



# City of Richmond

## Report to Committee

**To:** Planning Committee **Date:** April 17, 2023  
**From:** John Hopkins **File:** 01-0153-04-01/2023-  
 Director, Policy Planning Vol 01  
**Re:** **Annual Report on the YVR Aeronautical Noise Management Committee for 2022**

### Staff Recommendation

That the staff report titled “Annual Report on the YVR Aeronautical Noise Management Committee for 2022”, dated April 17, 2023, be received for information.

John Hopkins  
Director, Policy Planning  
(604-276-4279)

Att. 1

<b>REPORT CONCURRENCE</b>	
<b>CONCURRENCE OF GENERAL MANAGER</b>	
<b>SENIOR STAFF REPORT REVIEW</b>	<b>INITIALS:</b>
<b>APPROVED BY CAO</b>	

## Staff Report

### Origin

The Vancouver International Airport (YVR) Aeronautical Noise Management Committee (ANMC) is formed and operated by the YVR Airport Authority. City of Richmond representatives on the ANMC include two citizen representatives appointed by Council, and a staff member from the Policy Planning Department. This report provides an annual update to Council on the work and activities undertaken by the YVR ANMC in 2022.

This report supports Council's Strategic Plan 2022-2026 Focus Area #1 Proactive in Stakeholder and Civic Engagement:

*Proactive stakeholder and civic engagement to foster understanding and involvement and advance Richmond's interests.*

*1.4 Leverage a variety of approaches to make civic engagement and participation easy and accessible.*

### Findings of Fact

YVR is responsible for noise management at the airport. This is addressed through a comprehensive Aeronautical Noise Management Program that includes:

- Implementing initiatives in the five-year Noise Management Plan;
- Procedures and directives to mitigate noise from aircraft and airport operations;
- Maintenance of a flight tracking and noise monitoring system;
- Dedicated staff with responsibility for responding to community questions/concerns;
- Community education and awareness programs; and
- Stakeholder engagement through the YVR ANMC.

The YVR ANMC provides a forum for the discussion and consideration of all aeronautical noise management issues arising from airport operations at YVR. It is a consultative committee, not a decision making committee. Membership of the YVR ANMC includes citizen representatives from selected municipalities, staff from municipal governments, the Musqueam Indian Band, airlines, NAV CANADA, Transport Canada, and the Vancouver Airport Authority.

The current Council appointed Richmond citizen representatives on the ANMC are Gary Abrams (appointed for the period January 2021 to December 2023) and Howard Jampolsky (appointed for the period January 2023 to December 2024). Arvind Sharma served on the committee from January 2019 and stepped down as a citizen representative at the end of 2022. The ANMC met on March 17<sup>th</sup>, September 15<sup>th</sup> and November 24<sup>th</sup> in 2022. Meeting minutes are available on the [YVR ANMC website](https://www.yvr.ca/en/about-yvr/noise-management/anmc) (<https://www.yvr.ca/en/about-yvr/noise-management/anmc>)

**Analysis**

COVID-19 Impacts

In 2022, aircraft movements at YVR steadily increased as global pandemic restrictions were relaxed and demand for air travel grew. In 2022, total aircraft movements were up by 56% compared to the same period in 2021. However, total movements in 2022 were still 21% lower than the same period in 2019. While domestic and US traffic has had a good recovery, international traffic (primarily to China) has shown less recovery due to continued travel restrictions and other factors.

*Table 1: Annual Aircraft Movement Statistics at YVR, 2019 – 2022*

	2022	2021	2020	2019
<b>Total Aircraft Movements</b>	<b>262,888</b>	<b>168,323</b>	<b>157,563</b>	<b>331,411</b>
<i>Runway Movements</i>	<i>230,162</i>	<i>141,699</i>	<i>136,277</i>	<i>289,533</i>
<i>Non-Runway Movements</i>	<i>32,726</i>	<i>26,624</i>	<i>21,286</i>	<i>41,908</i>
<b>Total Cargo (Tonnes)</b>	<b>302,572</b>	<b>279,212</b>	<b>241,895</b>	<b>304,078</b>
<b>Total Passengers</b>	<b>19,013,416</b>	<b>7,086,602</b>	<b>7,302,109</b>	<b>26,379,870</b>

\*Data provided by YVR, represents changes in aircraft movement during pandemic as compared to 2019 as base year

2022 Aircraft Noise Concerns

YVR creates customized reports for citizen and staff representatives to help further understand concerns from their community and support their role on the ANMC. Richmond’s 2022 Aircraft Noise Concern Summary Report is included in Attachment 1. Concerns received from Richmond in 2022 were as follows:

- 360 total concerns were registered by 58 individuals. This is an increase from 2021 in both the number of total concerns registered (247) and the number of individuals (52).
- Of the 360 total concerns in 2022, 77% were registered by one individual who mostly cited propeller aircraft departures as the cause for concern.
- Excluding concerns received from this individual, jet aircraft departures were the most cited concern.

Across the Lower Mainland as a whole, in 2022 the Airport Authority received a total of 2,183 noise concerns from 130 individuals. This equates to approximately 1 of every 20,000 Lower Mainland residents submitting a concern. Figures 1 and 2 show the total number of concerns and individuals between 2018 and 2022 for Richmond and for the Lower Mainland as a whole. The pattern of a small number of individual submitting the majority of concerns is consistent at both scales of analysis.

Jet arrivals and departures, propeller aircraft movements and engine run-ups (required testing activity as part of routine maintenance activities) were the common concerns raised by Richmond residents. When a concern is received, the Airport Authority investigates by reviewing radar flight tracks, noise measurement data and flight publications. An individualized response is provided to each concern, including an offer to meet to further discuss concerns. Richmond ANMC citizen representatives have also offered their times to speak with residents when requested. Generally, very few individuals accept the offer of further discussions.

