



**To:** General Purposes Committee

**Date:** March 2, 2020

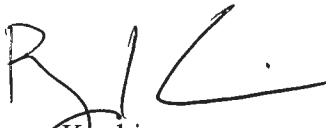
**From:** Barry Konkin  
Director, Policy Planning

**File:** 01-0153-04-01/2020-  
Vol 01

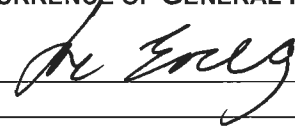
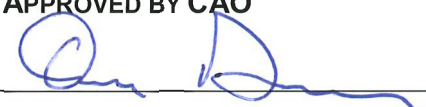
**Re:** **2019 Report from the City Citizen Representatives to the Vancouver International Airport Aeronautical Noise Management Committee (YVR ANMC)**

**Staff Recommendation**

That the staff report titled “2019 Report from the City Citizen Representatives to the Vancouver International Airport Aeronautical Noise Management Committee (YVR ANMC)” dated March 2, 2020 from the Director, Policy Planning, be received for information.

  
Barry Konkin  
Director, Policy Planning  
(604-276-4139)

Att. 2

REPORT CONCURRENCE		
<b>ROUTED TO:</b> Transportation	<b>CONCURRENCE</b> <input checked="" type="checkbox"/>	<b>CONCURRENCE OF GENERAL MANAGER</b> 
<b>SENIOR STAFF REPORT REVIEW</b>	<b>INITIALS:</b> CS	<b>APPROVED BY CAO</b> 

## Staff Report

### Origin

As directed by Council, the City's two citizen appointees to the Vancouver International Airport Aeronautical Noise Management Committee (YVR ANMC) provide annual updates directly to the General Purposes Committee on the annual work undertaken by the YVR ANMC. This report provides the 2019 update through a status report prepared by these appointees (Attachment 1). The YVR ANMC is not a committee of Council, but is a committee struck by the Vancouver Airport Authority and members are independently appointed by respective stakeholder groups that include citizen representatives, municipal governments, the Musqueam Indian Band, airlines, NAV CANADA, Transport Canada and the Airport Authority. Council appoints the two citizen representatives on the committee. A staff member from the Policy Planning Department also regularly attends committee meetings as a municipal representative.

This report supports Council's Strategic Plan 2018-2022 Strategy #8 An Engaged and Informed Community:

*Ensure that the citizenry of Richmond is well-informed and engaged about City business and decision-making.*

*8.1 Increased opportunities for public engagement.*

### Analysis

#### YVR Aeronautical Noise Management Committee (ANMC)

Through its ground lease with the Federal Government, the Vancouver Airport Authority has responsibility for noise management activities at the Vancouver International Airport (YVR), and has a comprehensive noise management program to undertake this responsibility. The purpose of the YVR ANMC is to provide a forum where parties with an interest in noise management issues can discuss aeronautical noise management at YVR.

The attached status report (Attachment 1) from the two Richmond citizen appointees provides a summary of the key items discussed at three committee meetings held in February, June and December 2019.

In addition to the status report submitted by Richmond's citizen representatives on the YVR ANMC, this report provides some additional staff comments on YVR noise related issues.

#### 2019-2023 YVR Noise Management Plan

Under the provisions of the Vancouver Airport Authority's federal ground lease, the Vancouver Airport Authority is required to have a Noise Management Plan that is approved by the Minister of Transport. The Noise Management Plan serves to document YVR's Aeronautical Noise Management Program and identifies key areas of work over a five-year period. The 2019 - 2023 Plan and associated initiatives were developed in 2018 in consultation with the YVR ANMC and the broader commercial and residential community, including a web-based survey. The 2019 -

2023 YVR Noise Management Plan was accepted by Transport Canada in February 2019 and a copy can be found in Attachment 2.

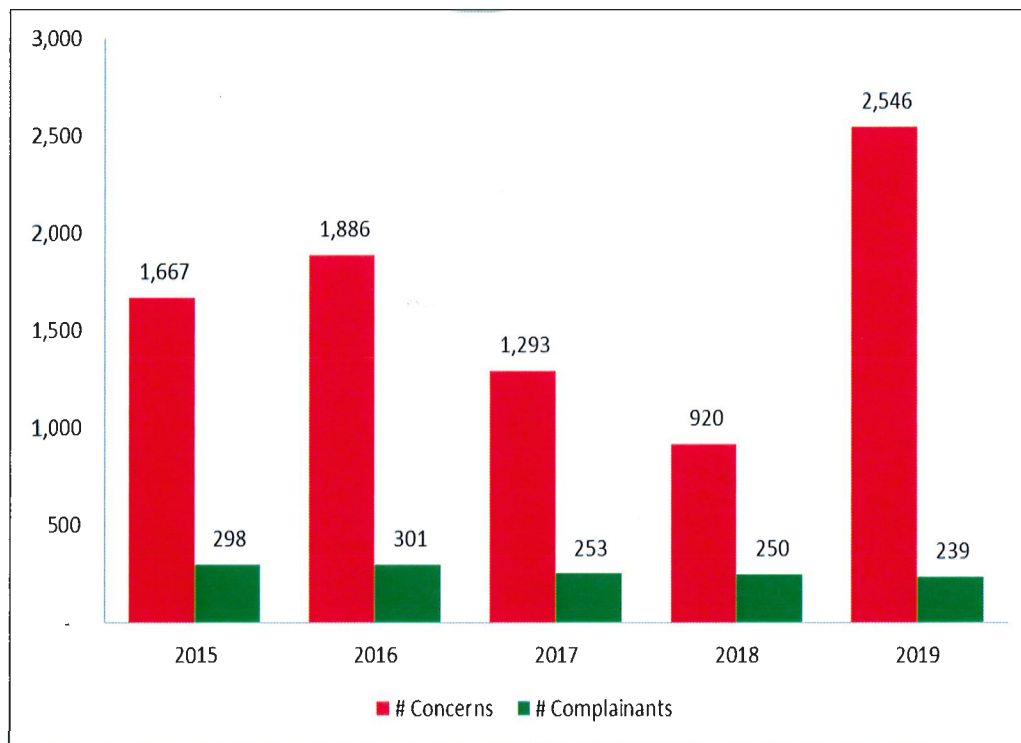
YVR’s Noise Management Plan commits the Vancouver Airport Authority to minimizing the environmental and noise impacts associated with airport operations while recognizing the need for 24-hour airport operations. All concerns received by the Airport Authority are logged in the YVR noise complaint database. Personal information is treated confidentially and information in the database is used to analyze trends, create reports for the YVR ANMC, and to report to the community via the annual noise report and the annual sustainability report.

