

# ANCCG Quarterly Noise Report: *Supplementary Information*

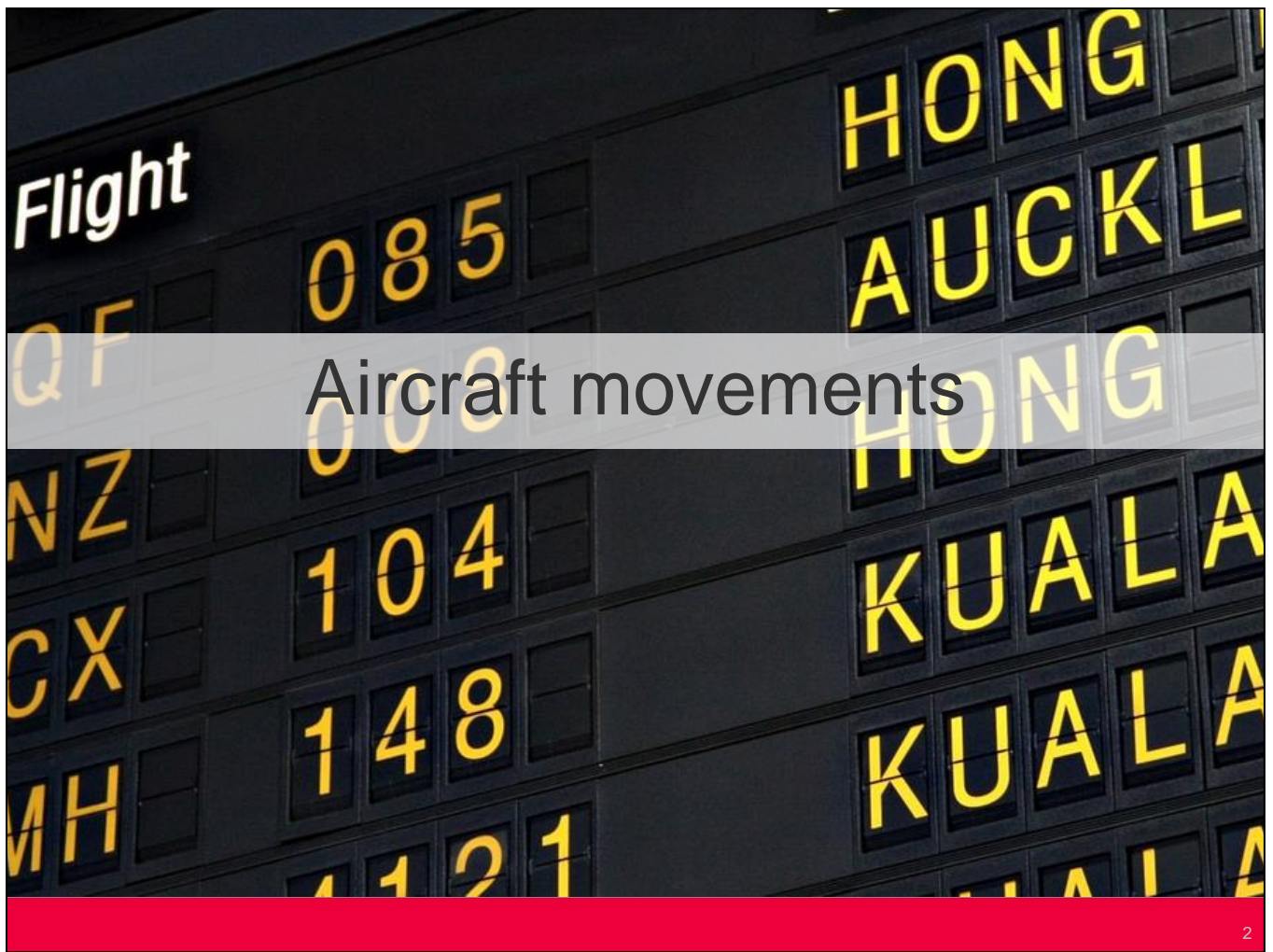
Monitoring period:  
November 2024 – January 2025

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NB: This is to provide supplementary information for the *ANCCG Quarterly Noise Report*. Also, for a compliance assessment please see the latest Annual Noise Management Report. The quarterly report provides information to help inform the ANCCG and broader public. As per feedback from the last ANCCG meeting we have reincluded flight path diagrams (slides 5-8) and specific complaints maps (slides 16 and 17).

During this quarter we also note that the Airways data feed disconnected between 1-16 December 2024, so flights during this period were unable to be correlated and have been excluded from our analysis.



Flight

QF

NZ

CX

MH

085

008

104

148

121

HONG

AUCKL

HONG

KUALA

KUALA

Aircraft movements

Figure 1: Aircraft Movements by Runway

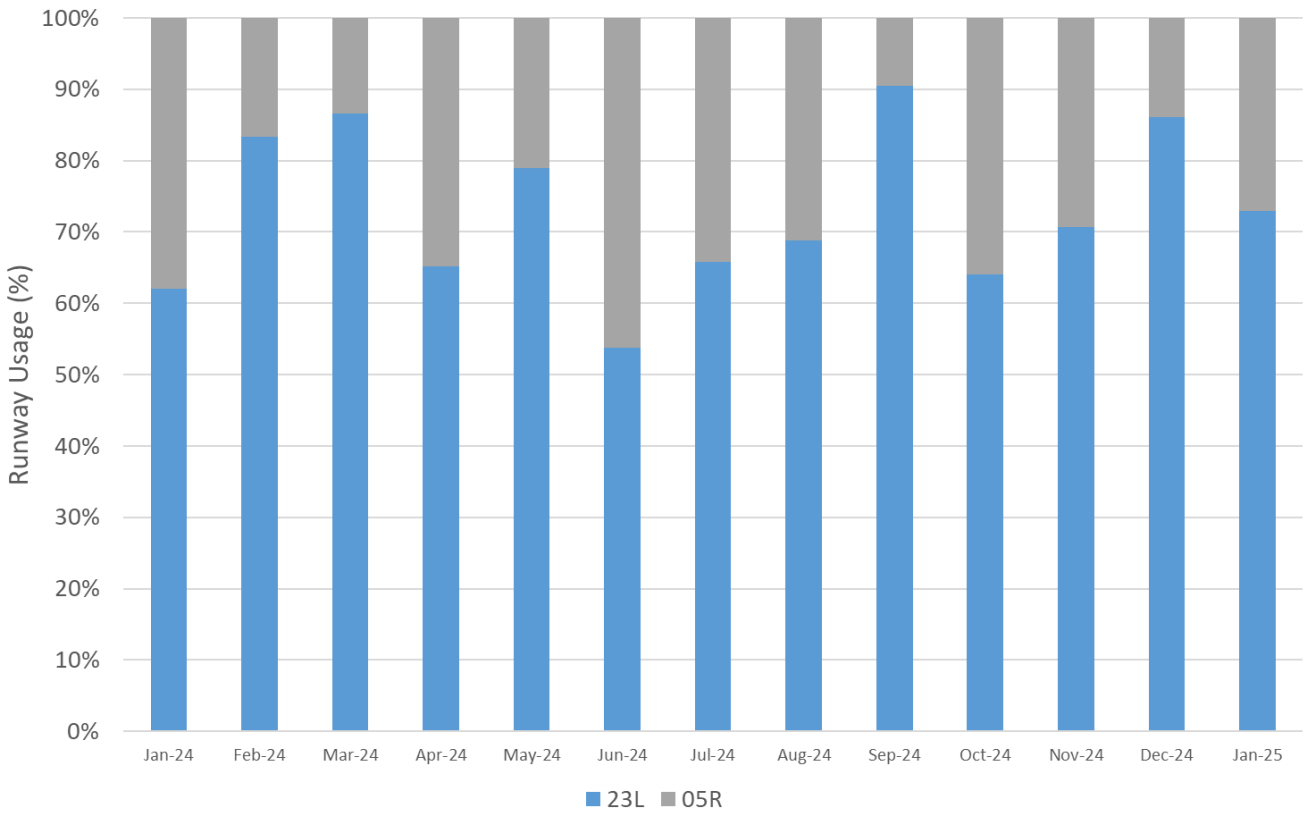


Figure 1 shows the percentage of aircraft movements that used each runway (23L and 05R) over the past 13 months.

Runway 23L is used when westerly winds prevail and Runway 05R is used when easterly winds prevail (refer to glossary for explanation).

The historical average runway usage is approximately RW23L 70%/RW05R 30%.

The runway usage in the three-month period November 2024 to January 2025 was RW23L 75%/RW05R 25%. In the last twelve months the average runway usage was RW23L 74%/RW05R 26%.

We note that the Airways data feed disconnected between 1-16 December 2024, so flights during this period were unable to be correlated.