Figure 1: Total Concerns and Individuals, City of Richmond, 2018 – 2022

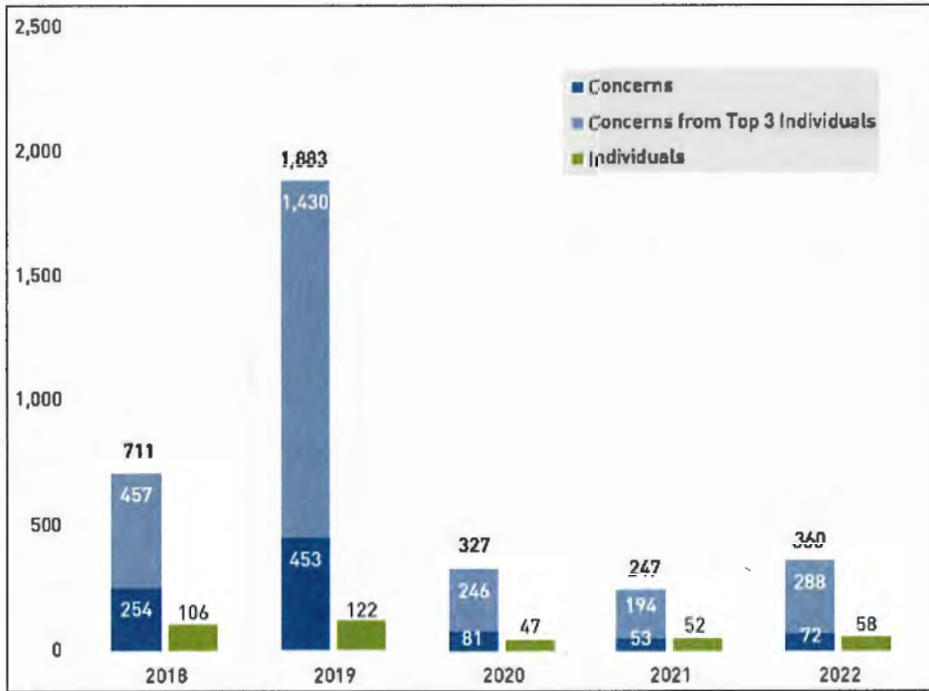
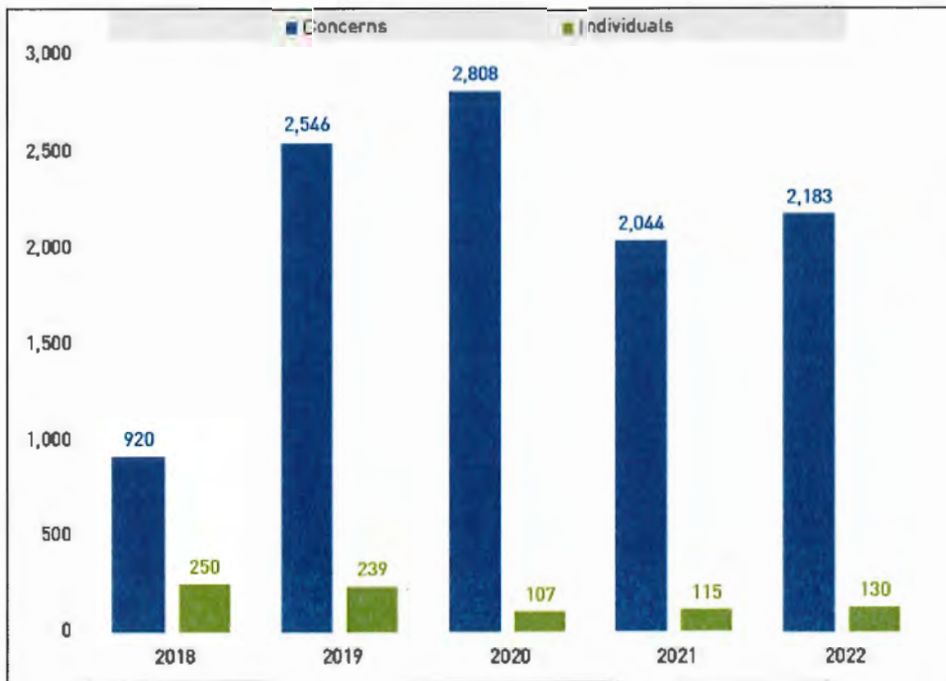


Figure 2: Total Concerns and Individuals, Lower Mainland, 2018 - 2022



NAV CANADA Vancouver Airspace Modernization Project (VAMP)

NAV CANADA provides air navigation services for all of Canada. The multi-year Vancouver Airspace Modernization Project (VAMP) will modernize the airspace over the Greater Vancouver Region and Southern Vancouver Island, resulting in new arrival flight paths for several airports in the region, including YVR. The key driver of the project is to enhance aviation safety for current operations and ensure the airspace structure can safely accommodate the future demand and growth of aviation in the region.

The ANMC receives regular updates on this project, and the proposed arrival routes were shared at the November 2022 meeting. The routes have been designed to meet Transport Canada design criteria while incorporating as much noise mitigation as possible where technically feasible. It is not possible to create new routes that completely avoid residential areas due to design criteria, local geography, and airspace complexity.

A period of public consultation on the proposals ran from December 2022 to February 2023, and included a series of open houses and online information sessions. City staff provided an update to members of Planning Committee in early 2023 on the public consultation indicating that there would be no impact on noise contours within the City. This is due to the fact that aircraft have to be lined up on their final approach before they cross Richmond's municipal boundaries. There will be no changes to routes and procedures used by YVR departing aircraft and aircraft operating under Visual Flight Rules. Additionally, the project will not change any of the published Noise Abatement Procedures for YVR.

A consultation report will be prepared later in the Spring of 2023 and, subject to consultation, implementation will occur in Fall/Winter 2023. NAV CANADA will also conduct a 180-day post-implementation Community Impacts Assessment with results of this expected in Summer 2024.

In terms of day-to-day operations, the flight patterns and the distribution of aircraft over the Lower Mainland is dependent on which runway is active. Which runway is active is dependent on the wind conditions on the airfield – for safety reasons aircraft must land and take-off into the wind. In addition to this, there are restrictions on the use of the north runway that were imposed as a condition of the approval to build the north runway. These restrictions will not change as part of the VAMP. The north runway is subject to the following restrictions:

- No operations between the hours of 10:00 p.m. and 7:00 a.m., except in the case of emergencies or airfield maintenance.
- Use of north runway is primarily for landings. Take-offs are only permitted when traffic demand approaches capacity limits during peak periods (generally the summer months).
- Minimal use of reverse thrust consistent with safe operating procedures.