2019 Aeronautical Noise Management: Summary Report

**Metro Vancouver Summary:** Between January 1 to December 31, 2019, the Vancouver Airport Authority received a total of 2,546 noise concerns from 239 individuals across the Lower Mainland. While this represents a significant increase in the number of concerns from 2018, the number of complainants decreased from 250 to 239 over the same time period (Figure 1).

In 2019, the Airport Authority saw an increase in repeat concerns from 2018. Six individuals submitted 30 or more concerns each, amounting to 84% (2,141) of the total Lower Mainland complaints. Five of the six individuals reside in Richmond.

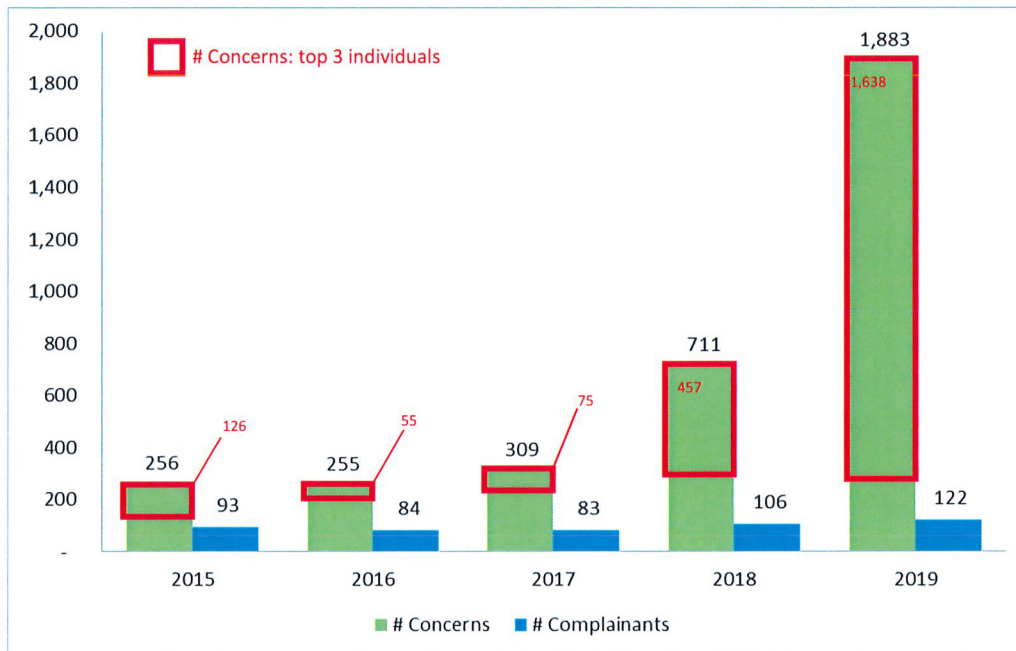
**Figure 1: Region-wide Aeronautical Noise Concerns and Complainants (2015-2019)**



**Richmond Summary:** A total of 1,883 concerns were received by the Vancouver Airport Authority from 122 Richmond residents during 2019, which is a 165% increase in the number of concerns and a 15% increase in the number of complainants compared to 2018 (Figure 2). The

increase in the number of concerns is largely due to five individuals in Richmond who registered 1,654 of the 1,883 concerns in 2019 (88% of all Richmond concerns). Most of the concerns were related to late evening or early morning jet departures.

**Figure 2: Noise Concerns and Complainants by Richmond Residents (2015-2019)**

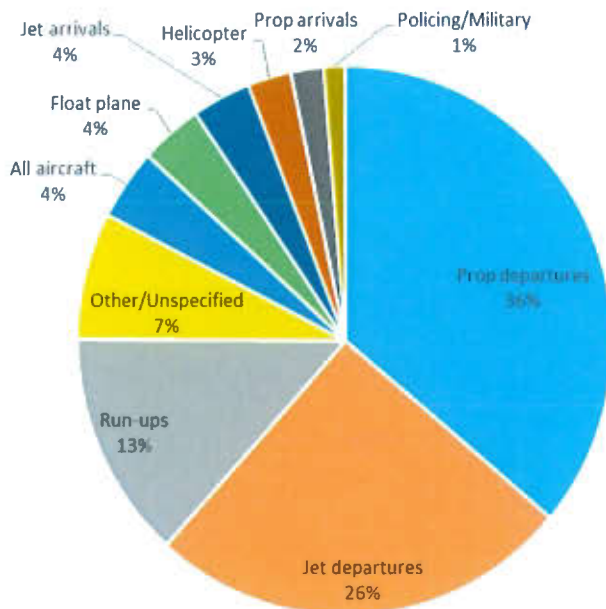


In addition to providing these individuals answers to their questions and facts related to airport and aircraft operations, the Airport Authority regularly offers to meet with individuals to discuss their specific concerns in person. One of the Richmond citizen representatives on the YVR ANMC has also routinely offered their time to speak with the affected residents. To date, these offers have been declined by the individuals who have submitted concerns.