# Flight path diagrams



Figure 2: Flight Paths for a Busy Runway 23L Day (7am-10pm)  
100% Westerly Winds/Runway 23L

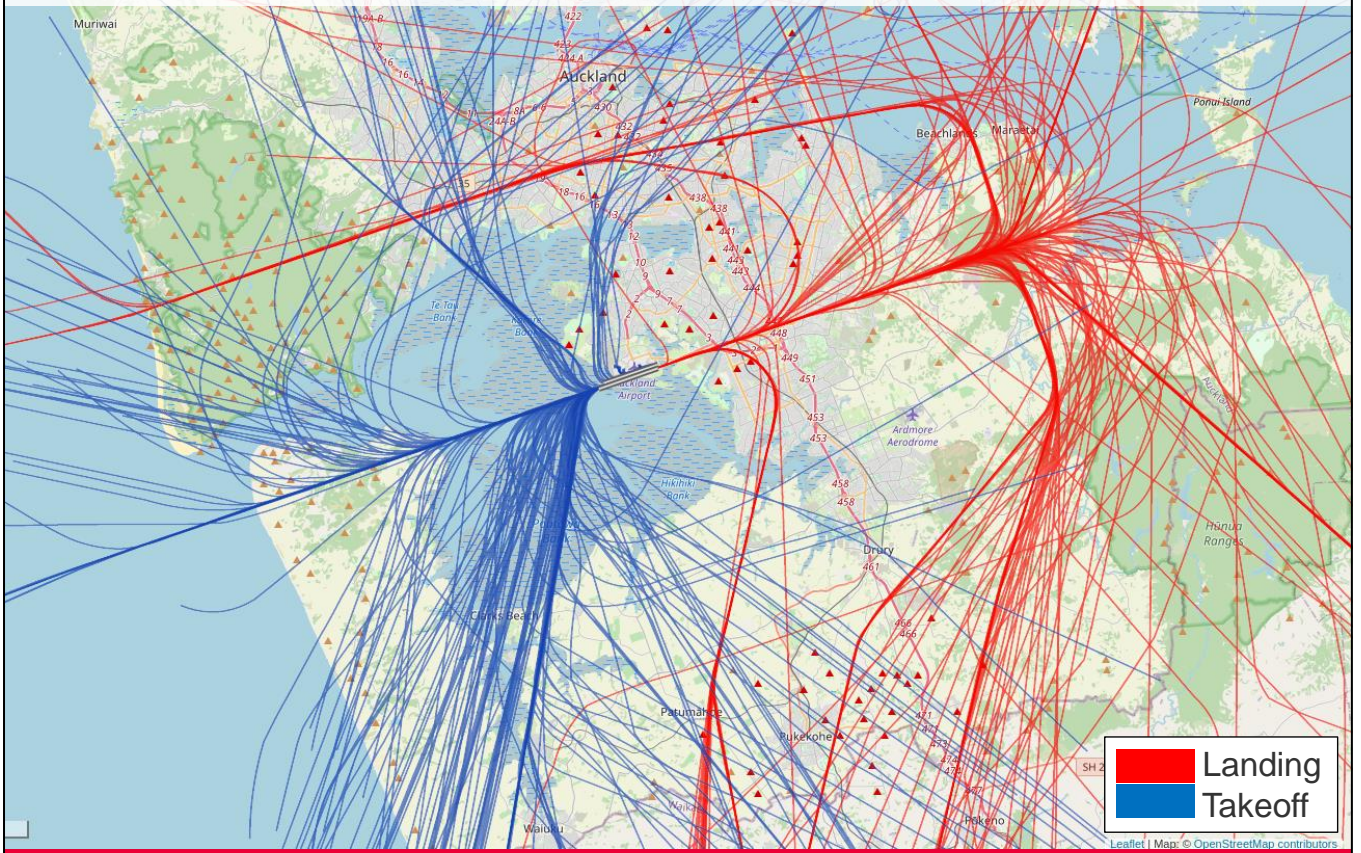


Figure 2 shows the daytime (7am-10pm) flight paths for Friday 24 January 2025, the busiest day in the three-month period November 2024 to January 2025 when Runway 23L was primarily in use.

The red lines indicate arrivals and the blue lines indicate departures.

The runway usage in this 24-hour period was Runway 23L (westerly) 100%.

There were 431 daytime Runway 23L flights on this day.



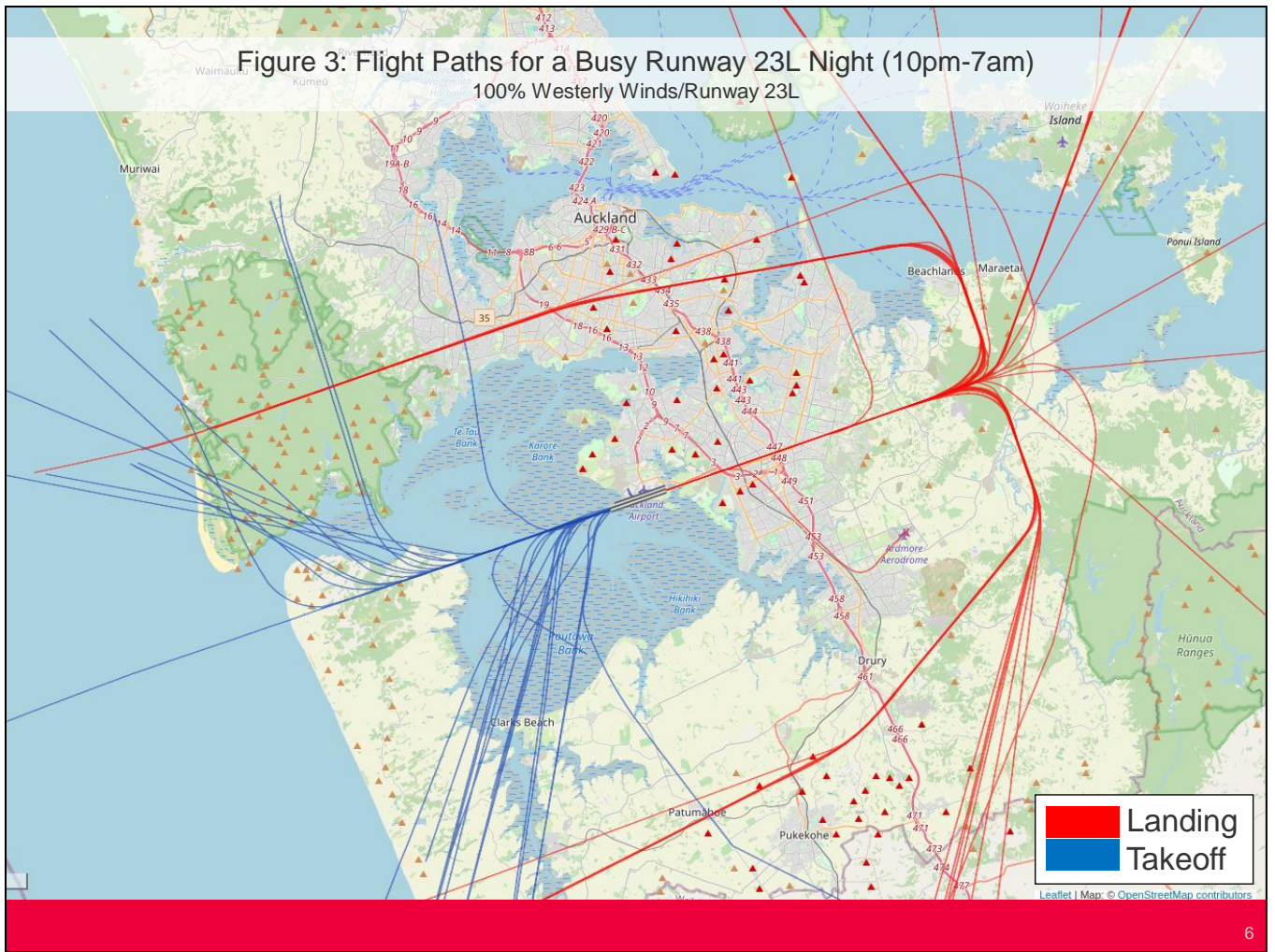


Figure 3 shows the night-time (10pm-7am) flight paths for Friday 24 January 2025, the busiest day in the three-month period November 2024 to January 2025 when Runway 23L was primarily in use.

The red lines indicate arrivals and the blue lines indicate departures.

The runway usage in this 24-hour period was Runway 23L (westerly) 100%.

There were 74 night-time Runway 23L flights on this night.



Figure 4: Flight Paths for a Busy Runway 05R Day (7am-10pm)  
100% Easterly Winds/Runway 05R