Any future options for changing operations between the two runways that has noise implications would be presented and discussed with the YVR ANMC. As air traffic gradually increases, it is anticipated that the use of the north runway would increase until such time as a third runway is needed. This is not expected for several decades.

Noise Management Plan (NMP)

The Noise Management Plan (NMP) is a requirement under the ground lease with Transport Canada, and documents the structure of the noise management program and associated action items. The current NMP covers the years 2019 to 2023. At the March 2022 meeting, ANMC members were asked for their input on studies or background information they would like to see collected to prepare for the new NMP. Subsequent discussions were hosted by YVR Noise Management staff and other key departments and individuals within YVR.

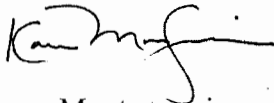
Based on these discussions and input received, given the many challenges and unknowns facing the aviation industry, preparation of the new NMP will be deferred by one to two years. This will also allow the next NMP to better align with the timeframes of other key plans at YVR including the Master Plan, Strategic Plan, and Environmental Management Plan. In the interim period between the two NMPs, YVR Noise Management staff will focus efforts on supporting NAV CANADA in the implementation of VAMP and completion of the major airside projects. In addition, the Airport Authority remains open to receiving and considering any initiatives that ANMC members might have.

**Financial Impact**

None.

**Conclusion**

The YVR ANMC provides a valuable stakeholder forum for addressing aeronautical noise impacts in Richmond. The appointed citizen representatives continue to uphold Richmond's interests at the committee and contribute positively to discussions.



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KM:cas

Att. 1: YVR 2022 Year-End Aircraft Noise Concern Summary for the City of Richmond

## 2022 Year-End Aircraft Noise Concern Summary for the City of Richmond

### 1. Introduction

Vancouver International Airport (YVR) is managed by the Vancouver Airport Authority, which has the mandate to act in the best interest of the local and provincial economy. The Airport Authority is committed to minimizing the negative effects of aircraft noise on the surrounding communities while balancing the need for safe, convenient, 24-hour air travel.

To achieve this objective, the Airport Authority has a comprehensive Aeronautical Noise Management Program which includes:

- Implementing initiatives in the Noise Management Plan;
- Keeping stakeholder updated and informed through the YVR Aeronautical Noise Management Committee (ANMC);
- Assessing procedures and directives to mitigate noise from aircraft and airport operations;
- Maintaining a flight tracking and noise monitoring system;
- Responding to questions and concerns from the community;
- Developing materials to raise awareness and educate the community on noise management efforts; and,
- Working with local governments on compatible land use planning.

ANMC members are provided a summary of concerns received at each meeting. Biannual customized reports are created for citizen and staff representatives to help further understand concerns from their community and support their role on the ANMC.

The objective of the customized report is to provide a summary of concerns received from a specific municipality. This report summarizes the analysis of noise concerns received in 2022 from residents of the City of Richmond ("Richmond"). The report provides information about the concerns raised and includes their geographic location and distribution, the issue of concern, and general trends. The names and addresses of individuals are not provided for privacy reasons.

Further information on noise management efforts and work on various initiatives can be found in the Annual Noise Reports posted on the YVR website ([www.yvr.ca](http://www.yvr.ca)).

## 2. Key Findings

- In 2022, aircraft movements at YVR steadily increased as pandemic restrictions were relaxed and demand for air travel grew.
- For concerns received from Richmond in 2022:
  - 360 concerns were registered by 58 individuals,
  - In 2021, over the same period, there were 247 concerns from 52 individuals.
  - 77% (n=277) of the 360 concerns were registered by one individual
  - This individual mostly cited Prop Departures as the source of annoyance
  - Excluding concerns received from this same person, Jet Departures were the most cited type of operation.

## 3. Year-Over-Year Comparison

Aircraft traffic at YVR has been steadily increasing in 2022 as global COVID-19 restrictions were relaxed. In 2022, there were 262,888 total movements, up by 56% compared to the same period in 2021, but 21% lower than the same period in 2019. While domestic and transborder (U.S.) traffic has shown good recovery, international traffic primarily to China has shown less recovery due to continued travel restrictions and other factors.

Table 1: Annual Movement Statistics at YVR, 2019-2022

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**Integral Role** – YVR plays a vital role in supporting the economic recovery of the region as community and businesses rely on air services to connect British Columbia to the rest of the world. As air travel recovers, it is anticipated that air traffic will return to pre-pandemic levels in the next few years. The Airport Authority recognizes that our operations can affect surrounding communities, and it remains committed to minimizing negative impacts as much as possible.

**Lower Mainland** – In 2022, the Airport Authority received a total of 2,183 noise concerns related to YVR aircraft operations from 130 individuals. This is a slight increase compared to the same period in 2021, where 2,044 concerns were registered by 115 individuals. For reference, the Lower Mainland has a population of 2.6 million<sup>1</sup>, i.e., approximately 1 in 20,000 Lower Mainland residents has submitted a concern this past year.

<sup>1</sup> 2021 Statistics Canada's Census (<https://www12.statcan.gc.ca/>)



Figure 1 illustrates the total number of concerns and individuals between 2018 and 2022 from across the Lower Mainland. In 2022, of the 2,183 total concerns received, 92% (n=2,012) were received from three individuals: 1,722 (Surrey), 277 (Richmond), and 13 (Delta).