Based on the information provided by the individuals, the nature of the concerns are largely associated with late evening and early morning jet departures. In particular, their concerns tend to increase during eastbound departures over the city. Eastbound departures occur in situations where winds are from the east, and for safety reason, aircraft must take-off into the wind. Easterly winds tend to occur 50% of the time over the course of a year and are typically experienced during the fall and winter months.

After excluding the concerns associated with the three Richmond residents with the most concerns, the departure of propeller aircraft were identified as the main issue of concern as indicated in Figure 3. This was followed by jet departures and aircraft maintenance run-ups, which are required by Transport Canada as part of stringent aircraft safety and maintenance standards.

**Figure 3: Total Number and Percent of Richmond-Related Noise Concerns by Operational Category**



*Note: the concerns associated with the three Richmond residents with the most concerns are not included in Figure 3 as the majority of their concerns related to late evening and early morning jet departures.*

NAV Canada – Vancouver Airspace Modernization Project

NAV CANADA is responsible for providing air navigation services in Canada. NAV CANADA has begun a multi-stakeholder review process that will shape the modernization of the airspace across the Greater Vancouver and southern Vancouver Island region. The project will develop a concept of operations, in collaboration with all affected aviation and municipal stakeholders, including the City of Richmond, that supports sustained safe operations across the region in anticipation of future capacity demand and industry growth. While enhancing aviation safety is a top priority of this project, additional project goals include reducing environmental impacts of aircraft such as greenhouse gas emissions and community noise exposure while balancing the needs of stakeholder groups and reducing constraints where possible.

In keeping with the YVR Master Plan approved by Transport Canada, the Airport Authority has supported maximizing the use of the north and south runways for both arrival and departure operations to enhance airfield efficiency and delay the need for a third parallel runway. Any options for changing operations between the north and south parallel runways that may arise from this project and has noise implications will be presented and discussed with the YVR ANMC.


Staff will continue to work with the YVR ANMC and the Vancouver Airport Authority regarding the ongoing growth of airport traffic and related noise issues, and will update Council on a regular basis.

**Financial Impact**

None.

**Conclusion**

The YVR ANMC remains a valuable forum for addressing aeronautical noise impacts on Richmond. The City's citizen representatives to the YVR ANMC continue to uphold Richmond's interest at the committee and contribute positively to discussions. The provision of input regarding the Vancouver Airport Authority's 2019-2023 Noise Management Plan will provide an opportunity for the City and the City's representatives to the YVR ANMC to ensure that the initiatives are consistent with a goal of minimizing aeronautical noise impacts to the community and enhancing residents' quality of life.



John Hopkins  
Senior Policy Coordinator  
(604-276-4279)

In collaboration with: Gary Abrams and Arvind Sharma  
City Citizen Representatives to the YVR ANMC

JH:cas

Att. 1: 2019 Report from City Citizen Representatives to the YVR ANMC  
Att. 2: 2019-2023 YVR Noise Management Plan

**Date:** January 2020

**To:** City of Richmond General Purposes Committee

**From:** G.W.D. Abrams  
Arvind Sharma  
City of Richmond Citizen YVR ANMC Representatives

**2019 Status Report: YVR Aeronautical Noise Management Committee**

**City Appointees:**

Gary W.D. Abrams, a Richmond lawyer with military and civil flying experience and involvement in the British Columbia Aviation Council and other aviation organizations, has acted as Citizen Representative from the beginning of 2015 to the end of 2019. Arvind Sharma replaced Ihsan Malik early in 2019. He is an aeronautical maintenance engineer (AME) employed by Lufthansa at Vancouver International Airport.

Both live in Richmond.

**Past Year at the YVR Aeronautical Noise Management Committee**

1. The ANMC met on February 21, June 27, and December 5, 2019.
2. The February 21 meeting was conducted, as usual, by Marion Town, Director Environment for the Vancouver Airport Authority. The subject of greatest interest was the 2019 passenger forecast presented by Kyle Galbraith, Manager Air Service Development for the Authority. The number of passengers at Vancouver had increased by 8 million over the past five years, to a record number of 25.9 million in 2018. The peak period is the afternoon. The Airport Authority's strategic plan is to continue to develop YVR as a world-class connecting hub, especially with airports in Asia. Increased traffic, especially in the evening hours, is expected. The enhanced capacity of aircraft resulted in an annual increase, from 2017 to 2018, of 7.3 per cent in passenger movements but only of 2.2 per cent in aircraft movements. The greatest increase (from 2017 to 2018) was 10.6 per cent in narrow-body jet movements.
3. These and other statistics (including only small increases in floatplane and helicopter movements) were reviewed in detail by the Authority's environmental analyst. YVR, the analyst pointed out, has always been open for 24 hours. Runway movements between midnight and 6.00 a.m., however, accounted for only 3 per cent of total movements in 2018 and were down slightly from the previous year. The average number of movements each night is 28, 52 per cent of these being arrivals.

