

# ANCCG Meeting

Monitoring Period

August 2018 – October 2018

Meeting: 4 December 2018



Flight

# Aircraft Operations

Figure 1: Number of Aircraft Operations per Month

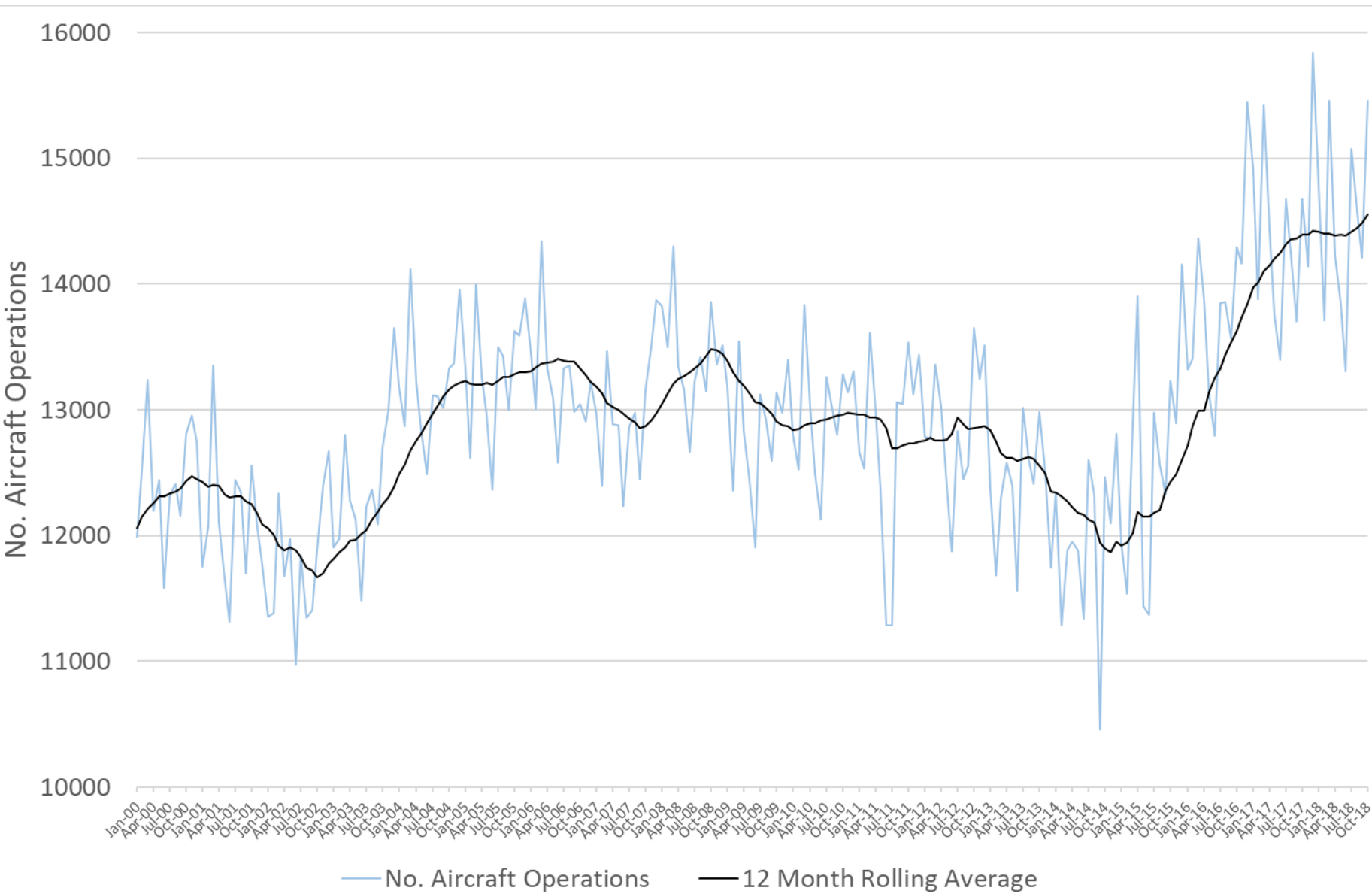


Table 1: Summary of Aircraft Operations

Operation	Total	Day	Night
Arrivals	22,097	19,159	2,938
Departures	22,087	20,213	1,874
Circuit	63	59	4
<b>Total</b>	<b>44,247</b>	<b>39,431</b>	<b>4,816</b>