Figure 1: Total Number of Concerns & Individuals – All Lower Mainland (2022)

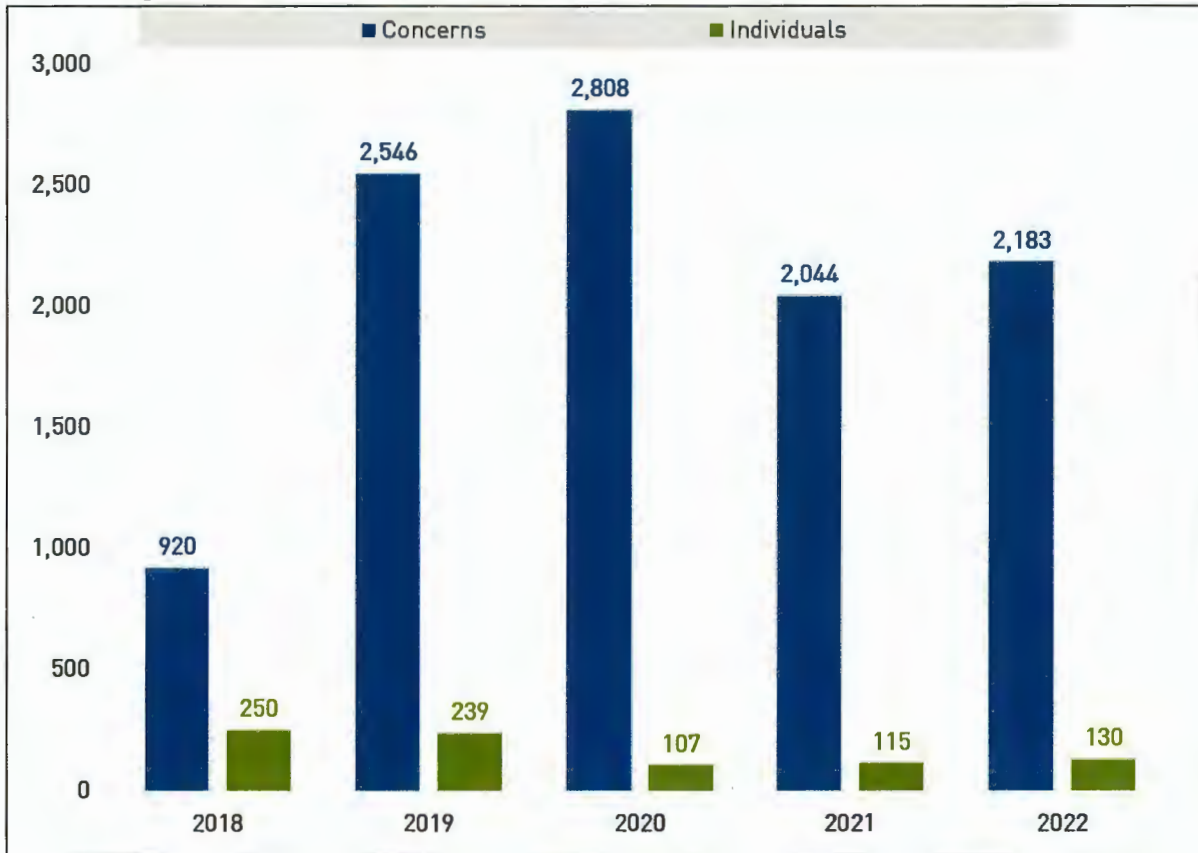
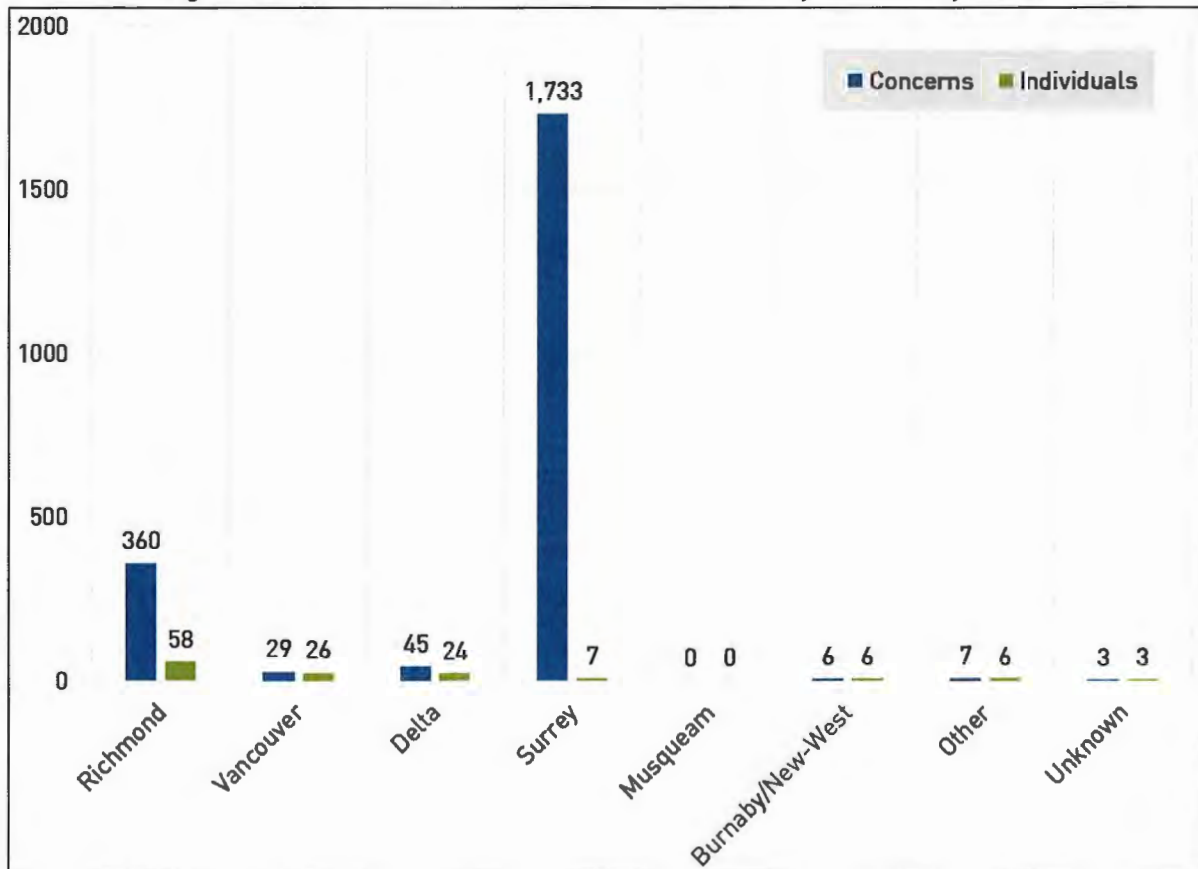


Figure 2 illustrates the number of concerns and individuals in 2022 by community. 360 concerns were received from 58 residents of Richmond, accounting for 16% of the total concerns and 45% of the individuals in the Lower Mainland.