4. The total number of “concerns” (the Airport Authority’s euphemism for complaints) was 920 in 2018, a decrease from 1,293 in 2017. Almost one-half of the concerns emanated from three persons.
5. The questionable significance of these statistics was apparent when the analyst related that from January 1 to February 15, 2019, the number of complaints had increased over the same period in 2018 by 93 per cent (to 147), emanating from 39 per cent fewer persons. Of the 147 concerns, 89 per cent (131) were from residents of Richmond, one-half of these from one person.
6. At the end of the February 21 meeting Gary Abrams spoke of a recent discussion with a resident of the Bridgeport area about night operations on the north runway in particular. Neither this person, nor any others having similar concerns, however, had responded by the end of 2019 to his invitation to discuss the matter further.
7. In March, 2019, a resident of Burkeville asked permission of Gary Abrams to attend a meeting of the YVR ANMC. The request was transmitted to the Airport Authority but was declined, on the grounds that the ANMC’s meetings were not open to the public and she might express her concerns to the citizen representatives or the City of Richmond staff.
8. The Richmond News edition of March 28, 2019, carried a brief account of the City Council’s complaint that the north runway should be used more often for night departures, and of the Airport Authority CEO’s response that this would be offensive to residents of the south slopes of Vancouver and in breach of the assurances given when the building of the north runway was approved. The subject was not discussed in 2019 by the ANMC.
9. The ANMC held its second meeting in 2019 on June 27. The subject of greatest interest to Richmond was the Vancouver Airspace Modernization Project, which was reviewed by the representative of NAV Canada. The number of flights operating in the Vancouver airspace has increased by 16 per cent in the past five years. Community consultation is projected to begin in 2020. A member of the City of Delta staff had already prepared a report requesting that the City be consulted when the study is carried out. There is no apparent need for a similar request by Richmond, since community consultation will be an essential part of the project and the ANMC will be involved.
10. The YVRAA analyst reviewed the noise complaints from January 1 to June 15, 2019. Residents of Richmond had lodged no less than 82 per cent of the 556 complaints in this period. Of these, 277 complaints emanated from three persons. All were of jet departures from Runway 08R (eastbound). The Airport Authority had offered – to no avail - to put these prolific complainants in touch with the citizen representatives.



11. On October 8, 2019, Gary Abrams attended a meeting arranged by the Canadian Business Aviation Association with Craig Richmond, President and CEO of the Airport Authority. He used the occasion to protest – in vain – against the Airport Authority’s decision – not yet carried out – to close Runway 13-31 (the crosswind runway). That runway is used for arrivals (over the Strait of Georgia) and departures (over the central part of Richmond) in extreme crosswind conditions (south wind stronger than about 35 knots), which commonly occur only once a year (or, in 2019, not at all).
12. The last meeting of the YVR ANMC in 2019 occurred on December 5. The subject of most interest to Richmond was the noise management summary for the year 2019 up to November 30. No less than 1,808 complaints – 82 per cent of the total from five communities (plus “others”) – emanated from Richmond. Of this total, 63 per cent, or 1,403 complaints, were received from three residents of Richmond, including the remarkable number – of 637 – from one person – about eastbound jet departures.
13. Gary Abrams, at the December 5 meeting, questioned the utility of a complaint system which anyone may resort to as a means of relief from boredom.