Table 2: Average Daily Aircraft Operations

Total	Day	Night
481	429	52

Figure 2: Aircraft Operations by Time

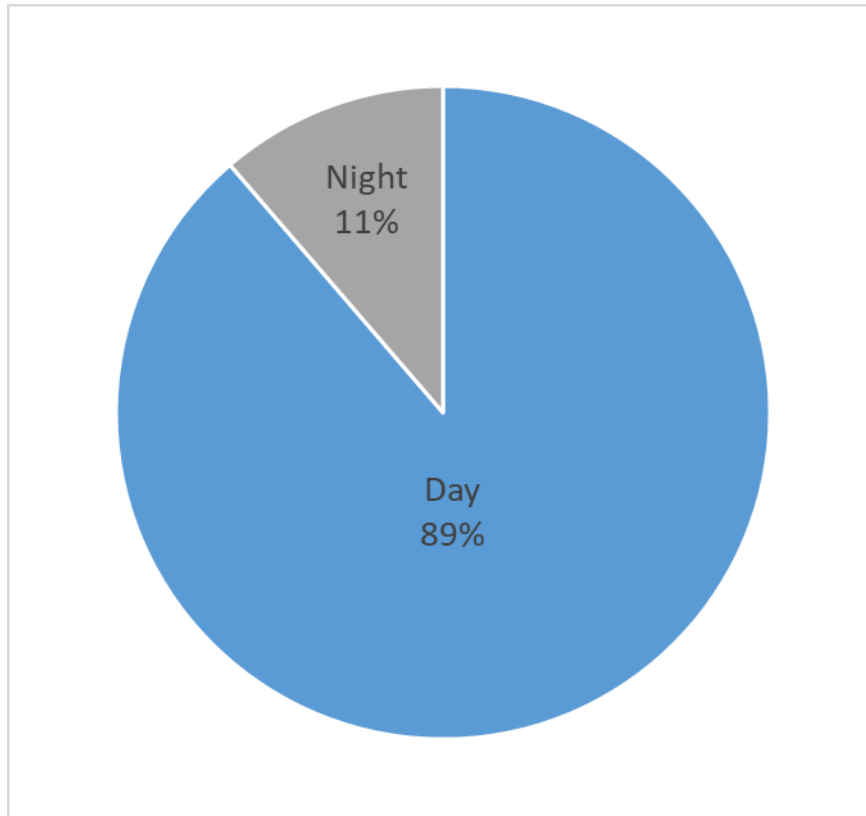


Figure 3: Aircraft Operations by Aircraft Type

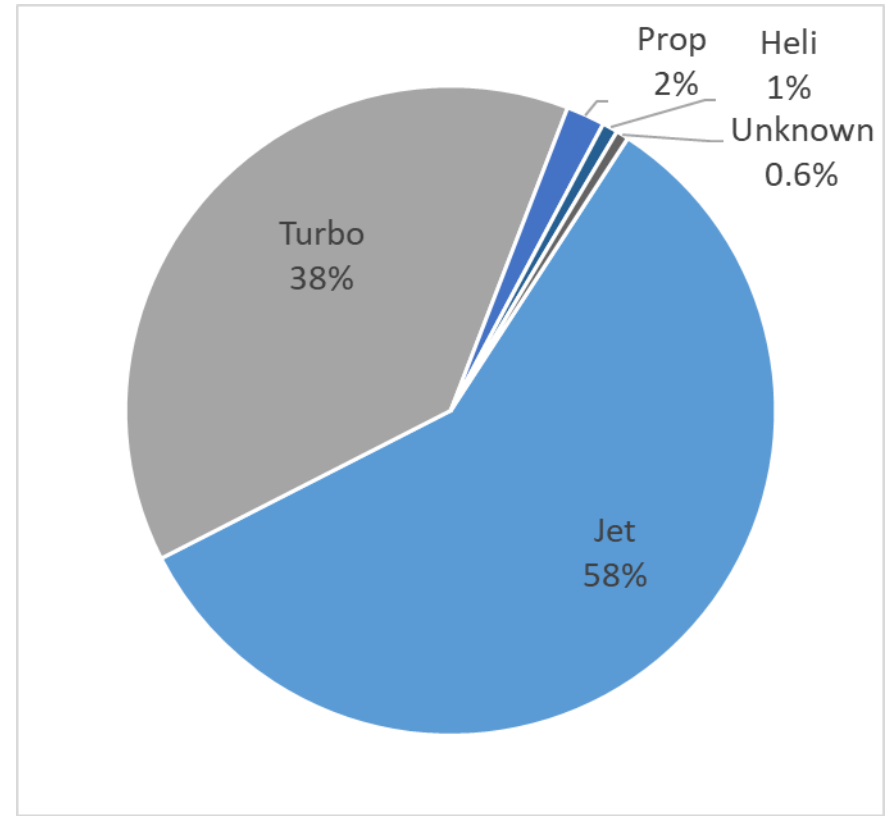