Figure 2: Total Number of Concerns & Individuals by Community (2022)



For reference, Richmond has a population of 209,937<sup>2</sup>, comprising about 8% of the total population of the Lower Mainland. Of the 360 concerns received in 2022, 80% (n=288) were received from three individuals.

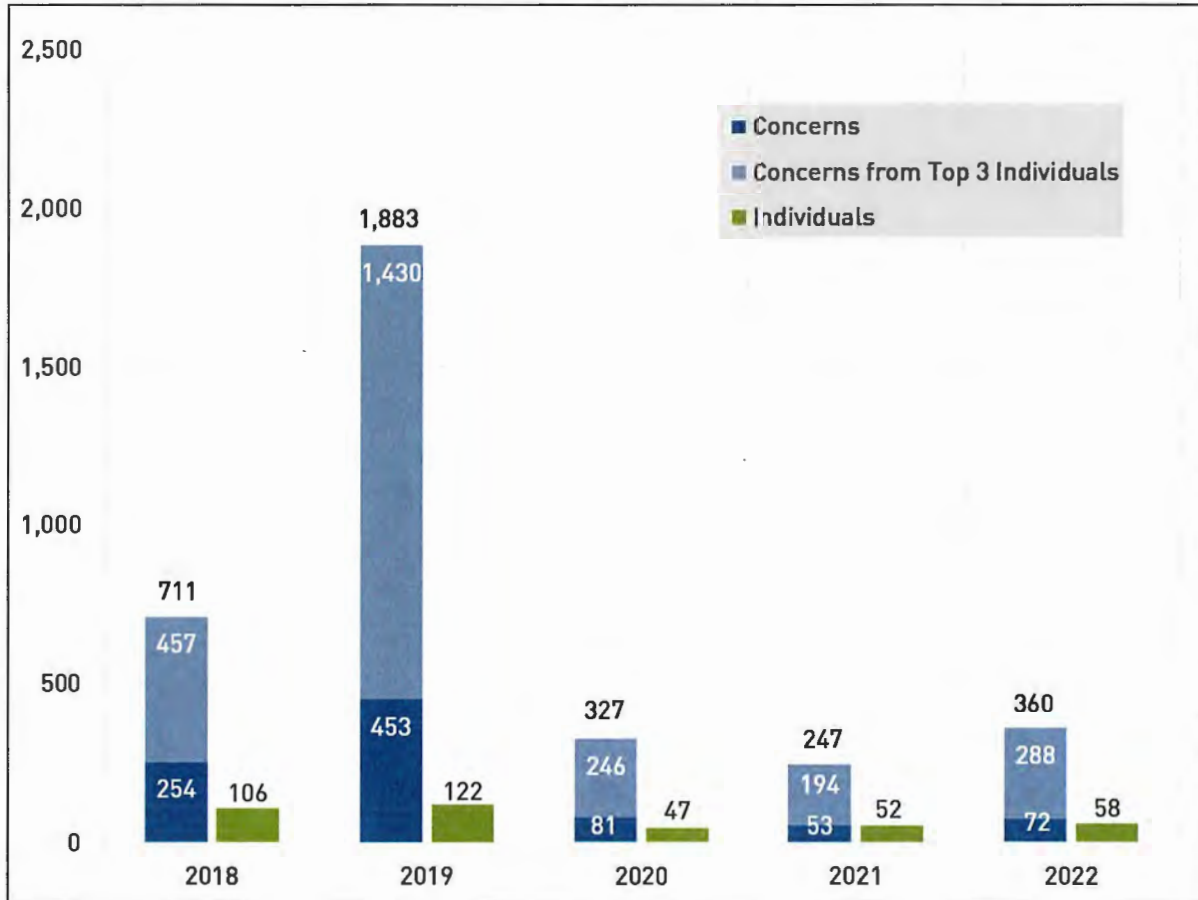
Of the 58 Richmond residents who contacted the Airport Authority in 2022:

- 42 residents submitted 1 concern each
- 6 residents submitted 2 concerns each
- 6 residents submitted 3 concerns each
- 1 resident submitted 4 concerns
- 1 resident submitted 7 concerns
- 1 resident submitted 277 concerns

<sup>2</sup> 2021 Statistics Canada's Census (<https://www12.statcan.gc.ca/>)

Figure 3 illustrates the number of concerns and individuals for Richmond from 2018 – 2022. As noted earlier, three individuals submitted 80% (n=288) of the 360 concerns from Richmond.

Figure 3: Number of Concerns and Individuals by Year – Richmond Only

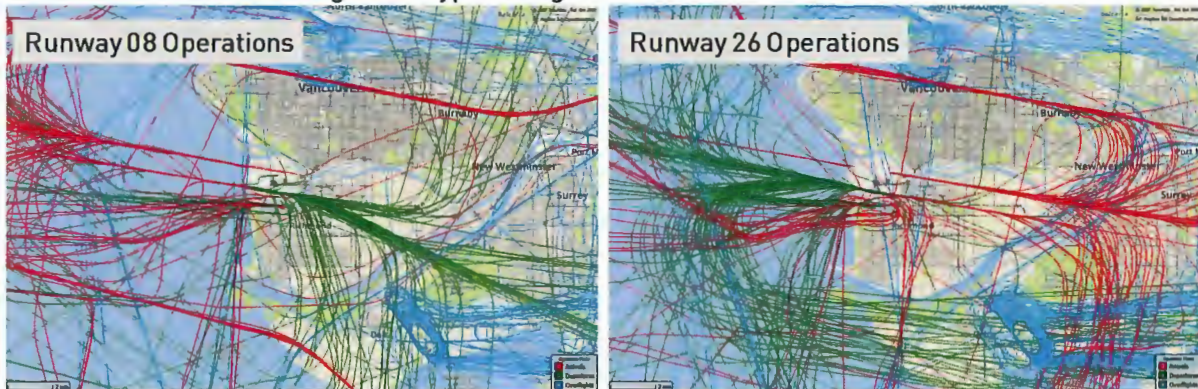


#### 4. General Flight Patterns – Richmond

Figure 4 illustrates typical flight patterns over Richmond during Runway 08 and Runway 26 operations. For safety reasons, aircraft must land and take-off into the wind. Runway 08 operations are associated with winds from the east, and Runway 26 operations are associated with winds from the west. **RED** tracks are YVR arrivals, **GREEN** tracks are YVR departures, and **BLUE** tracks are aircraft not associated with YVR.