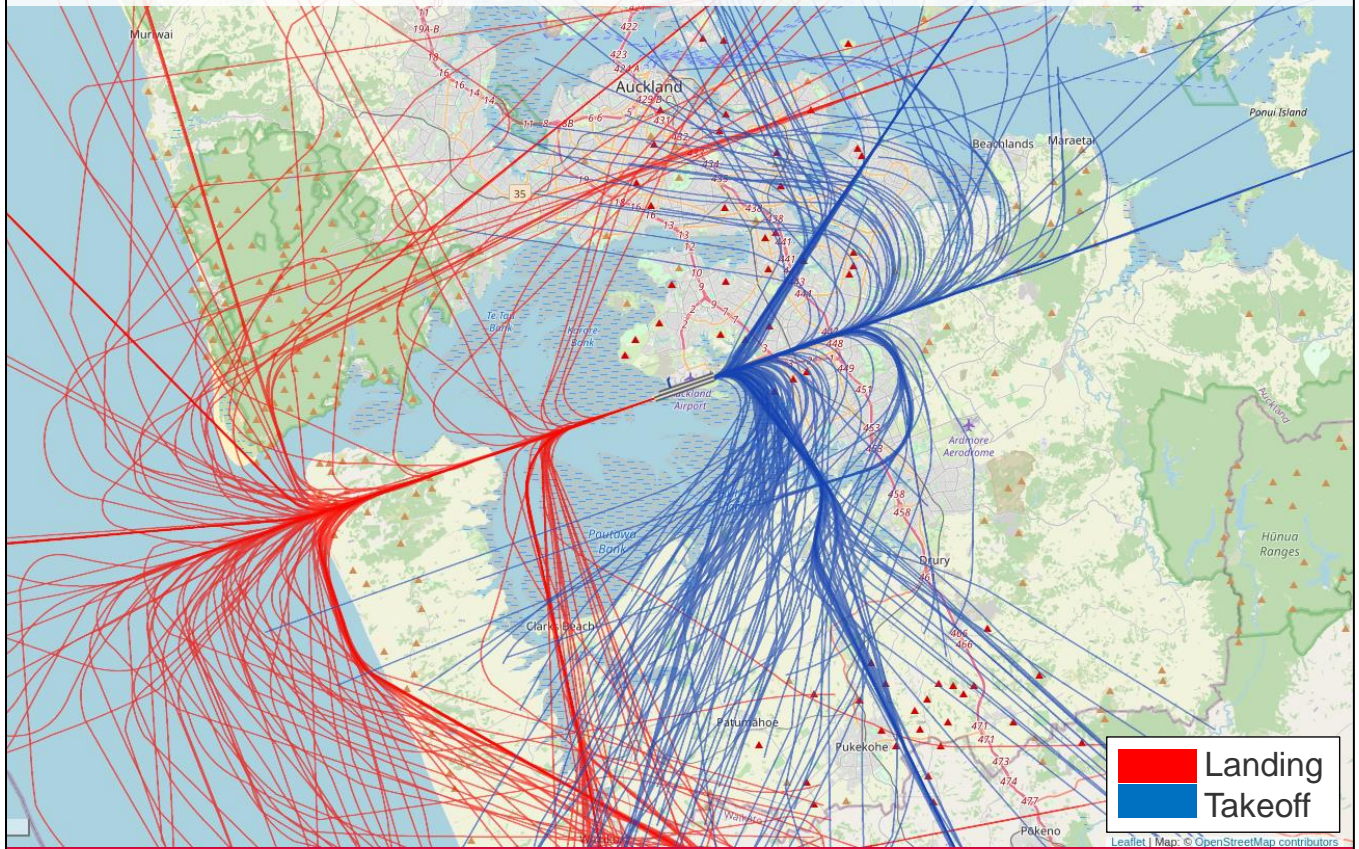


Figure 4 shows the daytime (7am-10pm) flight paths for Sunday 17 November 2024, the busiest day in the three-month period November 2024 to January 2025 when Runway 05R was primarily in use.

The red lines indicate arrivals and the blue lines indicate departures.

The runway usage in this 24-hour period was Runway 05R (easterly) 100%.

There were 434 daytime Runway 05R flights on this day.



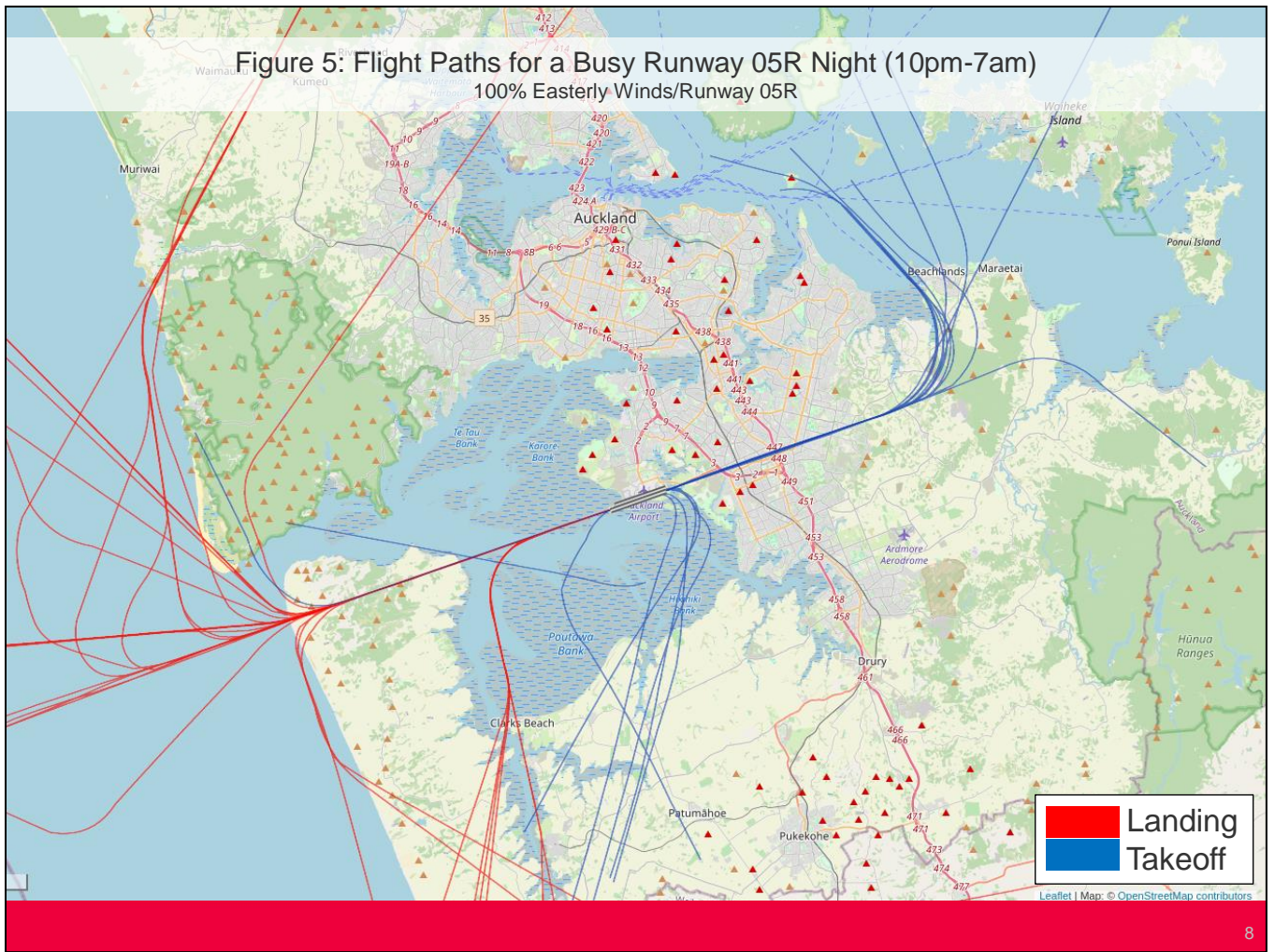


Figure 5 shows the night-time (10pm-7am) flight paths for Sunday 17 November 2024, the busiest day in the three-month period November 2024 to January 2025 when Runway 05R was primarily in use.

The red lines indicate arrivals and the blue lines indicate departures.

The runway usage in this 24-hour period was Runway 05R (easterly) 100%.

There were 55 night-time Runway 05R flights on this night.



# Noise complaints



This section details further information on noise complaints/enquiries for this quarter.

The next six following slides show:

- Number of complaints/enquiries since 2000
- A breakdown of complaints from the last year
- The causes of this quarter's complaints
- A table of the last year's noise complaints by area
- An investigation of the noise complaints about 'specific' aircraft events:
  - Complaints by time, runway, aircraft type, and operation type
  - Complaints by destination

Figure 6: Number of aircraft noise complaints per month

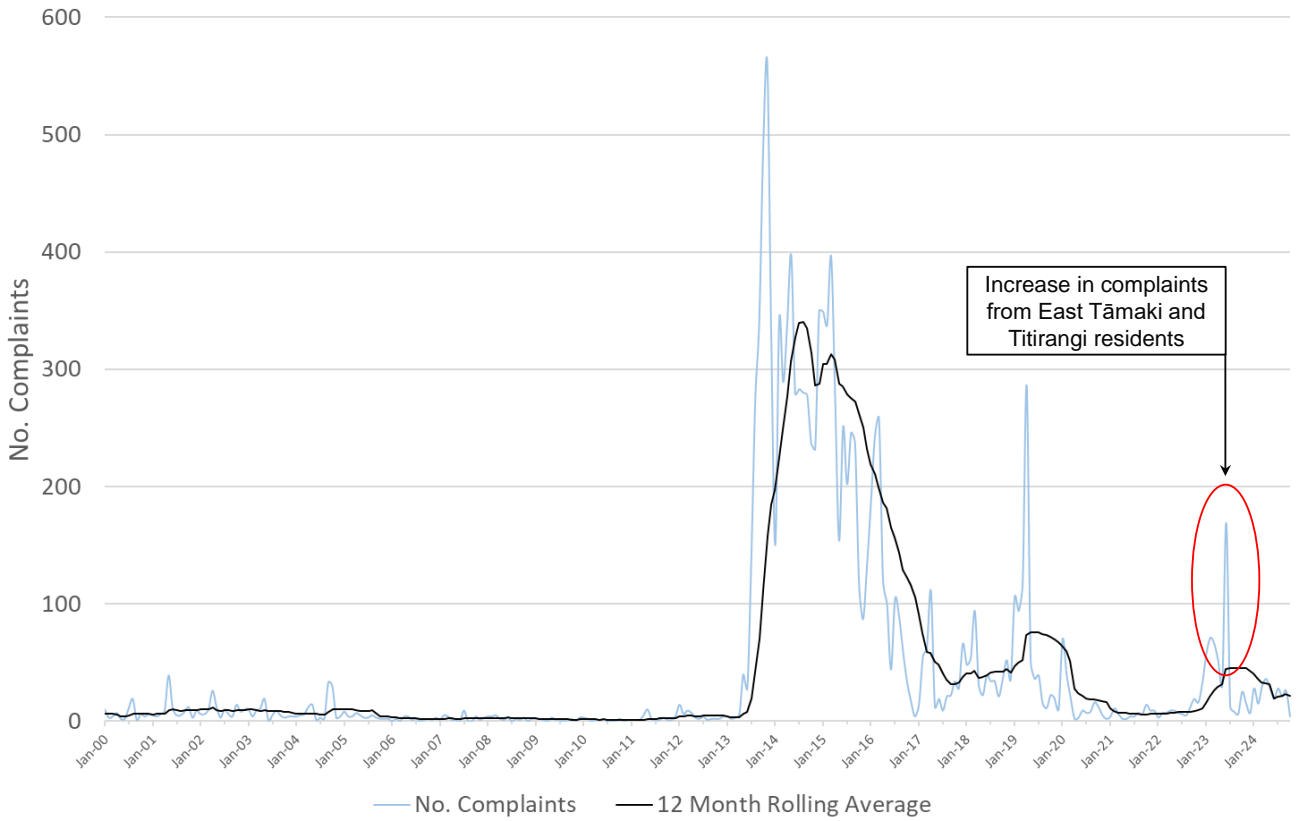


Figure 6 shows the total number of aircraft noise complaints made per month since the year 2000 (blue line) and the 12-month rolling average (black line).