Figure 4: Aircraft Operations by Runway

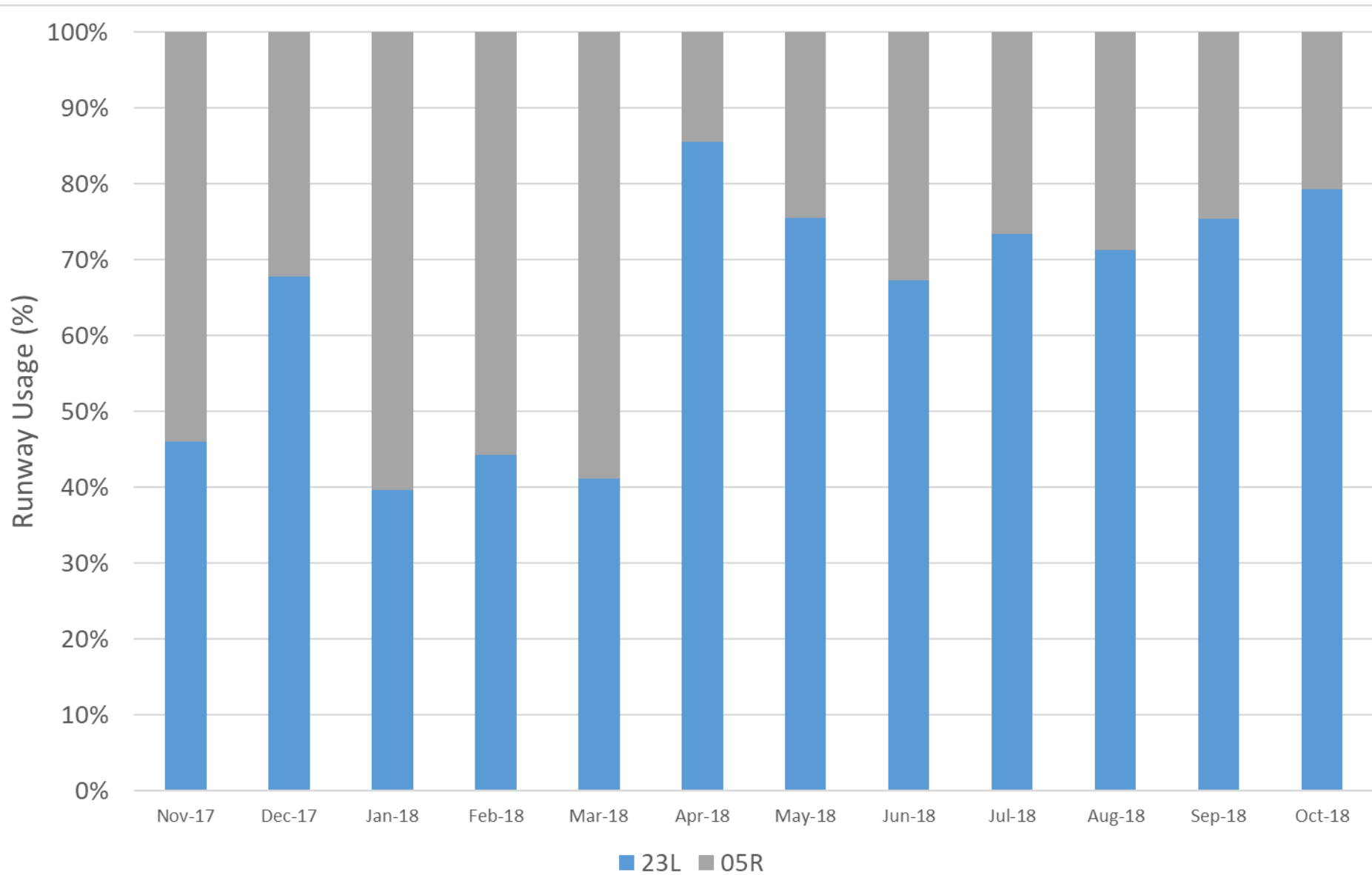


Figure 5: Number