While these figures represent aircraft activities and volumes pre-COVID-19, the current airspace structure, procedures, and general flight paths remain the same.

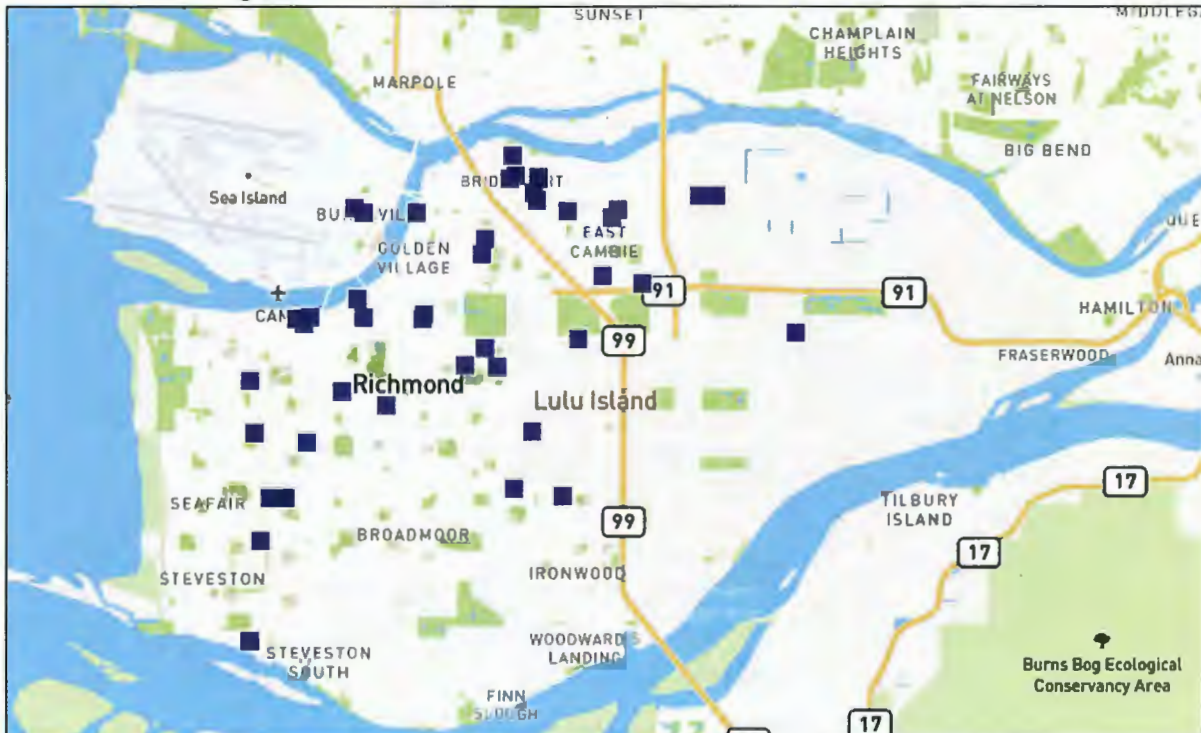
Figure 4: Typical Flight Patterns Over Richmond



### 5. Distribution & Analysis of Concerns - Richmond

Figure 5 shows the geographic location of concerns from Richmond received in 2022. Concerns submitted without a specified location are omitted from this map.

Figure 5: Geolocation of Noise Concerns from Richmond, 2022



When reporting noise concerns, individuals generally provide details of their location as well as the date and time of the incident. Based on the information provided, flight tracks are analyzed using the airport's Aircraft Noise Monitoring & Operations Monitoring System.

Each concern is categorized into an Operation type, e.g., Jet Departure, Jet Arrival, Helicopter. The nature of the concern depends on the location of the individual with respect to the airport and flight paths. Each area of the city is therefore uniquely affected.

The Airport Authority investigates each concern by reviewing radar flight tracks, noise measurement data, and flight publications based on information provided by the individual. A response is then provided which includes comprehensive information to help the individual better understand aircraft operations over their area, and any procedures in place to mitigate noise.

In addition to providing answers related to airport and aircraft operations, the Airport Authority also offers to arrange a time to speak on the phone or to meet to further discuss their concerns. There are generally only a few individuals who accept these offers. Richmond citizen representatives on the ANMC have also offered their time to speak with residents when requested.

Five general sub-areas are marked in Figure 6, which illustrates the location of concerns received in 2022. One individual submitted 77% (n=277) concerns, and their approximate location is shown in a yellow circle. Most of the concerns from this individual were related to early-morning propeller aircraft departures during Runway 08 operations. This individual has submitted similar concerns for many years, and the Airport Authority staff has responded numerous times via telephone calls and emails.