Gary Abrams  
Arvind Sharma

# 2019–2023 YVR NOISE MANAGEMENT PLAN



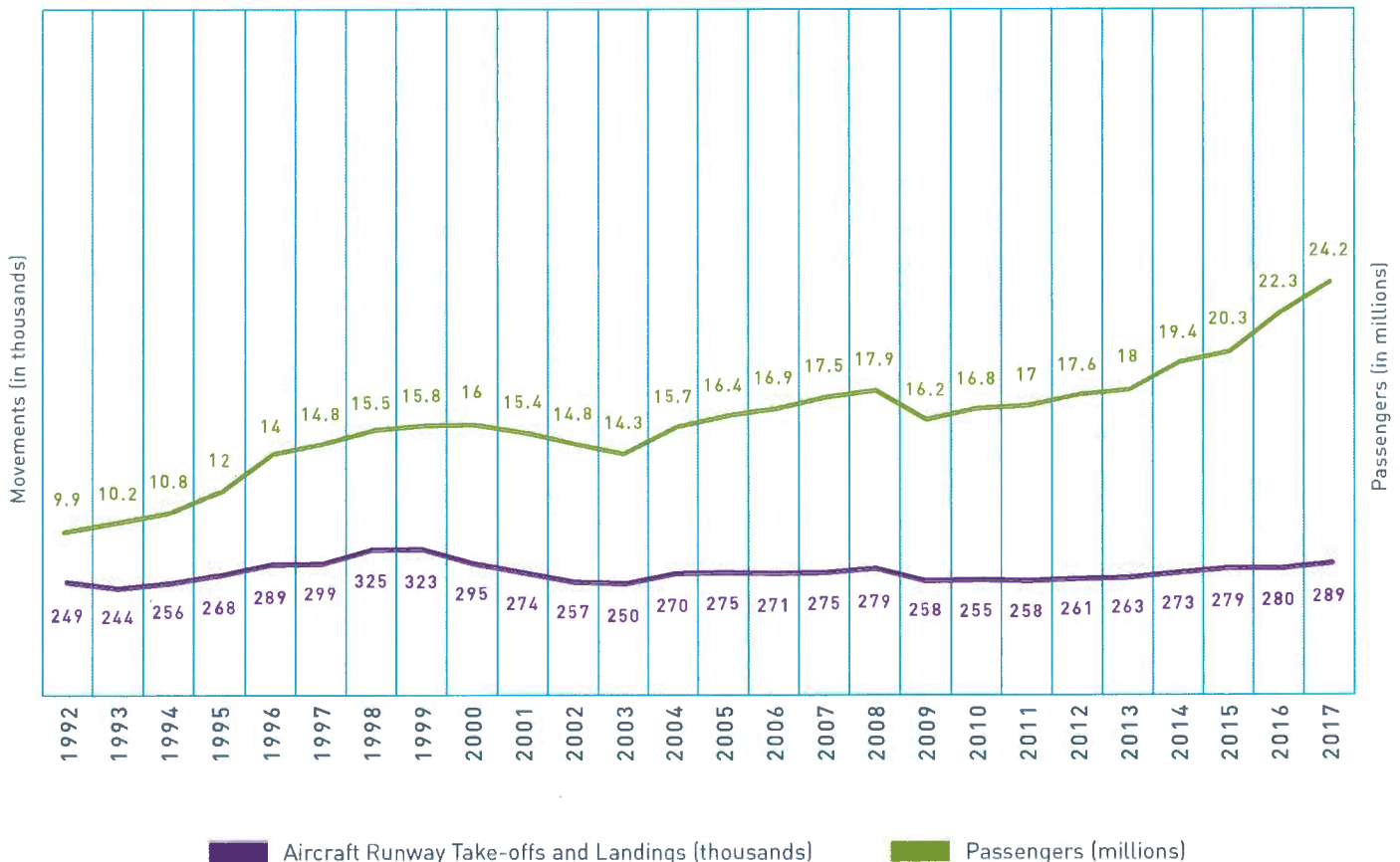
## INTRODUCTION

Vancouver International Airport (YVR) is operated by Vancouver Airport Authority, a community-focused and financially independent company. YVR is Canada's second busiest airport, operating 24 hours to support the travel and business demands of the region.

YVR's mandate is to operate the airport in the best interest of the region and to ensure the airport contributes to the local and provincial economy. As part of YVR's Ground Lease with the Federal Government, YVR is required to manage noise within 10-nautical miles of the airport. As a community-focused operator, we strive to treat our neighbours with respect and consideration.

While YVR is experiencing strong growth, the increase in the number of passengers has been growing at a much faster rate than the number of aircraft landings and take-offs as illustrated below. With the forecasted increase in demands for air travel, we anticipate the growth to continue. As we look to continued growth in the future, we recognize that our operations can have an impact on the communities around us, and we remain committed to minimizing this impact as much as possible.

### Annual Runway Movements and Passenger Totals 1992–2017



## TRENDS IN THE INDUSTRY

### Quieter Aircraft

Aircraft operating in Canada must meet noise and emissions certification standards set by Transport Canada and the International Civil Aviation Organization (ICAO). Aircraft are categorized according to noise levels they generate. These categories are called "Chapters", with the current Chapters being 2, 3, 4, and 14 – the higher the Chapter number, the less noise generated by the aircraft.

These standards continue to increase in stringency to reflect advancements in engine and airframe technology, and newer

aircraft designs are considerably quieter than their predecessors. In 2017, over 90% of jet aircraft operating at YVR met Chapter 4 or better noise requirements.

Aircraft and engine manufacturers are committed to developing quieter aircraft. In addition, airlines in Canada continue to invest billions of dollars to upgrade their fleet resulting in direct noise and emission reductions for communities.

### Downward Trend in the Noise Certification Standard of Aircraft



#### ICAO NOISE CERTIFICATION STANDARDS (ANNEX 16, VOLUME I) FOR SUBSONIC & LARGE PROPELLER-DRIVEN AIRCRAFT

- Chapter 2:** Type certificate required before 6 October 1977 for first generation turbofans & nacelles.
- Chapter 3:** Type certificate required from 6 October 1977 for second generation turbofans & advanced nacelles.
- Chapter 4:** Type certificate required from 1 January 2006 for new bypass ratio engines, nacelle technology & airframe design. Introduced a cumulative reduction of 10dB relative to Chapter 3 standard at all three noise measurement points.
- Chapter 14:** Type certificate required from 31 December 2017 (31 December 2020 for aircraft <math>\leq 55t</math>) for advanced high bypass ratio engines & nacelles. Introducing a cumulative reduction of 7dB relative to Chapter 4 cumulative levels at all three noise measurement points.

#### NOTES

- 1) Chapter 2 aircraft were banned from operation in major countries around the world, including Canada starting from 1 April 2002.
- 2) The Effective Perceived Noise level (EPNdB) is calculated from the aggregation of individual measurements from three locations – approach (2km from runway threshold), sideline (450m laterally from runway centreline), flyover (6.5km from the brake release point).