of SMART Approaches per week

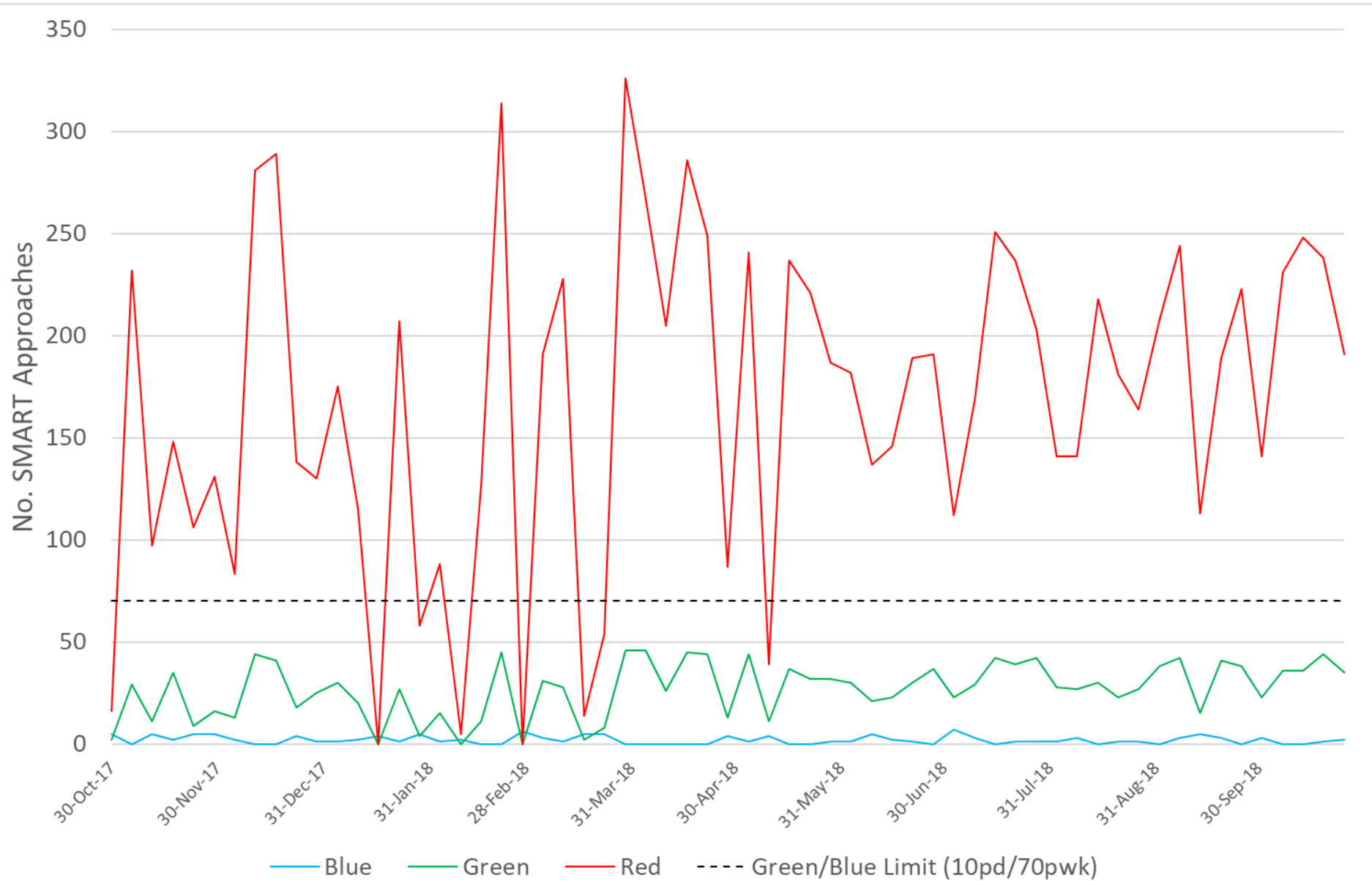
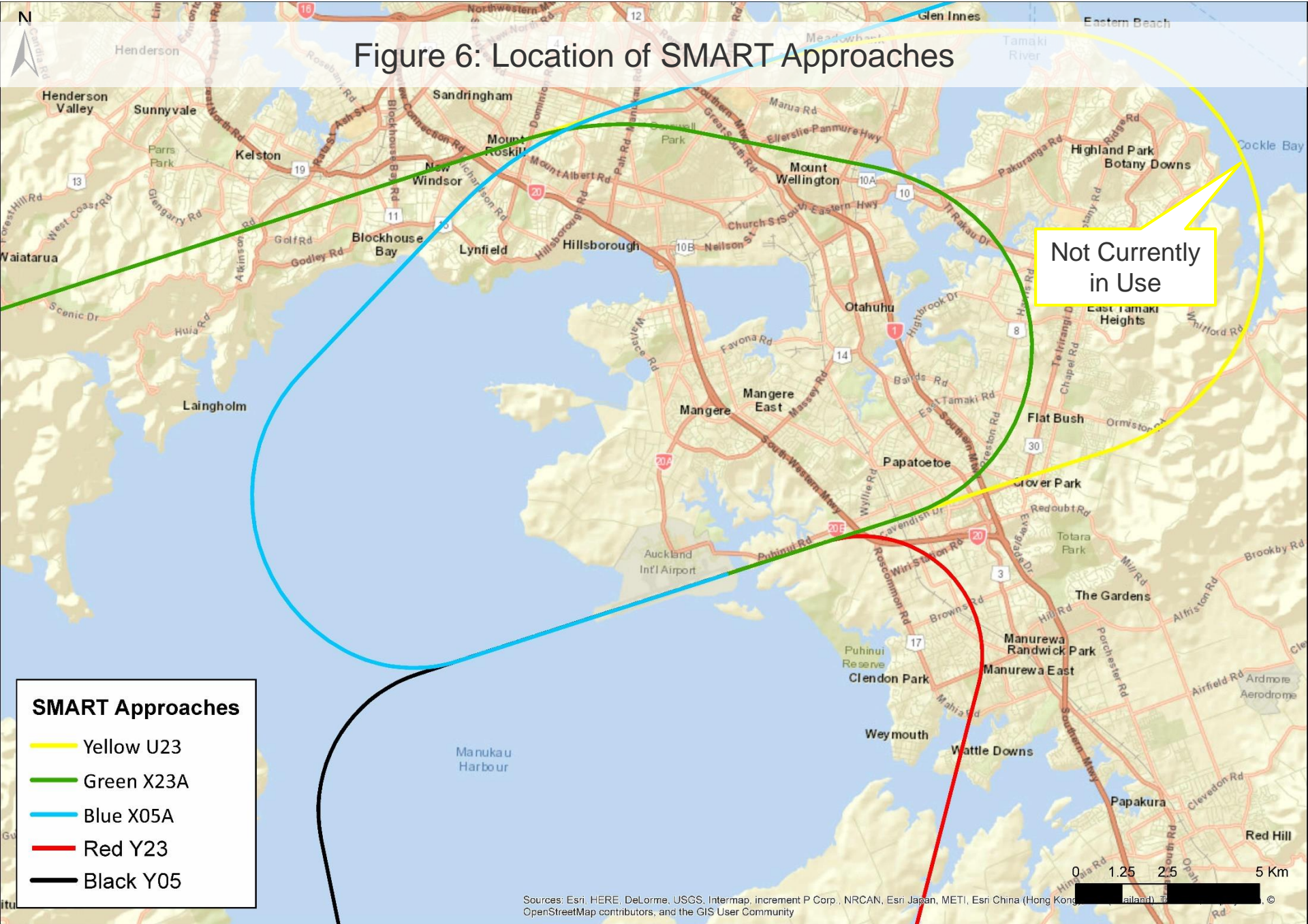