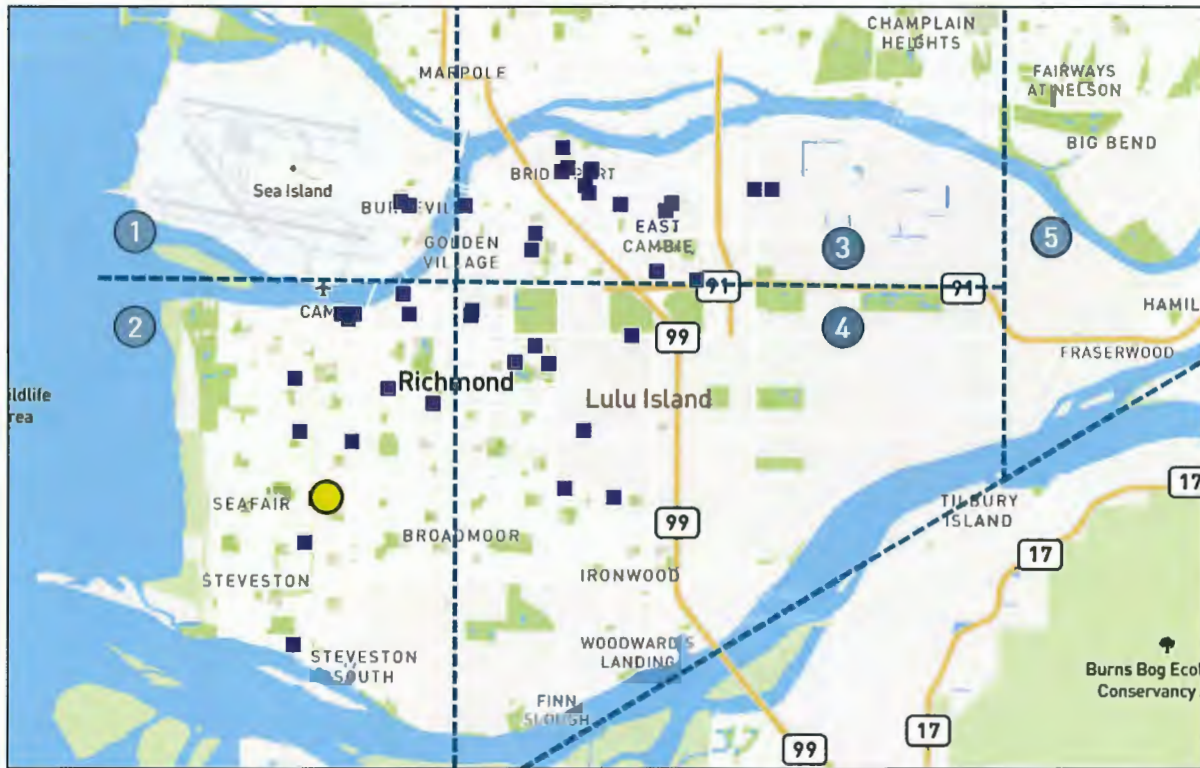
Table 1 below lists the most common types of operations, starting with the most frequently cited within each sub-area illustrated in Figure 6.

**Table 1: Nature of Concerns, Breakdown by Richmond Sub-Area**

	Sub-Area 1	Sub-Area 2	Sub-Area 3	Sub-Area 4	Sub-Area 5
Nature of Concern (most frequent at top)	Run-Ups Other	Prop Departure Prop Arrival Run-Up	Jet Arrival Jet Departure All Aircraft	Jet Departure All Aircraft	n.a.

\* Run-ups: aircraft engine testing while on the ground, allowed only with approval and at designated locations on the airfield.

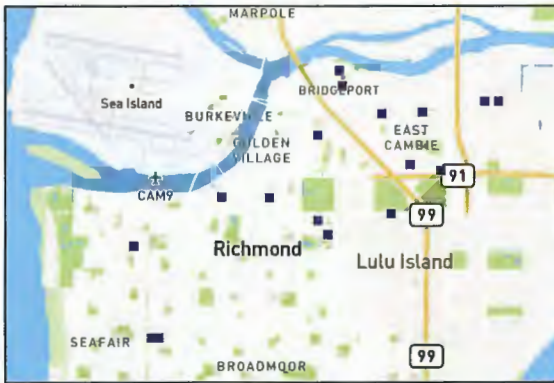
Figure 6: Richmond Concerns – Divided into Five General Sub-Areas



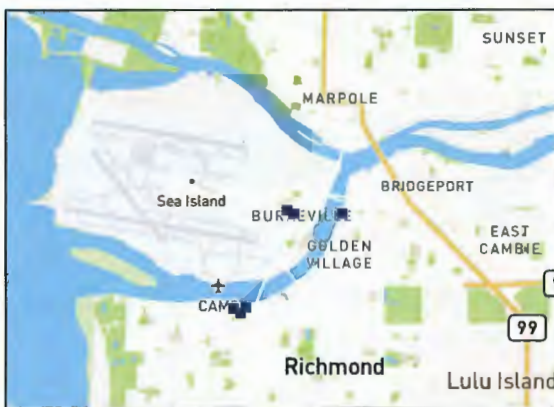
Reviewing by type of operation, the five most cited operations in Richmond are shown below:



Prop Departures (77%) were identified as the most common type of operation associated with concerns received from areas to the south of the airport (Area 2). The published departure procedures for Runway 08 have propeller aircraft generally initiating their turn when the aircraft has reached an altitude between 500 and 1,000 feet. As a result, some propeller aircraft heading to destinations located to the south and west of YVR will overfly areas to the south of the airport. These departure routes and procedures have been in place for many years.



Jet Departures (6%) were the second-most cited type of operation and was reported over a wider area of Richmond. These areas are typically affected by Runway 08 operations which involve aircraft gaining altitude over the City.



Run-Ups (4%) were the third-most cited type of operation and affects communities closest to the airport such as Burkeville and north Thompson, along the river.



Jet Arrivals (4%) were the fourth-most cited type of operation. These concerns are mainly received from Bridgeport regarding arrivals on Runway 26R (north runway).



Concerns that did not specify a flight or were general in nature were categorized under All Aircraft (4%). The distribution of these concerns is comparable to Jet Departures and is considered typical since Departures tend to be the loudest type of operation.