Aircraft noise complaints were low up until 2013 when the number of complaints increased from about 2 per month to a peak of 560 in Aug 2013 and have decreased steadily since then.

This increase in complaints coincided with the 2012/13 SMART trials where community awareness to noise was heightened.

Table 1: Summary of Noise Complaints for this quarter

	Nov	Dec	Jan
Number of Complaints	19	15	27
<i>Specific</i>	14	10	19
<i>Generic</i>	4	4	7
<i>Question</i>	1	1	1
Number of People Complaining	6	6	8

Table 2: Summary of Noise Complaints for the last year

	Feb-Apr 2024	May-Jul 2024	Aug-Oct 2024	Nov-Jan 2024-25
Number of Complaints	81	75	51	61
<i>Specific</i>	68	61	46	43
<i>Generic</i>	10	14	5	15
<i>Question</i>	3	0	0	3
Number of People Complaining	22	15	11	17

Table 1 shows a breakdown of the noise complaints in the three-month period November 2024 to January 2025 and Table 2 shows a summary of this quarter with the previous three quarters shown for reference.

A particular person may have made several complaints over time. These individual complaints could have been regarding one specific aircraft operation or a more general complaint which does not reference a specific aircraft operation.

There are two types of general complaints: ‘generic’ and ‘question’. The first relates to people lodging a general complaint about aircraft noise rather than a specific event, the second relates to people enquiring to ask for information about aircraft noise or management of noise. We therefore refer to:

- The number of ‘complainants’ (no. of people who complain),
- The number of ‘generic’ noise complaints (e.g. “there was more aircraft noise last night”)
- The number of ‘question’ noise enquiries (e.g. “can you tell me more about how noise is managed at the airport”)
- The number of ‘specific’ event complaints (e.g. “the 6:25pm flight was noisy”)

There were a total of 61 complaints in this three-month period, 70% related to specific aircraft events, 25% were generic complaints and 5% were question enquiries.



Figure 7: Noise complaints by cause

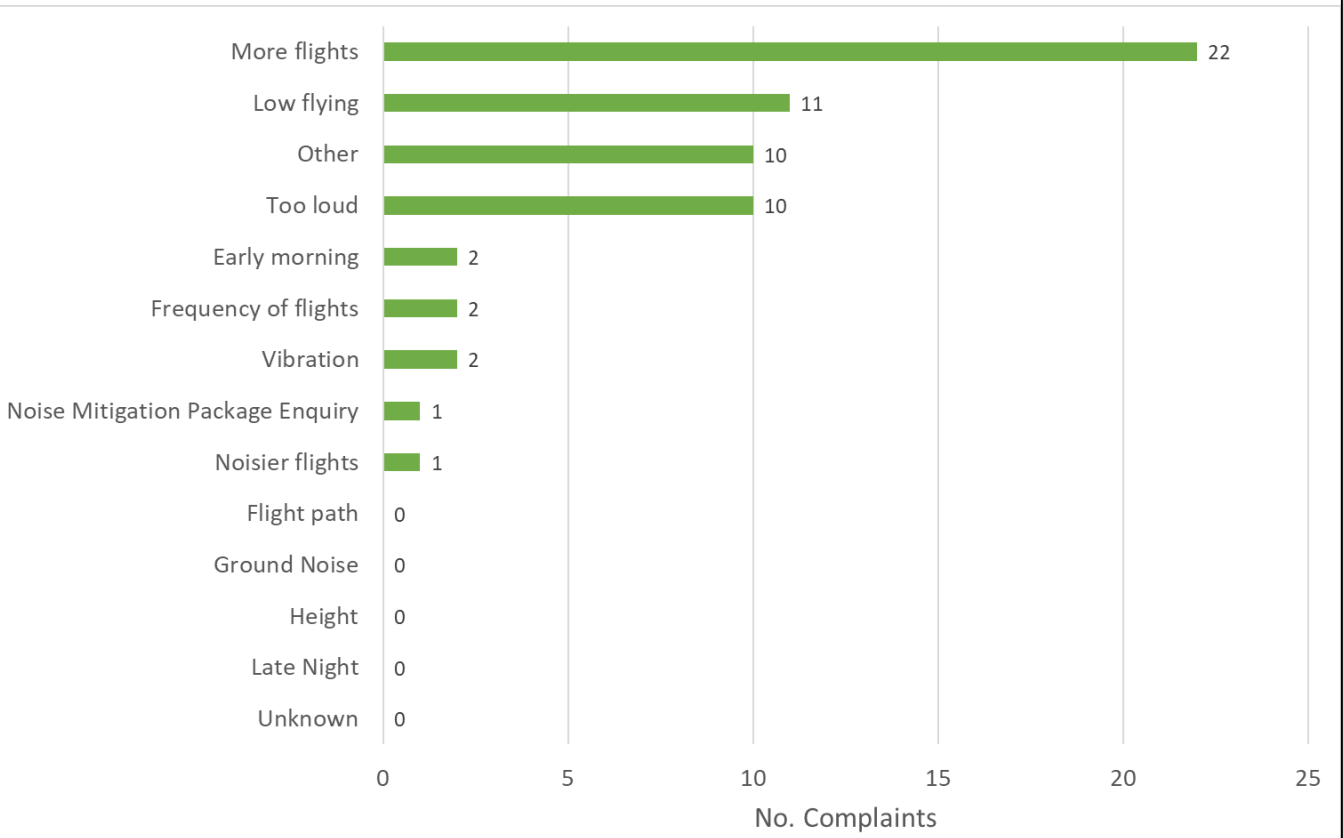


Figure 7 shows the reason for each noise complaint in the three-month period November 2024 to January 2025. This includes all complaints (generic, question and specific).

22 out of 61 of the specific complaints were about an increase in the number of flights.

An explanation of each cause is given in Appendix B.

Figure 8: Number of Noise Complaints by Area

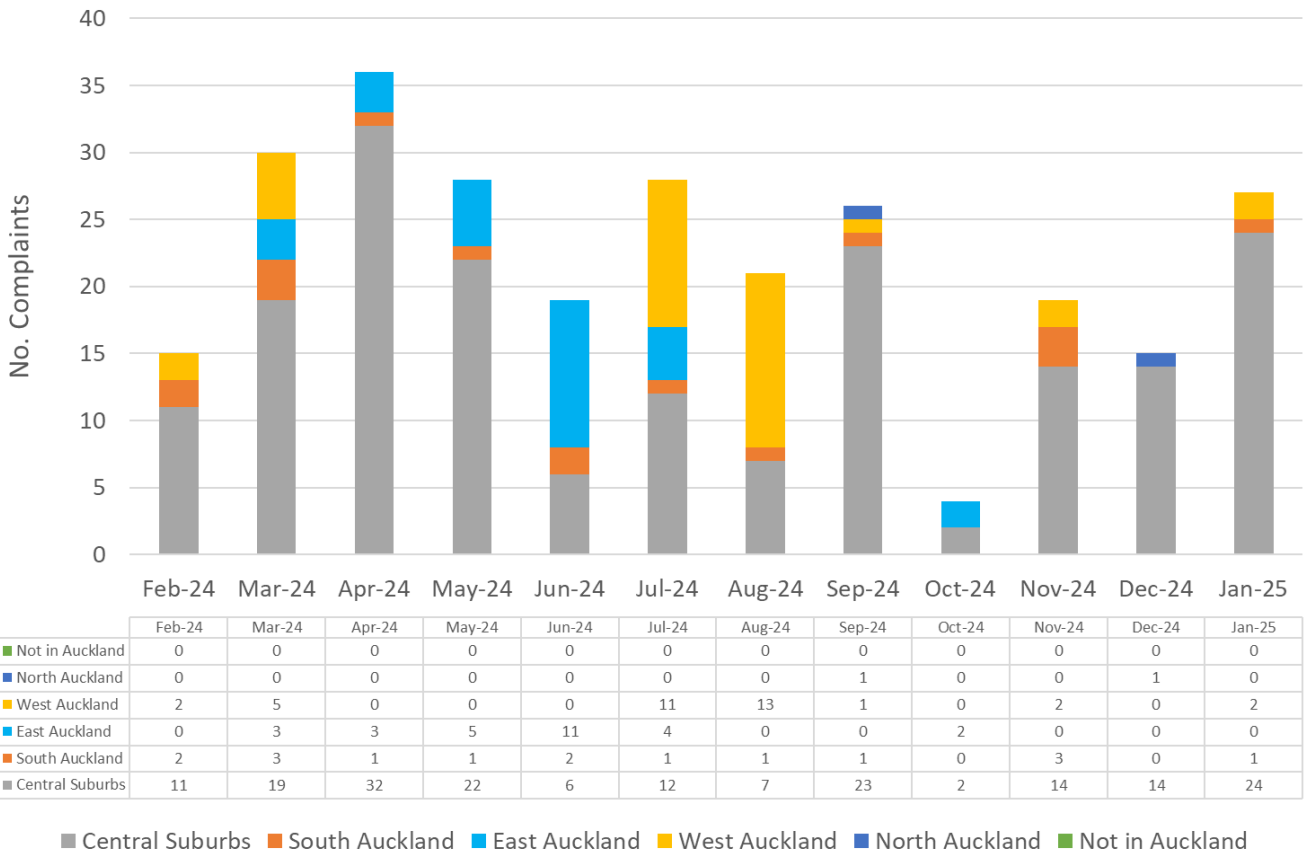


Figure 8 shows the number of complaints made by people residing in different areas of Auckland over the past 12 months.