Figure 6: Location of SMART Approaches







# Flight Path Diagrams

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

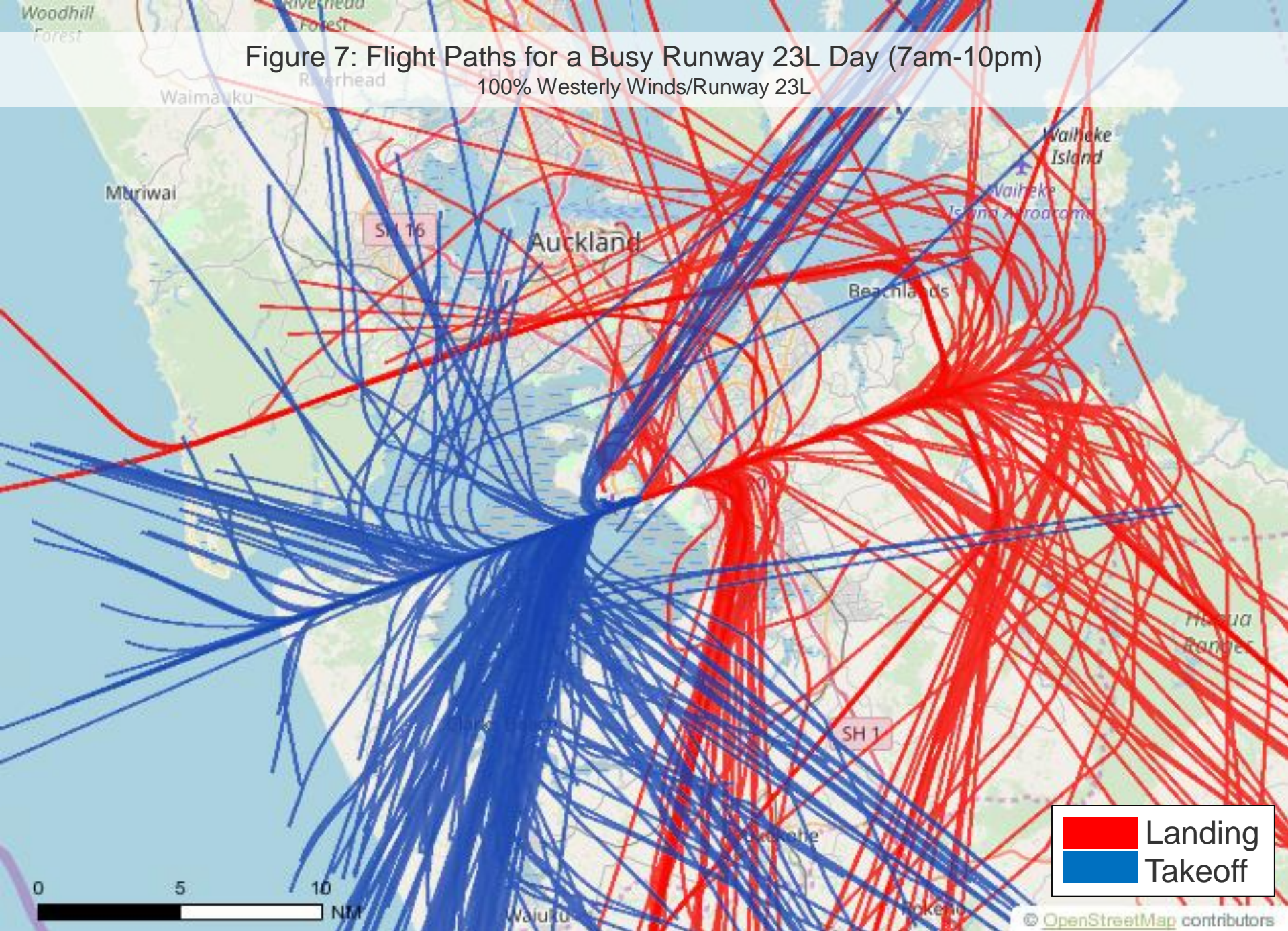




Figure 8: Flight Paths for a Busy Runway 23L Night (10pm-7am)