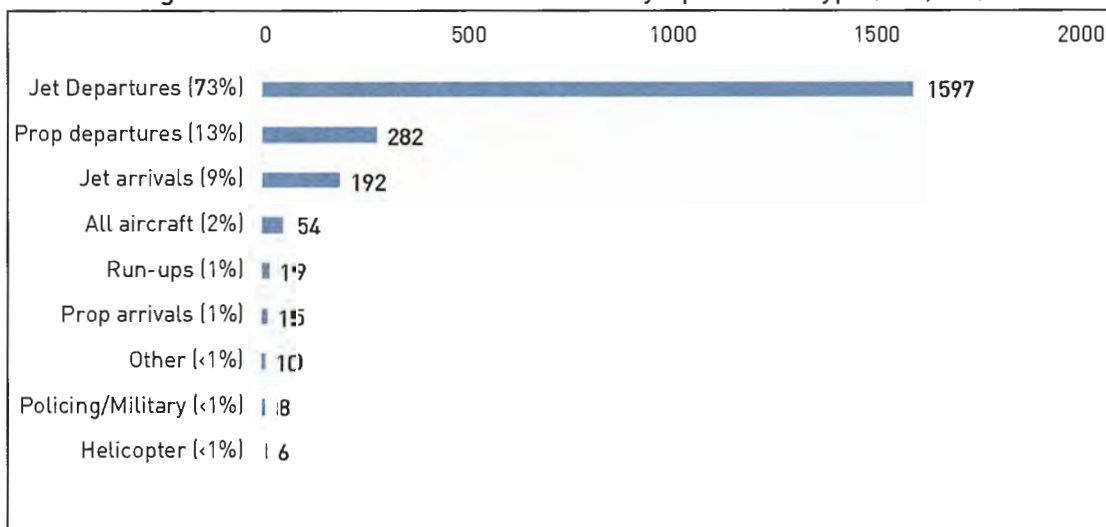
Figure 7 illustrates the breakdown of all 2,183 concerns received from residents across the Lower Mainland in 2022 by operations type.

Figure 8 provides the breakdown of the 360 concerns from Richmond only. Prop Departures (77%) and jet departure (6%) were the top two operational categories associated with concerns from Richmond.

As a small number of individuals registering multiple concerns can affect the dataset, further analysis was done to exclude the 277 concerns registered by one individual.

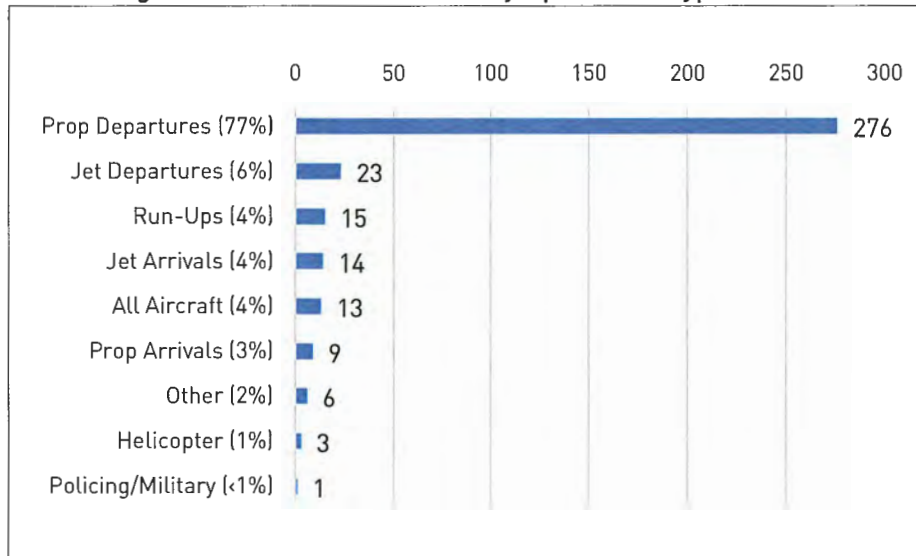
Figure 9 provides the breakdown of the remaining 83 concerns by operations type for Richmond. Excluding the 277 concerns from said individual, Jet Departures were the most cited operational type associated with concerns from Richmond, accounting for 27% (n=22).

Figure 7: All Lower Mainland Concerns by Operations Type (n=2,183)

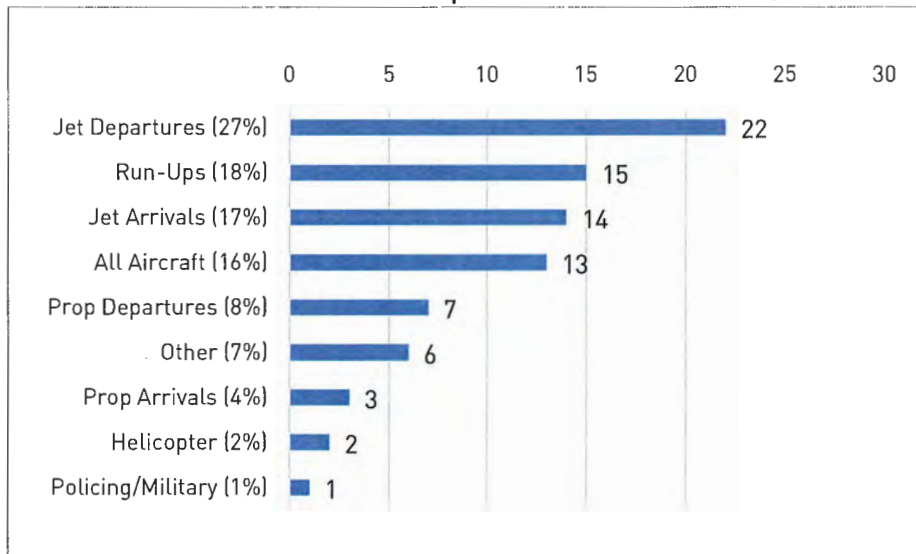




**Figure 8: Richmond Concerns by Operations Type (n=360)**



**Figure 9: Richmond Concerns by Operations Type with Concerns from the Most Frequent Individual Excluded (n=83)**



ENVIRONMENT – YVR Noise Management  
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[www.yvr.ca](http://www.yvr.ca)

For questions regarding this report or aircraft noise, please contact us at the following:

E-mail: [noise@yvr.ca](mailto:noise@yvr.ca)

[WebTrak](#)

YVR Noise Information Line: 604- 207-7097

REPORTING:

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Version 1.00

- February 2023 -

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