Central Auckland had the most complaints at 52 in the three-month period of November 2024 to January 2025.

This quarter there was one main complainant who made a total of 37 (61%) complaints. This was the historic complainant from Remuera.

A new complainant from Wai O Taiki Bay (Central Auckland) made 8 complaints this quarter.

See Appendix C for a list of which suburbs fall into each area.

Figure 9: Noise Complaints by Time

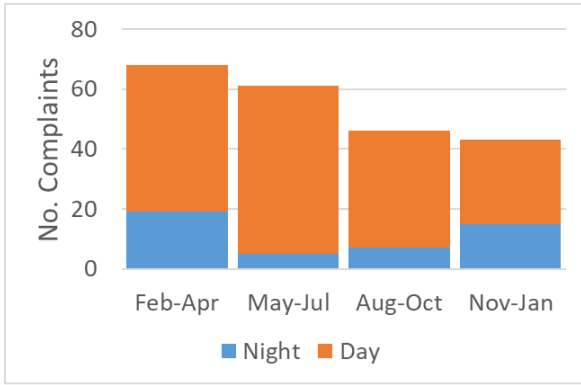


Figure 10: Noise Complaints by Runway

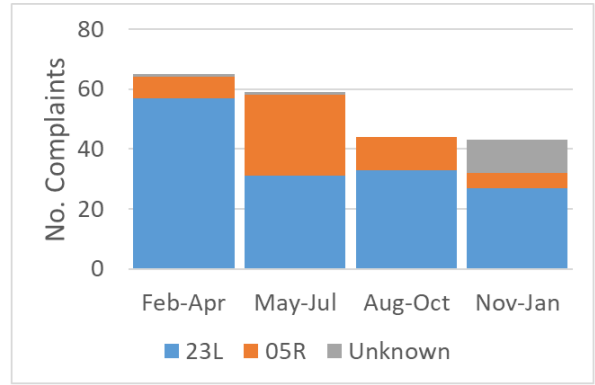


Figure 11: Noise Complaints by Aircraft

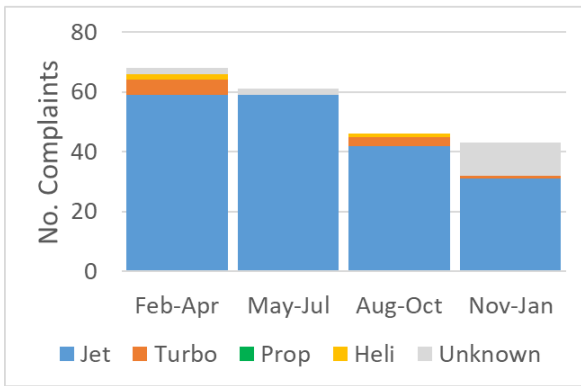
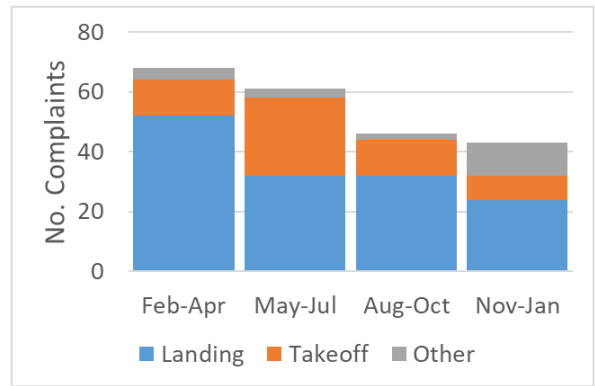


Figure 12: Noise Complaints by Operation



Figures 9-12 show a breakdown of the 'specific' aircraft noise complaints made in the three-month period November 2024 to January 2025 and the three quarters preceding.

We note that the Airways data feed disconnected between 1-16 December 2024, so flights during this period were unable to be correlated.



Figure 13: Specific noise complaints by destination

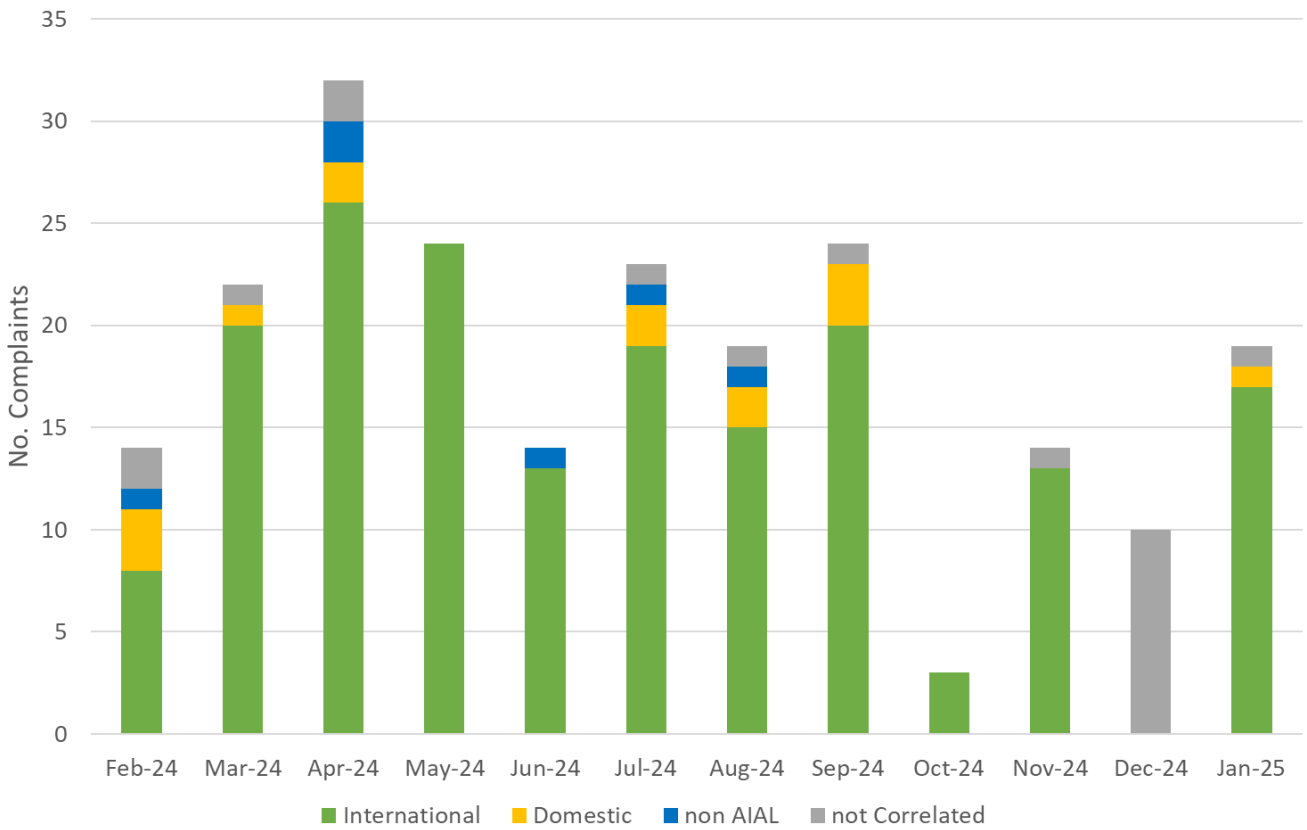


Figure 13 shows the number of specific aircraft complaints made about international and domestic flights over the past 12 months.

We note that the Airways data feed disconnected between 1-16 December 2024, so flights during this period were unable to be correlated.