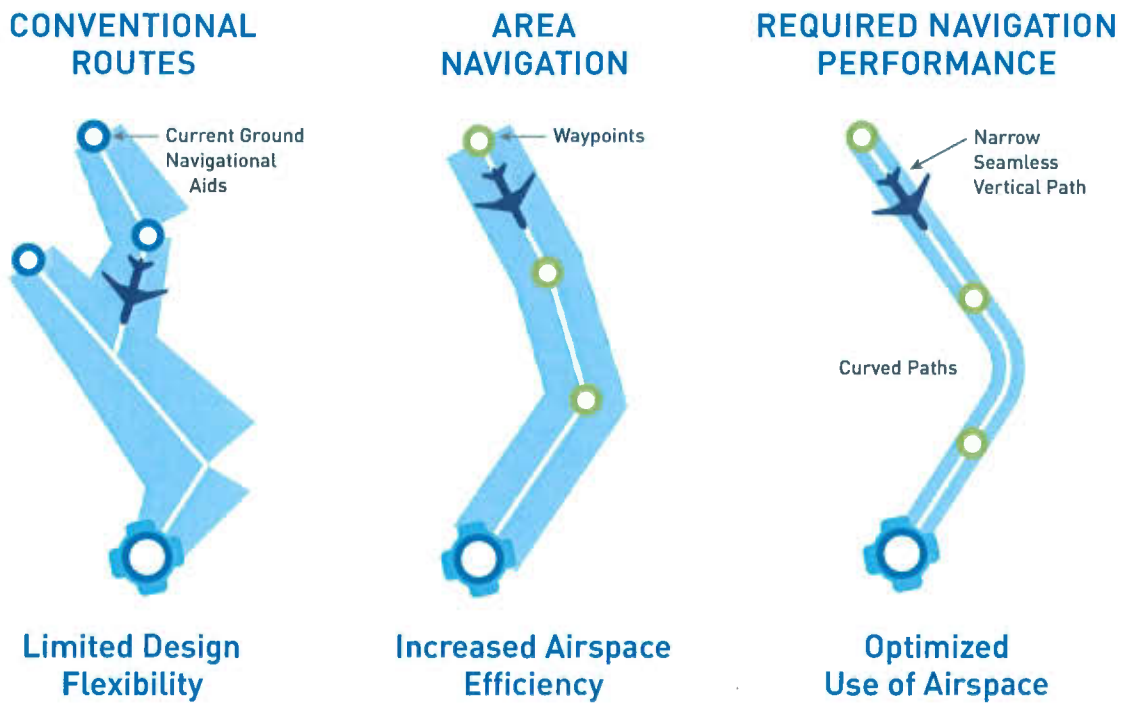
Source: Airbiz

## TRENDS IN THE INDUSTRY

### Performance Based Navigation (PBN)

As aviation moves towards navigation systems based on GPS satellite technology, PBN is becoming the new way to navigate. Whereas the conventional navigation infrastructure is based primarily on ground-based systems and equipment, PBN uses GPS and sophisticated avionics to enable aircraft to fly accurate paths, both laterally and vertically.

PBN provides a number of operational and environmental benefits such as more efficient route structure and flight paths to reduce fuel burn and emissions, including noise. There are two types of specifications for PBN: Area Navigation (RNAV); and Required Navigation Performance (RNP). While RNAV and RNP are fundamentally similar, RNP has requirements for onboard performance monitoring and alerting making it more precise.



Source: NAV CANADA

— A ground navigational aid is a physical device on the ground which provides navigational information or position to aircraft in flight.

— A waypoint is a predetermined geographical position defined in terms of latitude and longitude coordinates which is used in flight navigation.



## YVR NOISE MANAGEMENT PROGRAM – HOW WE MANAGE NOISE

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YVR is committed to minimizing the environmental and noise impacts associated with airport operations. As part of the Noise Management Program, YVR is focused on minimizing noise disturbances while recognizing the need for 24-hour airport operations.



**GP - 73**

THE CORE ELEMENTS OF YVR'S NOISE MANAGEMENT PROGRAM:

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**STAKEHOLDER  
ENGAGEMENT**

through the YVR  
Aeronautical Noise  
Management Committee  
(ANMC)



**PROCEDURES  
& DIRECTIVES**

to mitigate noise from  
aircraft and airport  
operations



**FLIGHT  
TRACKING  
& NOISE  
MONITORING**



Responding to  
**QUESTIONS  
& CONCERNS**

from the community



**DEVELOPMENT &  
IMPLEMENTATION**

of our five-year Noise  
Management Plan



**EDUCATION &  
AWARENESS**



## OTHER STAKEHOLDERS

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YVR works collaboratively with a number of stakeholders to manage and minimize noise impacts around the airport.

**International Civil Aviation Organization (ICAO)** is a specialized agency of the United Nations which promotes safe and standardized development of international civil aviation. ICAO establishes standards and regulations for aviation safety, security, efficiency and regularity, as well as environmental protection. ICAO is responsible for setting noise and emission standards for aircraft.

**Transport Canada** is the federal regulator of aviation in Canada responsible for developing transportation policies and legislation to maintain and promote a safe, secure, efficient and environmentally responsible transportation system.

Transport Canada is responsible for ensuring that operating aircraft meet ICAO noise and emission standards and establish the design criteria for air routes and procedures. They enforce Noise Abatement Procedures and Noise Operating Restrictions as well as review and approve proposed changes to procedures and restrictions. To help municipalities with planned development in high noise areas around airports, Transport Canada provides national guidelines on compatible land use planning.

**NAV CANADA** is the company that provides air navigation services in Canada and responsible for safe and efficient movement of aircraft. As well as providing air traffic control services, NAV CANADA also operates and maintains the navigation and approach aids and equipment. They are also responsible for the design and publishing of air routes and procedures in accordance with criteria set by Transport Canada and ICAO.

**Airline partners** are responsible for conducting their operations in compliance with applicable Noise Abatement Procedures and other published procedures when operating at an airport.

**Local municipalities** are responsible for land use planning in British Columbia and are encouraged to follow Transport Canada's land use guidelines when planning developments near airports to protect the public and minimize the number of residents living in areas exposed to high aircraft noise.

YVR works with **community** members to understand issues associated with our operation and incorporate improvements into our planning and engagement with other stakeholders.



