargo aircraft were given permission to arrive at 05:00 and in 1986 they were given permission to take off after midnight.

In 1987, passenger aircraft started arriving and departing between midnight and 01:00 and between 06:00 and 07:00.

In 1988, the night period was shortened again from 00:30 to 06:30.

Community Response

The following table illustrates the community response to the above changes.

Year	Callers	Complaints
1982	191	400
1983	261	500

1984	279	550
1985	267	500
1986	582	1000
1987	888	2100
1988	1807	3700

The number of callers registering complaints to the operational changes increased by more than **550%**, between 1985 and 1988, and the number of complaints increased by even more.

5.4 Pearson Environmental Assessment

In 1992, after an exhaustive review and meetings with all stakeholders, the Environmental Assessment Panel presented its interim report. The Panel had listened to the communities' concerns and made three important recommendations.

The proposal to construct the runway 15R-33L as described in the EIS, should not be further pursued, as the adverse social impact, which it would create, would outweigh the modest increase in north/south capacity it would provide. (Recommendation A2)

Transport Canada should intensify its current efforts to abate aircraft noise during the shoulder periods, between 23:00 and midnight and between 06:00 and 07:00. (Recommendation E14)

An overnight curfew should be introduced by April 1, 1993 prohibiting all departures and all arrivals between midnight and 06:00, except for declared emergencies in the same period. (Recommendation E15).

None of these recommendations were acted upon by Transport Canada.

5.5 GTAA Era and Night-flight Take-off

In 1996, when the GTAA took over airport operation, the annual night flights had increased to **9,655** and accounted for **2.4%** of all flights. A year later came a strange creation – the **night budget**. It was set at **10,389** aircraft movements, but it's not a limit. It increases at the same annual rate as passenger traffic. With the introduction of larger planes, passenger traffic increases at a faster rate and so do night flights. Since then, night flights have almost doubled.

The night-budget for the current year is **19,395**, which is **4.1%** of total flights. If it had been pegged to aircraft movements instead, the number would have been about **11,000**, or **2.4%** of total flights, as in 1996.

In 2013, the GTAA asked for three additional 10% increases in the night budget, on top of the normal annual increases, and Transport Canada approved them. They did so even though there was no apparent need for them. Five years later, they still haven't been used.

While flights between 00:30 and 06:30 have almost doubled in the last 20 years, flights during the original night period (22:00 to 07:00) – **the real night** – have more than doubled. They now account for about **15%** of total flights; and the busiest 15 minutes of the day are now from 06:30 to 06:45.

If Pearson's passenger traffic doubles from 2017 to 2037, then the night budget will double even without the three additional 10% bumps.

5.6 Community Impacts

Night flights are the scourge of airport communities. The health effects are real but neither the industry, nor the regulator, pays attention to them.

Heathrow, a much busier airport, has a fixed limit of 5,800 night flights per year and a noise quota on top of that, which ensures that only the quietest planes fly at night. Moreover, last year the noise quota was reduced by almost 50%. That was done because the British Minister for Transport knows that the health impacts of airplane noise are real. Transport Canada apparently doesn't.

5.7 Pearson in perspective

As shown in the following table of Canada's major airports, Pearson is in a league of its own. All data are for 2017. While the problems faced by Pearson communities are not unique, they're much more severe. Last year, Pearson received 168,000 complaints, orders of magnitude more than the other airports. We have a **real** problem! In 1974, when I moved into this neighbourhood, Pearson received only 250 complaints.

Airport	Airplane Movements	Passenger Traffic	Complaints
Calgary	220,000	16,000,000	5,700
Montreal-Trudeau	230,000	18,000,000	540
Toronto-Pearson	460,000	47,000,000	168,000
Vancouver	290,000	24,000,000	1,300

6. GTAA Noise Management Practices

6.1 Introduction

A couple of years ago, the GTAA Noise Management Office hired the HELIOS consulting group to study aviation noise management best practices at 27 domestic and international airports (see table below), including Pearson. The report [1] was published on 23 September 2017 and forms the basis for the GTAA's 2018-2022 Noise Management Action Plan [2].

TABLE – Study Airports

Toronto Pearson	Atlanta (Hartsfield-Jackson)	Copenhagen (Kastrup)
Vancouver	New York (JFK)	Madrid Barajas
Montreal	London Heathrow	Dubai International
Ottawa	London Gatwick	Istanbul Ataturk
Calgary	Frankfurt	Sydney
Los Angeles (LAX)	Amsterdam (Schiphol)	Auckland
San Francisco International	Zurich	Hong Kong
Chicago O'Hare	Paris (Charles de Gaulle)	Shanghai Pudong
Santa Ana (John Wayne)	Brussels	Singapore Changi

6.2 My Review

I have reviewed the Helios report and my findings are discussed in the following sub-sections. Briefly, the study results clearly show that Pearson's noise management practices lag the leaders in almost all categories, and certainly in the most important ones. For an

airport that claims to want to be an international leader in aviation noise management, it faces a monumental task.

Here is how Pearson compares among the best.