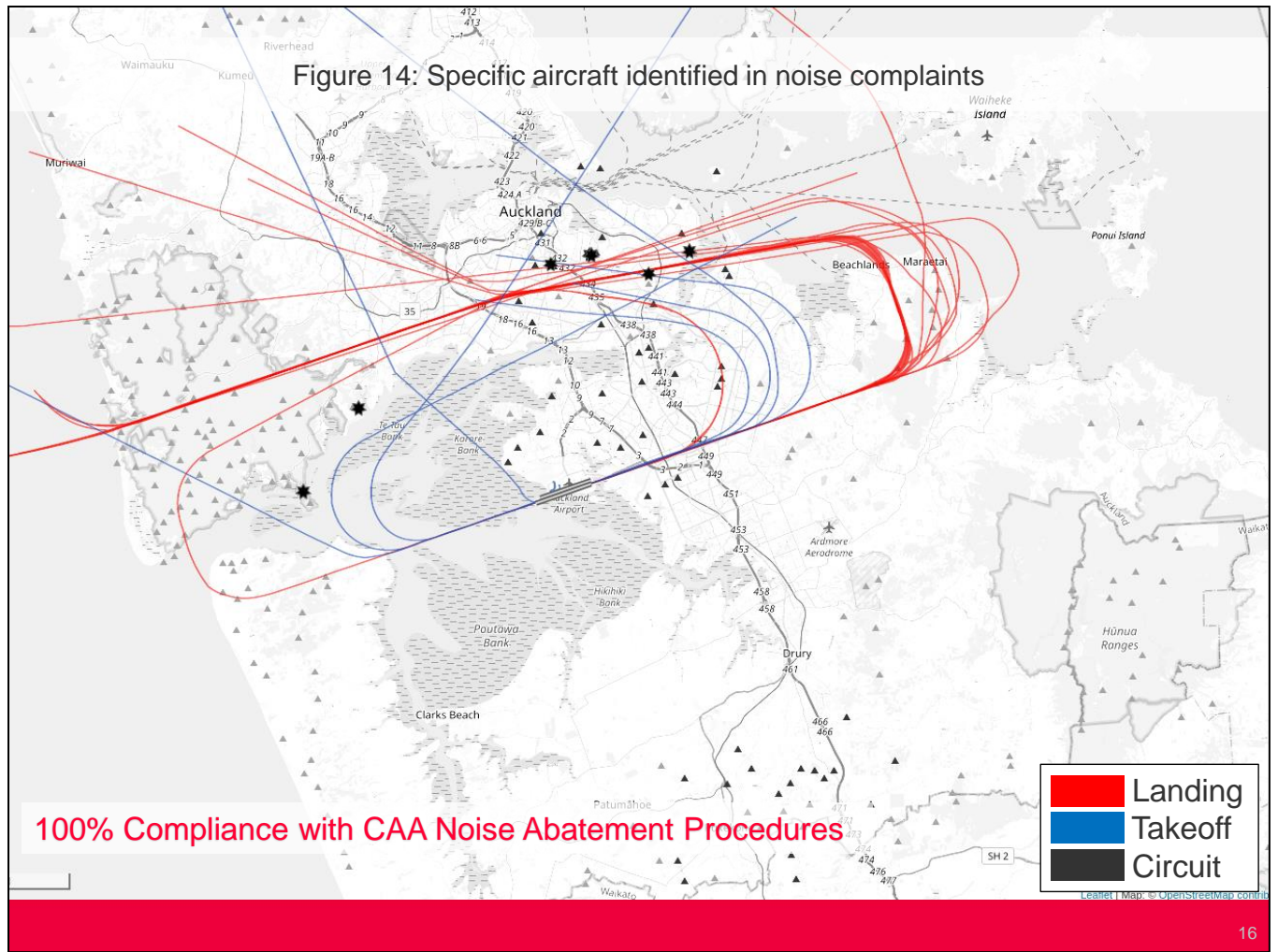


Figure 14 shows the flight paths for specific aircraft from Auckland Airport identified in noise complaints for the three-month period November 2024 to January 2025.

The red lines indicate arrivals, the blue lines indicate departures.

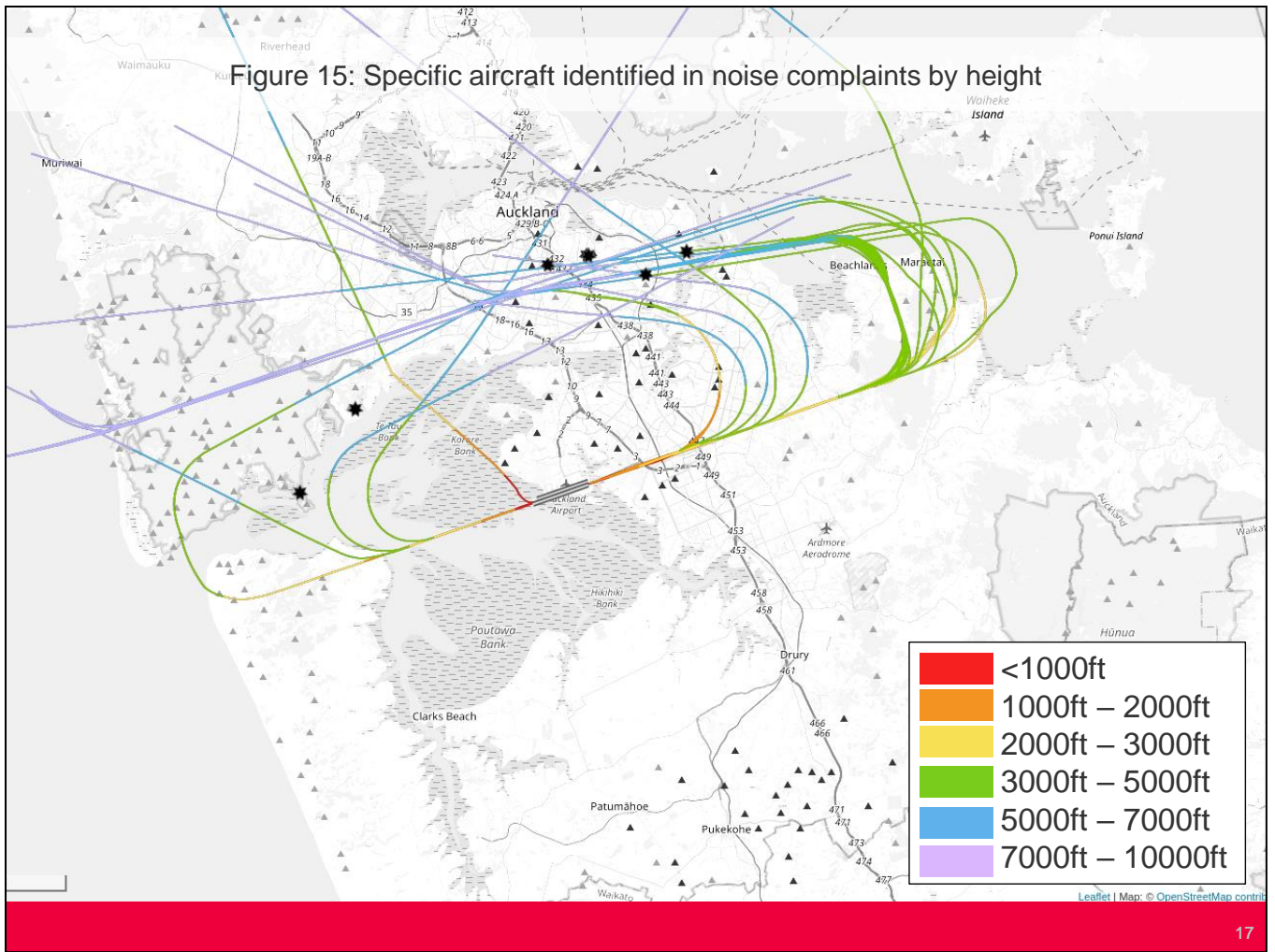


Figure 15 shows the flight paths for specific aircraft from Auckland Airport identified in noise complaints for the three-month period November 2024 to January 2025.

The flight paths are shown in terms of altitude.





# Noise monitoring

This section details further information on measured aircraft noise.

The following four slides show:

- Information on the permanent noise monitors
  - A graph of the noise levels for the since 2005
  - A summary for the monitor correlations
- Information on the temporary noise monitors
  - A summary of the temporary noise monitors
  - A graph of their measured noise levels

Figure 16: Measured 365-day rolling Noise Exposure ( $L_{dn}$ ) – permanent monitors

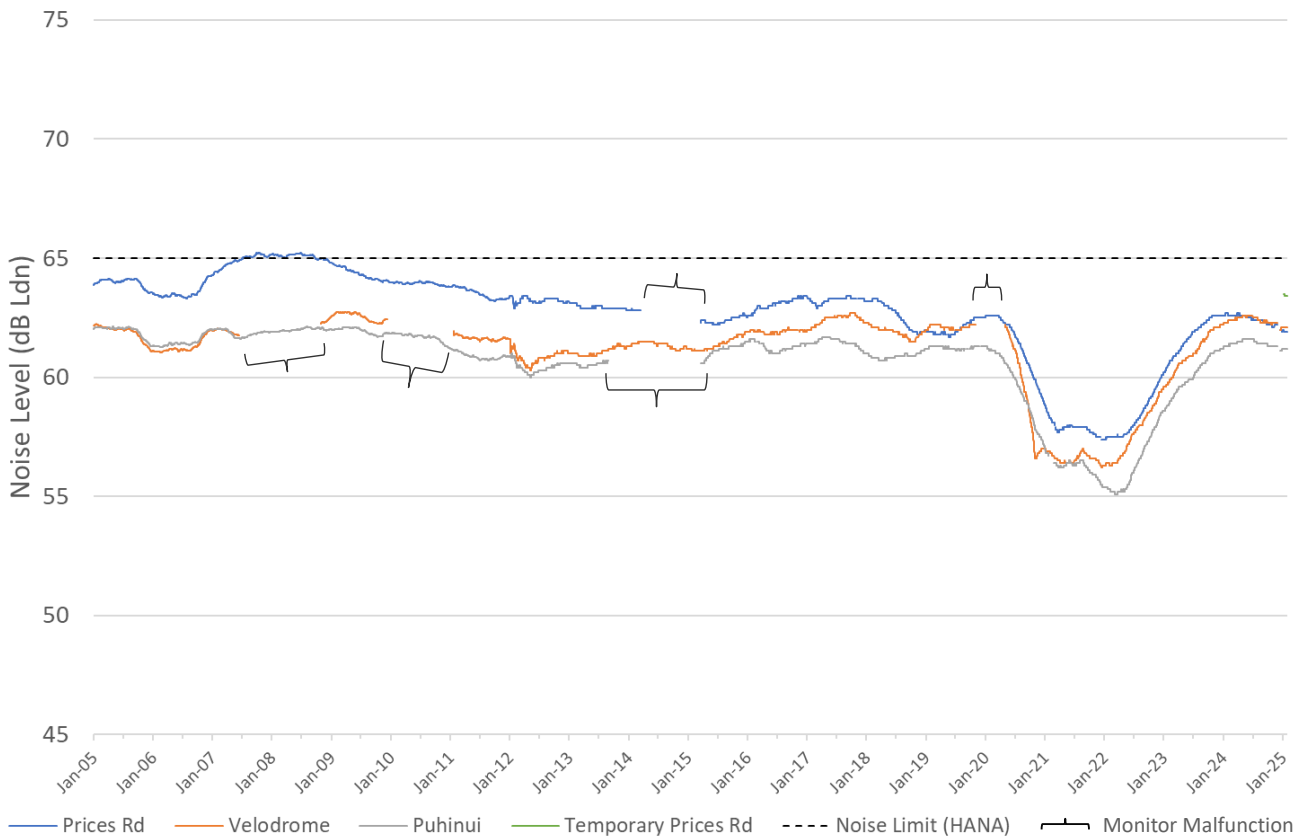


Figure 16 shows the rolling 365-day Noise Exposure ( $L_{dn}$ ) at the permanent noise monitors since January 2005.