## NOISE MANAGEMENT PLAN

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The Noise Management Plan is an integral part of advancing the goals and objectives of YVR's Noise Management Program. It is also a requirement under the airport's ground lease. The plan undergoes redevelopment every five years and documents

the structure of the program and identifies an action plan with initiatives that serve to support and improve the core elements of YVR's Noise Management Program.

### Creating the Plan

To create the new 2019-2023 Noise Management Plan and its five-year action plan, the following process and tasks were undertaken:



### Review of Historical Noise Complaints

One of the core elements of YVR's Noise Management Program is responding to questions and concerns from the community. Questions and concerns about specific operations are investigated for compliance with published procedures and logged into a database. To support the creation of the new Noise Management Plan, concerns received between 2014 and 2017 were analyzed to identify trends and key issues. During this four-year time period, a total of 903 individuals registered 6,458 concerns and this formed the dataset for the analysis.

### Community Feedback Survey

A web survey was carried out between March 13, 2018 and July 13, 2018 to engage the community in the process of creating the new Noise Management Plan. The survey was designed to collect input on various aspects of YVR's Noise Management Program and identify specific community concerns. The survey also allowed respondents to propose suggested mitigation measures for consideration by YVR. The survey was completed by a total of 721 individuals, which included 218 individuals who completed the survey through the open web link and 503 randomly selected local survey panelists. 68% of the 218 respondents via the open web link cited concerns about aircraft noise whereas 27% of the 503 panelists cited concerns about aircraft noise.

### Noise Management Practice Review

YVR retained a consultant to review noise management practices at other international airports. The objective of this review was to better understand industry trends and to help support discussions with YVR's Aeronautical Noise Management Committee (ANMC). The review provided information on possible ways to enhance communication with communities, which helped shape some of the initiatives in the Action Plan.

### Consultations with YVR's Aeronautical Noise Management Committee (ANMC)

YVR worked closely with the members of the ANMC to create the new Noise Management Plan. The multi-stakeholder community-based ANMC plays an active role in providing input and informing noise management strategies at the airport. Membership on the ANMC includes: citizen and city staff representatives appointed by the Cities of Richmond, Vancouver, Delta, and Surrey; Musqueam Indian Band; airlines; industry associations; NAV CANADA; Transport Canada; and YVR.

### Evaluating Proposed Initiatives for the Action Plan

To create the action plan for the new 2019-2023 YVR Noise Management Plan, all proposed initiatives received from the community, the ANMC, and other stakeholders were evaluated based on the following criteria:

- Noise mitigation
- Impact on safety
- Impact on airport or aircraft operations
- Effects on air quality and greenhouse gas (GHG) emissions
- Economic cost to the industry
- Noise impact on neighbouring communities or areas
- Impact on current and future airport capacity
- Alignment with YVR's mandate to provide 24-hour air service for the region

# Action Plan

<b>1</b>  EDUCATION & AWARENESS	<b>WORK FOCUS</b> <b>AWARENESS—COMMUNITY</b>	<b>OBJECTIVE</b> Inform the community about aircraft/airport operations and noise management efforts.
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## INITIATIVE / ACTION

- 1.1 Identify and implement new online web tools to enhance information sharing and analytical capabilities to better inform the community about aeronautical noise and aircraft operations.
- 1.2 Report the results of noise monitoring, aircraft operations, complaints statistics, and progress on noise management initiatives in the annual noise report.
- 1.3 Track the trend of the use of quieter aircraft designs at YVR and provide updates in the annual noise report.
- 1.4 Review noise management information on YVR's website to ensure information is up-to-date and relevant. Where possible, look to convert materials to other forms of media to increase accessibility of information.
- 1.5 Engage Musqueam Indian Band to provide information and enhance knowledge of airport and aircraft operations.
- 1.6 Track and provide educational information on emerging trends in aircraft and navigation technologies.
- 1.7 Include information on annual traffic forecasts and growth in the annual noise report to provide clear expectations to the community.

<b>2</b>  EDUCATION & AWARENESS	<b>WORK FOCUS</b> <b>AWARENESS—INDUSTRY</b>	<b>OBJECTIVE</b> Engage with aviation stakeholders on noise management activities at YVR.
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## INITIATIVE / ACTION


- 2.1 Participate in discussions with other major airports in Canada to share and exchange information on emerging trends and noise management strategies, and to coordinate responses and positions on national issues.
- 2.2 Host regular meetings with NAV CANADA to discuss and exchange information on noise management strategies.
- 2.3 Acknowledge airline partners that demonstrate good noise management practices by presenting YVR's Fly Quiet Awards annually and explore opportunities for further recognition and engagement.
- 2.4 Participate in discussions with Transport Canada and other government agencies on national and international issues.

# Action Plan

<p><b>3</b>  PROCEDURES &amp; DIRECTIVES</p>	<p><b>WORK FOCUS</b> NIGHT-TIME OPERATIONS</p>	<p><b>OBJECTIVE</b> Monitor and report on the number of night operations.</p>
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**INITIATIVE / ACTION**

- 3.1 Perform an annual review of YVR’s guidelines for approving operations at night to ensure the guidelines remain relevant.
- 3.2 Report on the number of night operations by aircraft noise certification in annual noise reports.
- 3.3 Monitor compliance with the night-time approval requirement and report suspected violations to Transport Canada.
- 3.4 Assess and communicate the benefits and economic contribution of 24-hour operations.