100% Westerly Winds/Runway 23L

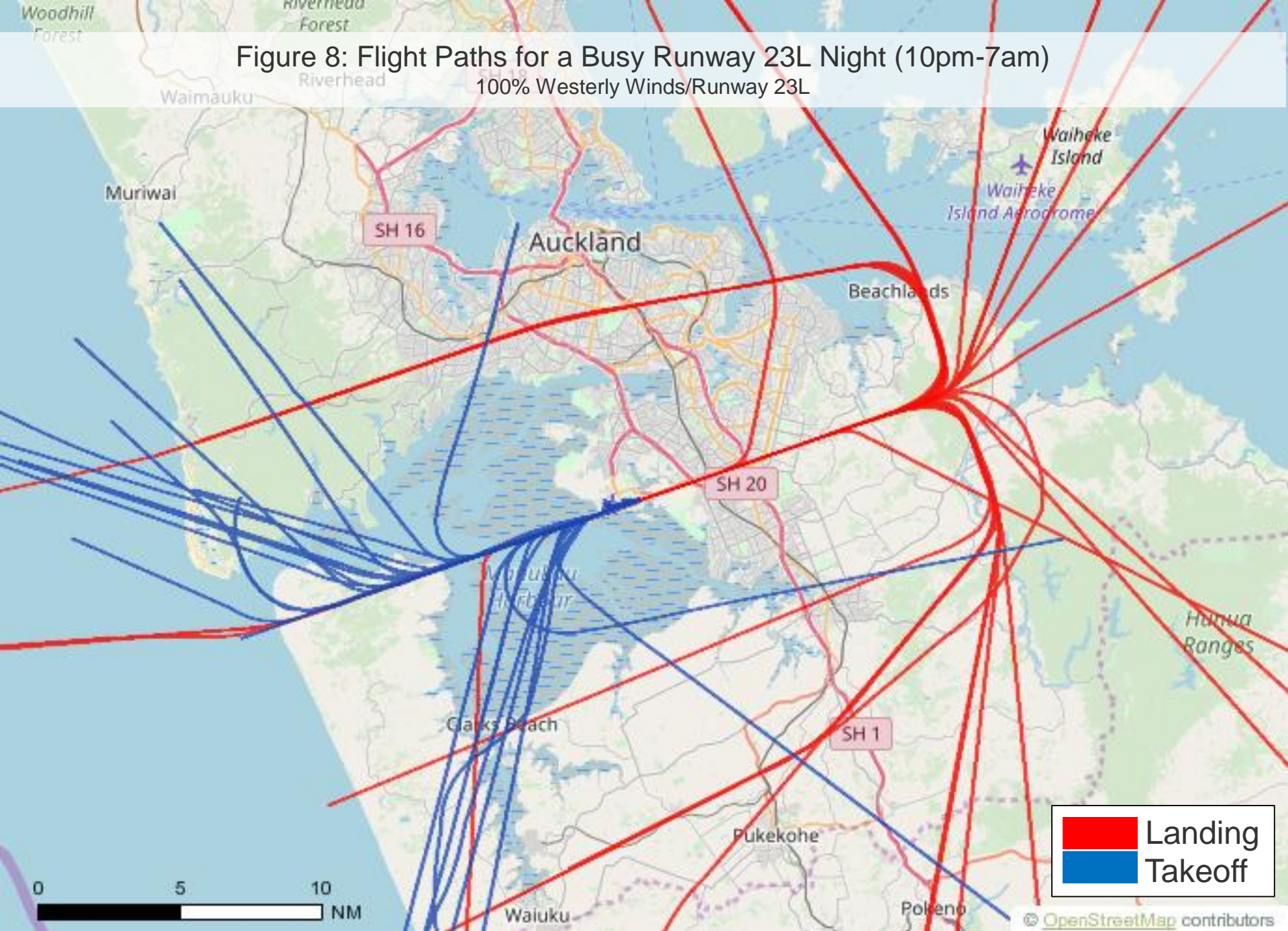




Figure 9: Flight Paths for a Busy Runway 05R Day (7am-10pm)