The noise limit in the District Plan is 65 dB  $L_{dn}$  (rolling 365-day) at the boundary of the HANA.

The rolling 365-day  $L_{dn}$  is the average  $L_{dn}$  noise level over 365 days calculated each day and is the overall average  $L_{dn}$  for the 365 days preceding and including the day of the calculation. For example, the point for 31 December 2020 represents the average  $L_{dn}$  noise level from 1 January 2020 to 31 December 2020.

The rolling 365-day  $L_{dn}$  was below the 65 dB  $L_{dn}$  noise limit in the three-month period November 2024 to January 2025.

The Temporary Prices Road monitor was installed in January last year, so a rolling 365-day  $L_{dn}$  has now been calculated for January 2025. As predicted, it measures 1.5dB higher than the Prices Road monitor.

We note that the Airways data feed disconnected between 1-16 December 2024, so this data has been excluded.

Table 4: Correlation of aircraft movements with captured noise events for permanent monitors

	NMT1 Prices	Prices (Temp)	NMT2 Velodrome	NMT3 Puhinui
Total aircraft movements	17,243	17,318	12,968	14,965
No. aircraft movements captured by monitors	13,859	15,210	10,961	12,706
Correlation	80%	88%	85%	85%

NB: Generally a correlation of >80% is considered reasonable. The aircraft that are missed are generally lower noise level events and will not have any effect on the overall noise level.

All monitors show a correlation above 80% this quarter, except the NMT1 Prices Road due to the nearby construction noise affecting the measured background noise.



Table 4 shows the number of aircraft that flew in the vicinity of each permanent noise monitor and the number of aircraft noise events that were correlated with an aircraft flyover in the three-month period November 2024 to January 2025.

Generally, a noise monitor is unable to pick up every noise event due to ambient noise, inclement weather or other factors.

This table shows how well each noise monitor is performing in correlating aircraft noise events.

Table 5: Temporary noise monitor summary of measured aircraft events (since deployment)

	Date deployed	Days deployed	Measured $L_{dn}$	Average $L_{Amax}$
Mt Eden	1-Apr-15	3594	38	62
Wiri	4-Aug-17	2832	59	75
Wattle Downs	23-Dec-17	2597	47	67
Flat Bush	20-Dec-22	774	59	70

Table 5 gives a summary of the measured noise levels at each temporary noise monitor since deployment (up until 31 January 2025).

Titirangi and Stonefields noise monitors were installed in late October 2024 and uninstalled mid January 2025 for the DMAPS study.

The measured  $L_{dn}$  for aircraft noise ranges from 38-47 dB  $L_{dn}$  across all the temporary monitor locations, except for the noise monitors in Wiri and Flat Bush (both 59 dB  $L_{dn}$ ). A graph showing the temporary monitors'  $L_{dn}$  over time is shown on the next slide.

The average  $L_{Amax}$  ranges from 62-70 dB  $L_{Amax}$  across the various monitors except for the noise monitor in Wiri where the average is 75 dB  $L_{Amax}$ .

The average  $L_{Amax}$  is calculated by averaging the maximum noise level from all of the individual aircraft noise events during the full monitoring period (i.e. since the monitor has been deployed). The  $L_{Amax}$  differs for each aircraft operation depending on the aircraft type, type of operation etc.

Since deployment, the Mt Eden, and East Tāmaki recorded less than one flyover above 70 dB  $L_{Amax}$  per day. Wiri, Wattle Downs and Flat Bush recorded 44, 14 and 58 flyovers above 70 dB  $L_{Amax}$  per day respectively.

Aircraft noise events over 70-75  $L_{Amax}$  start to become disturbing inside houses with windows open as they have the potential to interfere with watching tv, talking etc.



Figure 17: Measured monthly Noise Exposure ( $L_{dn}$ ) – temporary monitors

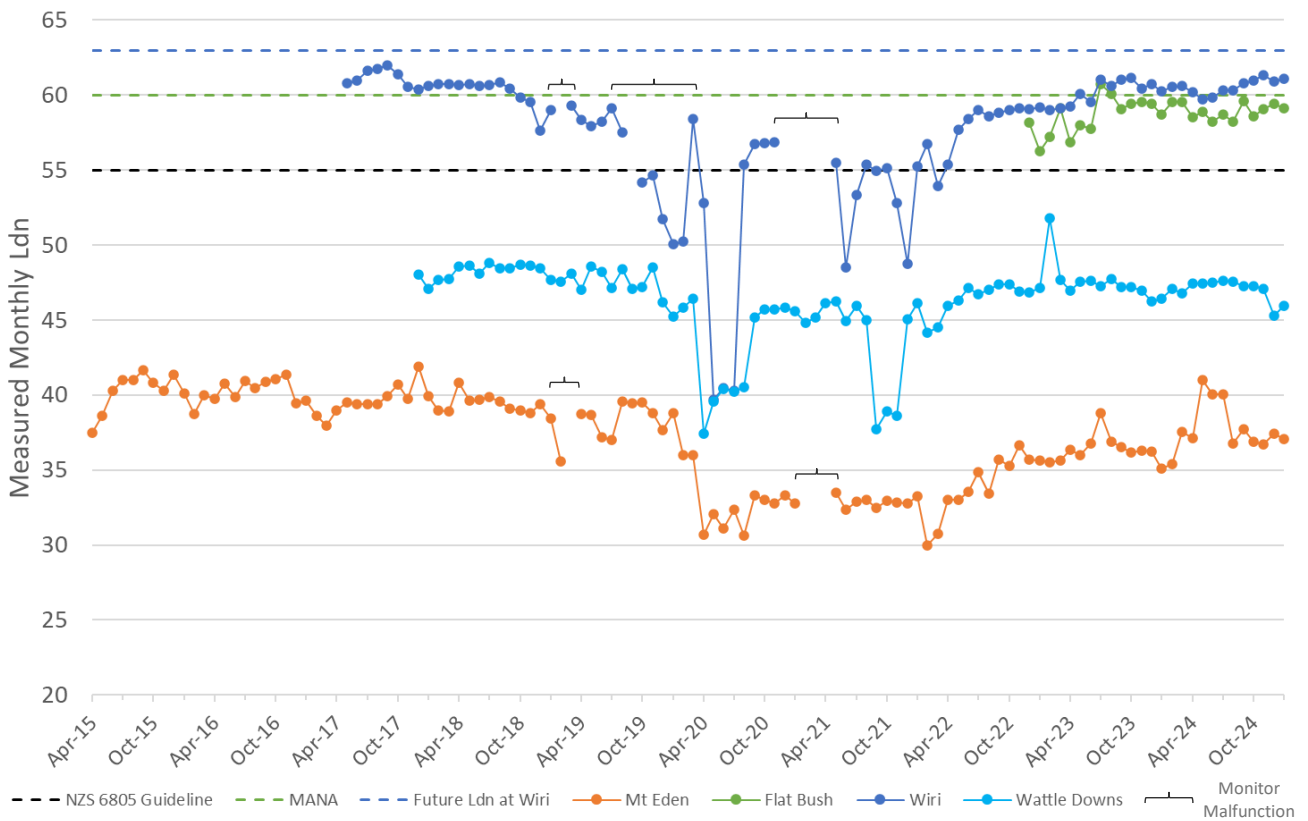


Figure 17 shows the monthly Noise Exposure ( $L_{dn}$ ) trends for aircraft noise at the temporary noise monitors since their deployment.

The  $L_{dn}$  fluctuates month on month by around 5-10 dB at each noise monitor depending on aircraft movements, wind direction and other factors. There are no significant trends in the data, besides the recent reduction in  $L_{dn}$  due to the COVID-19 pandemic.

The **Mount Eden** monitor is located in the Central Suburbs, **Flat Bush** in East Auckland, and **Wiri** and **Wattle Downs** in South Auckland.

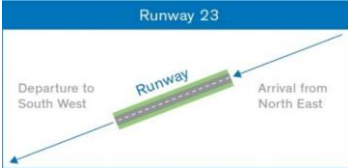

For the Mt Eden and Wiri monitors there are some periods that had monitor issues, so this data may not be reliably used (Monitor Malfunctions).

New Zealand Standard NZS 6805 states that areas exposed to noise levels below 55 dB  $L_{dn}$  are suitable for residential development. The noise levels measured at the temporary noise monitors are 8-17 dB below the 55 dB  $L_{dn}$  New Zealand Standard, except for the noise monitors in Wiri and Flat Bush.

The noise levels measured at the Flat Bush and Wiri noise monitors are 4 dB above the NZS 6805 guideline which is why they are located on and within the Moderate Aircraft Noise Area. The future aircraft noise level allowed for at these sites is 60 and 63 dB  $L_{dn}$  respectively (shown as dotted lines). Both monitors are currently below these future noise levels.

We note that the Airways data feed disconnected between 1-16 December 2024, so this data has been excluded.