6.3 Night Curfew

The Helios report states that four of the airports in the study had night curfews, but names only two: Sydney and Frankfurt. The other two are presumably Montreal and Zurich. The Paris-Orly and Munich airports also have night curfews, but these were not part of the study. Pearson is notable by its absence, while Montreal shows that it's also possible to have night curfews in Canada.

6.4 Night-flight Restriction Periods

The best airports restrict night operation for a period of 9 hours, most for 8 hours, some for 7 and a few for 6 hours. Pearson is at the bottom of the heap, with restricted operation from 00:30 to 06:30.

6.5 Shoulder periods

Most airports have shoulder periods on either side of the night period where some noise and movement restrictions are also imposed. Pearson does not.

6.6 Night-flight Quota

The best airport (Heathrow) has a night-flight quota of **5,800/a** and a night period of 8 hours, which averages to 16 flights per night or **2 per hour**. The worst airport has a quota of about **33,000/a** and a night period of 8 hours, which averages to 90 flights per night or **11 per hour**. Pearson has a rising night-budget that is currently at **19,395** flights/a, which averages to 53 flights per night or **8.8 per hour** and is on track to overtake Amsterdam as the worst airport for night flights.

6.7 Noise Quota

A number of the best airports have a noise quota in addition to movement limits. Pearson does not. The intent of the noise-quota system is to ensure that only the quietest aircraft are used during the night period. The **noise** quota at Heathrow is 4,880, which means that if all planes flying at night had a **noise index** of 1, Heathrow would be limited to 4,880 flights, rather than 5,800, which is the limit. To fully utilize the flight limit, quieter planes must be flown – those with a noise index less than 1.

6.8 Noise Charges

The best airports have noise charges for landings/take-offs based on the certified noise level of the aircraft – the higher the noise level, the higher the charge. Pearson does not.

6.9 Noise-abatement Procedures

For arrivals, the best airports have continuous descend, low-power and low-drag procedures. Pearson does not.

For departures, the best airports have noise limits and financial penalties for when they're breached. Pearson does not.

The best airports also use standard procedures NADP1 OR NADP2, depending on the location of residential areas, recommended by the International Civil Aviation Organization. Pearson uses the NADP1 procedure but has no noise limits; furthermore, it allows early

turns of small aircraft over residential areas to increase runway traffic. Early turns over populated areas are not permitted at the best airports.

6.10 Community Outreach

The best airports have noise advisory groups similar to CENAC, which provide communities an opportunity to raise noise concerns, but chaired by an independent person. CENAC is chaired by the GTAA and is essentially its mouthpiece.

6.11 Noise Ombudsman

The best airports have an ombudsman to provide noise-management oversight and mediate or arbitrate between airport authorities and communities. Pearson does not.

6.12 Noise Reporting and Metrics

The best airports not only monitor airplane noise in affected communities, they also do analysis and publish the results. Pearson has a monitoring system but does not publish noise metrics; it displays real-time colour-coded noise levels on its Webtrak on-line system as aircraft fly by the monitoring terminals.

Typical noise metrics at the best airports include: equivalent noise level (Leq) during the day; evening and night; number of flights exceeding stipulated noise levels; maximum levels registered at noise monitoring terminals; and noise contours, both actual and forecast. The Leq is used internationally to correlate aircraft noise with health effects. Therefore, it's an important metric being denied to Pearson communities. Moreover, Pearson's noise exposure forecast predates the GTAA and no longer reflects reality.

6.13 Noise Complaint System

The best airports have a noise complaint system as does Pearson. However, on the basis of air traffic and population density, Pearson has the highest number of complaints, which is consistent with its low rank in the list of best noise-managed airports.

While Pearson has a good noise complaint system, the follow-through to identify and implement corrective action is missing and this frustrates airport communities.

6.14 Quieter Fleet Initiatives

The best airports ban Chapter 3 aircraft at night. Most airports have a night surcharge that's based on noise level: the lower the noise level, the smaller the surcharge. Pearson has no ban on Chapter 3 aircraft and no surcharges.

Some airports provide financial incentives for fleet renewals. Pearson does not.

6.15 Fly-Quiet Programs

The best airports have fly-quiet programs to encourage airlines to fly quieter planes and to operate them in the quietest way possible. The best airlines, judged by various noise metrics, are honoured annually at awards ceremonies. Heathrow, actively works with airlines to improve noise performance. Pearson has no fly-quiet program, but they are thinking about it.

Air Canada, the biggest user of Pearson Airport, consistently achieves low rankings at airports with fly-quiet programs.

6.16 Engine Run-up Restrictions

The best airports have the most restrictions on engine run-ups during the night. These include shorter hours, noise limits, run-up pens, monitoring systems and limits on the number of run-ups. Pearson is at the bottom of the heap.

6.17 HELIOS Recommendations

The study report identified 27 initiatives that the GTAA can undertake to improve its noise abatement performance. They are summarized in the following table.