<p><b>4</b>  SHAREHOLDER ENGAGEMENT</p>	<p><b>WORK FOCUS</b> YVR AERONAUTICAL NOISE MANAGEMENT COMMITTEE (ANMC)</p>	<p><b>OBJECTIVE</b> Ensure that the YVR ANMC remains relevant and functional.</p>
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**INITIATIVE / ACTION**

- 4.1 Review YVR’s ANMC Terms of Reference for membership, expectations, scope, objectives, etc. Host at least three meetings a year and consult members on emerging issues.
- 4.2 Develop customized reports for ANMC city staff and citizen representatives to support their role on the Committee.


<p><b>5</b>  FLIGHT TRACKING &amp; NOISE MONITORING</p>	<p><b>WORK FOCUS</b> AIRCRAFT NOISE AND OPERATIONS MONITORING SYSTEM (ANOMS)</p>	<p><b>OBJECTIVE</b> Ensure functional and reliable collection of noise and operations data.</p>
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**INITIATIVE / ACTION**

- 5.1 Assess the current network for Noise Monitoring Terminals (NMTs) and determine locations in the City of Delta, Musqueam, and other areas in Metro Vancouver where new NMTs could be located to capture noise data related to current and future operations.
- 5.2 Prepare a multi-year system plan for ANOMS to schedule hardware replacement and software enhancements.



# Action Plan

<p><b>6</b> </p> <p>FLIGHT TRACKING &amp; NOISE MONITORING</p>	<p><b>WORK FOCUS</b></p> <p>TEMPORARY NOISE MONITORING</p>	<p><b>OBJECTIVE</b></p> <p>Deploy the portable NMT to capture objective data on noise exposure.</p>
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**INITIATIVE / ACTION**

- 6.1 Identify potential locations for temporary noise monitoring, deploy the portable Noise Monitoring Terminal, and ensure a summary of results is made available.

<p><b>7</b> </p> <p>PROCEDURES &amp; DIRECTIVES</p>	<p><b>WORK FOCUS</b></p> <p>RUN-UPS</p>	<p><b>OBJECTIVE</b></p> <p>Further manage noise from engine run-ups.</p>
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**INITIATIVE / ACTION**

- 7.1 Undertake an annual review of the Engine Run-up Directives and Procedures with a focus on optimizing noise reduction opportunities at all run-up locations.
- 7.2 Report the number of run-ups by hour, location, and power setting in the annual noise report.
- 7.3 Provide new operators at YVR with information on engine run-up procedures and directives.

<p><b>8</b> </p> <p>EDUCATION &amp; AWARENESS</p>	<p><b>WORK FOCUS</b></p> <p>PERFORMANCE-BASED NAVIGATION (PBN) PROCEDURES / FLIGHT PATH CHANGES</p>	<p><b>OBJECTIVE</b></p> <p>Identify opportunities for noise mitigation during the development of new flight paths or procedures where feasible.</p>
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**INITIATIVE / ACTION**


- 8.1 Assist with evaluating community and noise impacts associated with the introduction of new flight paths and procedures and ensure that noise and emissions reductions and capacity impacts are considered during design.
- 8.2 During the design phase of creating new procedures, provide baseline information on current aircraft activity levels over the community to assist with identifying mitigation options to lessen current impacts where feasible.
- 8.3 Support the development and introduction of PBN procedures at YVR by providing resources, information, and data to assist in the design process.
- 8.4 Collaborate with aviation partners to ensure communities are engaged and advised before any changes to flight paths are implemented as outlined in the *Airspace Change Communication & Consultation Protocol*.

# Action Plan

<b>9</b>  PROCEDURES & DIRECTIVES	<b>WORK FOCUS</b> <b>NOISE ABATEMENT PROCEDURES</b>	<b>OBJECTIVE</b> Ensure procedures to manage noise remain relevant and current.
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### INITIATIVE / ACTION

- 9.1 Perform an annual review of the published Noise Abatement Procedures for YVR with the aim of ensuring clarity and continual improvement.

<b>10</b>  PROCEDURES & DIRECTIVES	<b>WORK FOCUS</b> <b>MANAGING CAPACITY</b>	<b>OBJECTIVE</b> 1. Ensure runway system at YVR is used effectively to reduce delays while managing noise impacts on the community. 2. Develop analytics and identify data requirements to evaluate impacts of future runways.
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### INITIATIVE / ACTION

- 10.1 Work to quantify the environmental and economic costs of delays at YVR associated with various aspects of operations, including runway operating restrictions.
- 10.2 Collaborate with aviation partners to assess airside capacity, including emerging constraints, coordinate planning for optimal use of the runway system at YVR and assist with the assessment of short, medium, and long-term capacity enhancement strategies.
- 10.3 Identify evaluation criteria, metrics, and analysis requirements to assess future noise impacts associated with potential new runways and airfield infrastructure and work collaboratively with municipalities and stakeholders to ensure required data is collected.

# Action Plan

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**WORK FOCUS**  
YVR FLOAT PLANE  
OPERATIONS

**OBJECTIVE**  
Further manage noise associated with  
YVR float plane operations.

**INITIATIVE / ACTION**

11.1 Continue ongoing dialogue and work with YVR float plane operators to assess ways to further manage noise.

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**WORK FOCUS**  
LAND USE PLANNING

**OBJECTIVE**  
1. Promote compatible land use planning  
in the vicinity of the airport.  
2. Minimize noise from future airport  
developments on Sea Island.

**INITIATIVE / ACTION**

- 12.1 Work with adjacent communities to promote the adoption of compatible land use and design standards that reflect airport operations and plans.
- 12.2 Provide input on applicable municipal community plans, rezoning, and development applications.
- 12.3 As part of the process for development on airport property, assess the use of berms, barriers, and landscaping as ways to minimize noise from airport ground-based activities.