## Appendix A: Glossary of terminology

Term	Definition	
Daytime	The period from 7:00am to 10:00pm	
Night-time	The period from 10:00pm to 7:00am	
Runway 23L/Runway 05R	Occurs in Westerly Wind Conditions	Occurs in Easterly Wind Conditions
		
Complaint Type:		
“Specific” complaint	Complaints relating to a specific aircraft operation.	
“Generic” complaint	Complaints that don’t relate to a specific aircraft operation but relate to noise in general.	
“Question” enquiry	An enquiry to find out more information about noise related topics.	
“Aircraft” Noise	Noise that is from aircraft operations only.	
“Ambient” Noise	The total noise that is from general ambient noise sources (cars, wind etc.). Includes noise from aircraft operations.	
A-weighting	The process by which noise levels are corrected to account for the non-linear frequency response of the human ear.	
$L_{dn}$ – Noise Exposure	The average A-weighted noise level over a day/month/year with a 10 dB penalty applied to the night-time (10pm – 7am).	
$L_{Amax}$ – Maximum Noise Level	The highest A-weighted noise level which occurs during an aircraft operation.	
ANNA	Aircraft Noise Notification Area – Set at 55-60 dB $L_{dn}$	
MANA	Moderate Aircraft Noise Area – Set at 60-65 dB $L_{dn}$	
HANA	High Aircraft Noise Area – Set at 65+ dB $L_{dn}$	

## Appendix B: Noise complaints causes

Cause	Description
Early morning	Aircraft flying in the early morning
Flight path	Aircraft flying on a different flight path than usual
Frequency of flights	Aircraft are flying more often than usual
Ground noise	Noise from activity on the ground at the airport
Height	Aircraft flying higher or lower than usual
Late night	Aircraft flying late at night or overnight
Low flying	Aircraft flying at a low altitude
More flights	More aircraft movements than usual
Noise Mitigation Package Enquiry	Enquiry relating to the Noise Mitigation Packages
Noisier flights	Aircraft are noisier than usual
Other	The disturbance is different from those listed
Too loud	Aircraft making too much noise
Unknown	Cause not stated
Vibration	Aircraft are making too much vibration

Appendix B shows an explanation of each complaint cause.

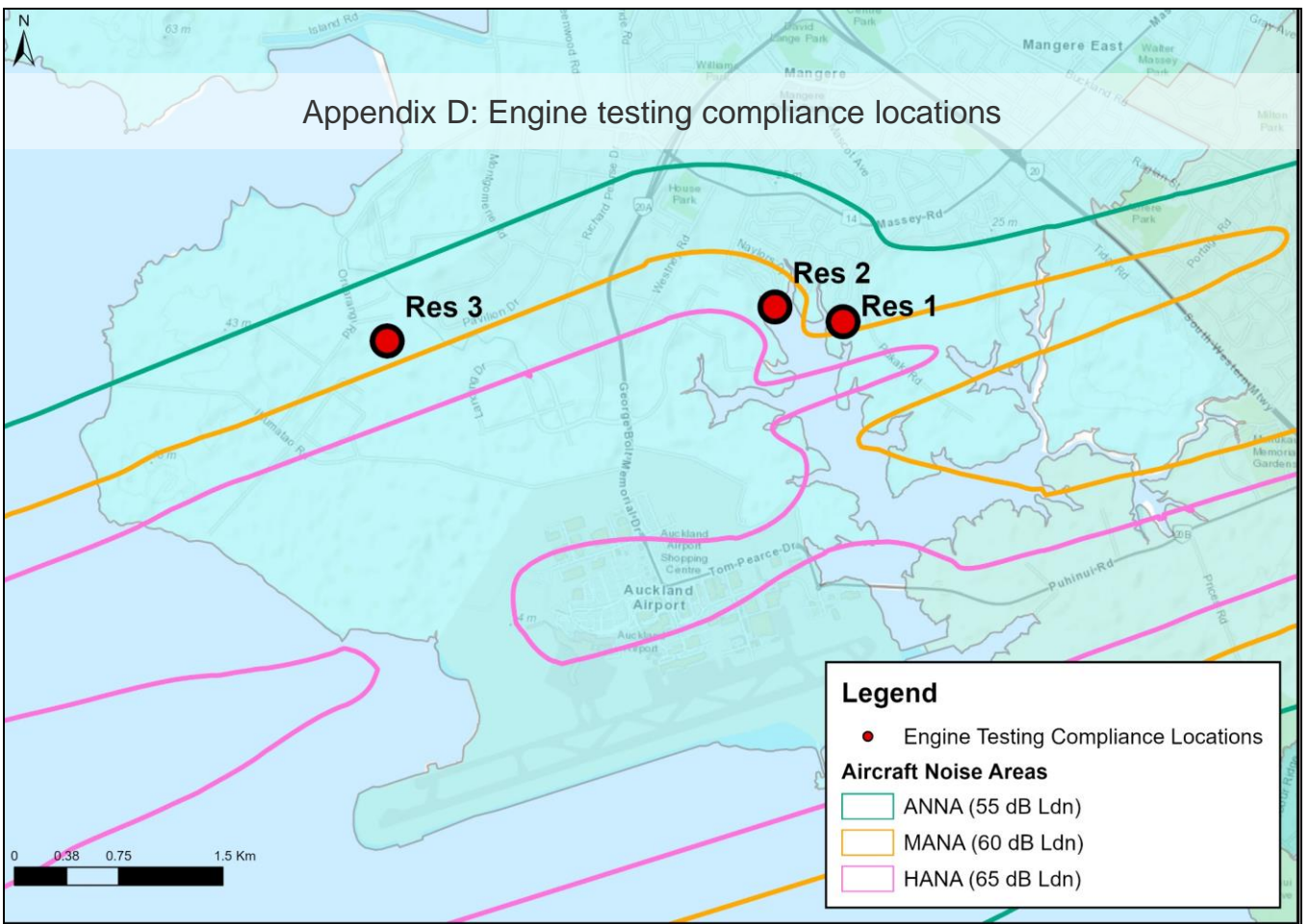
## Appendix C: Suburbs by area

Suburb	Area	Suburb	Area	Suburb	Area	Suburb	Area
Alfriston	South Auckland	Grafton	Central Suburbs	Mount Eden	Central Suburbs	Rothesay Bay	North Auckland
Anawhata	West Auckland	Greenhithe	North Auckland	Mount Roskill	Central Suburbs	Royal Oak	Central Suburbs
Arkles Bay	North Auckland	Greenlane	Central Suburbs	Mount Wellington	Central Suburbs	Saint Andrews	Central Suburbs
Auckland	Central Suburbs	Grey Lynn	Central Suburbs	Muriwai	West Auckland	Saint Heliers	Central Suburbs
Auckland Central	Central Suburbs	Gulf Harbour	North Auckland	Newmarket	Central Suburbs	Saint Johns	Central Suburbs
Avondale	West Auckland	Half Moon Bay	East Auckland	Northcote Point	North Auckland	Saint Marys Bay	Central Suburbs
Beachlands	East Auckland	Hauraki	North Auckland	Northcross	North Auckland	Sandringham	Central Suburbs
Birkdale	North Auckland	Henderson	West Auckland	Northpark	South Auckland	Shamrock Park	East Auckland
Birkenhead	North Auckland	Henderson Valley	West Auckland	One Tree Hill	Central Suburbs	Shelly Park	South Auckland
Blockhouse Bay	West Auckland	Herne Bay	Central Suburbs	Onehunga	Central Suburbs	Silverdale	North Auckland
Botany Downs	East Auckland	Howick	East Auckland	Oneroa	Central Suburbs	Snells Beach	North Auckland
Bucklands Beach	East Auckland	Huntly	Not in Auckland	Onewhero	Not in Auckland	Somerville	South Auckland
Chatswood	North Auckland	Hunua	South Auckland	Orakei	Central Suburbs	Stanley Point	North Auckland
Clendon Park	South Auckland	Karaka	South Auckland	Oratia	West Auckland	Sunnyhills	East Auckland
Clevedon	South Auckland	Kohimarama	Central Suburbs	Otahuhu	South Auckland	Takanini	South Auckland
Clover Park	South Auckland	Laingholm	West Auckland	Otara	South Auckland	Te Atatu South	West Auckland
Coatesville	North Auckland	Long Bay	North Auckland	Pakuranga	East Auckland	Titirangi	West Auckland
Cockle Bay	East Auckland	Lynfield	Central Suburbs	Pakuranga Heights	East Auckland	Totara Heights	South Auckland
Cornwallis	West Auckland	Mangere	South Auckland	Panmure	Central Suburbs	Totara Vale	South Auckland
Drury	South Auckland	Mangere Bridge	South Auckland	Papakura	South Auckland	Waiheke Island	Central Suburbs
East Tāmaki	East Auckland	Mangere East	South Auckland	Papatoetoe	South Auckland	Waitakere	West Auckland
East Tāmaki Heights	East Auckland	Manukau	South Auckland	Parnell	Central Suburbs	Waiuku	South Auckland
Ellerslie	Central Suburbs	Manukau Heads	South Auckland	Patumahoe	South Auckland	Wattle Downs	South Auckland
Epsom	Central Suburbs	Manurewa	South Auckland	Point Chevalier	Central Suburbs	Westmere	Central Suburbs
Farm Cove	East Auckland	Massey	West Auckland	Point England	Central Suburbs	Weymouth	South Auckland
Flat Bush	East Auckland	Meadowbank	Central Suburbs	Pollok	South Auckland	Whanganui	Not in Auckland
Forrest Hill	North Auckland	Mellons Bay	East Auckland	Ponsonby	Central Suburbs	Whangaparaoa	North Auckland
Glendowie	Central Suburbs	Milford	North Auckland	Randwick Park	South Auckland	Whangaripo	North Auckland
Glenfield	North Auckland	Mission Bay	Central Suburbs	Ranui	West Auckland	Whitford	East Auckland
Goodwood Heights	South Auckland	Mount Albert	Central Suburbs	Remuera	Central Suburbs	Wiri	South Auckland

Appendix C shows which suburbs fall into each area of Auckland.



## Appendix D: Engine testing compliance locations



Appendix D shows the three locations where compliance with the engine testing noise rule is calculated.