TABLE – HELIOS Recommendations

Rec No.	Rec Label	Potential new programs and initiatives	Ref
1	QF1	Investigate more stringent restrictions on the noisiest aircraft types at night.	
2	QF2	Establish a programme to retrofit A320 family aircraft operating to/from Toronto Pearson with vortex generators.	
3	QF3	Establish a programme to determine how financial mechanisms could be used to incentivise the use of the quietest aircraft types, should they be required in the future.	5
4	NF1	Extend the period during which night noise impacts on communities are managed.	4
5	NF2	Implement a programme to ensure that the total amount of noise from aircraft does not increase in the night-period/adjacent hours.	
6	PR1	Continue to investigate night-time preferential runway schemes and summer time weekend runway alternation schemes aimed at sharing noise.	
7	PR2	Identify opportunities to use the runways to provide relief from aircraft noise during off-peak periods on weekdays.	
8	PR3	For current (and any future) runway schemes operated at Toronto Pearson, define expected levels of conformance, and implement a mechanism for regularly reporting adherence/reasons for non-adherence.	
9	GG1	Apply the night-time restrictions for ground running earlier and monitor compliance.	
10	GG2	Implement APU restrictions on stands equipped with GPU/PCA.	
11	NAP1	Establish an industry group to be the focal point for the operational and policy aspects of the programmes and initiatives proposed in this report.	1
12	NAP2	Investigate options for additional low power/low noise procedures such as Continuous Descent Approaches, Low Power Low Drag operations and a voluntary night-time ban on the use of reverse thrust.	
13	NAP3	Investigate if Noise Abatement Departure Procedure 2 (NADP2) provides greater noise benefits to residential communities than NADP1.	
14	NAP4	With other industry partners develop a voluntary industry code of practice for noise abatement procedures at Toronto Pearson.	
15	NAP5	Develop a standard methodology for future trials influencing the noise environment around Toronto Pearson.	
16	FQ1	As a precursor to a Fly Quiet programme, establish a mature set of metrics that measure aircraft noise performance.	
17	FQ2	Implement a GTAA 'Fly Quiet' programme to compare airline performance across a number of noise metrics.	5
18	LU1	In addition to the current (Transport Canada) regulatory environment for land use planning, GTAA to consider the additional merits of working with local communities and regional/local authorities to agree to a voluntary compatible future land use plan.	
19	LU2	GTAA to examine the conditions under which it may consider a voluntary noise insulation programme.	3

20	NC1	Appoint points of contact in NAV CANADA and the main Toronto-based airlines to support the day-to-day investigation of complaints.	
21	NC2	Publish an updated noise complaints policy.	
22	NC3	Implement a quarterly review of complaints with the objective of understanding any patterns in complaints and identifying follow-up actions to address them.	6
23	CENAC1	Enhance community engagement by focussing the work of CENAC on addressing community concerns about aircraft noise through an annual work programme.	
24	CENAC2	Ensure the wider community (non-CENAC members) is involved in identifying and resolving the concerns to be addressed by the annual work programme.	2
25	CENAC3	Consider if increasing the independence of CENAC from GTAA would enhance community engagement.	
26	INO1	GTAA to consider, in addition to the proposals made in this report, the need for a designated third party to arbitrate in matters where the community feels a noise issue has not been resolved satisfactorily.	
27	NM1	Ensure that reporting on noise monitor data is understandable to local communities and is focussed [sic] on identifying potential issues and tangible solutions.	

6.18 What's Missing?

Despite the fact that Pearson has the highest number of night flights of all study airports, with the exception of Amsterdam, there's no recommendation to reduce the number of night flights. How can Pearson become an international leader in noise abatement, without significantly reducing night flights? Or instituting a night curfew like the one in place at Sydney and Montreal, which allow only small planes to fly at night.

6.19 GTAA 2018-2022 Noise Management Action Plan

In this plan [2], Hillary Marshall states, "With our new Noise Management Action Plan, the culmination of two years of extensive study and consultation, **we intend to make Toronto Pearson an international leader in aviation noise management.**"

However, of the 27 HELIOS recommendations, the action plan only addresses 7 that I could clearly identify. The number on the right column of the above table refers to the corresponding action plan number that I was able to identify. In any case, for the most part, the intent is to do further study, rather than implementation. After two years of extensive study and consultation, the GTAA is still studying and consulting.

Clearly, very little of substance will be achieved by this plan, and by the end of 2022, Pearson will still be lagging, rather than leading.

The GTAA excels at giving airport communities soothing words and little else. It's their time-tested method of creating the illusion that all is well and keeping Transport Canada off its back.

The reality is that night flights keep increasing and neither the GTAA nor Transport Canada are interested in curtailing them, despite the fact that sleep deprivation causes serious health consequences and lack of sleep costs the Canadian economy more than \$20B per year, without counting the additional health costs of treating sleep related problems, which could be upwards of \$40B per year.

6.20 References

- 1 Best Practices in Noise Management, by Kevin Tucker of Helios, 23 September 2017
- 2 Growing Responsibly, 2018-2022 Noise Management Action Plan, undated, by Hillary Marshall, GTAA