99% Easterly Winds/Runway 05R

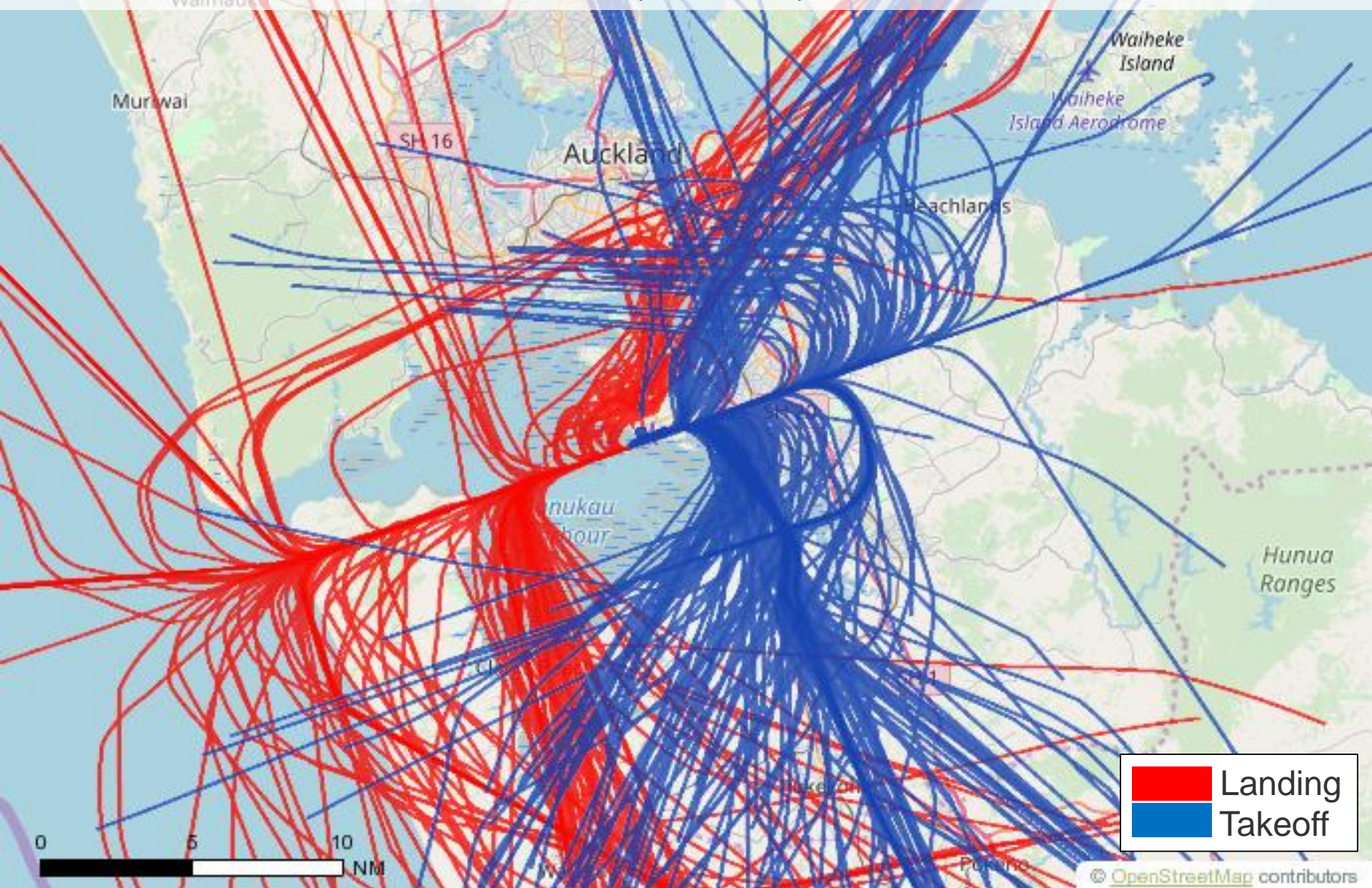
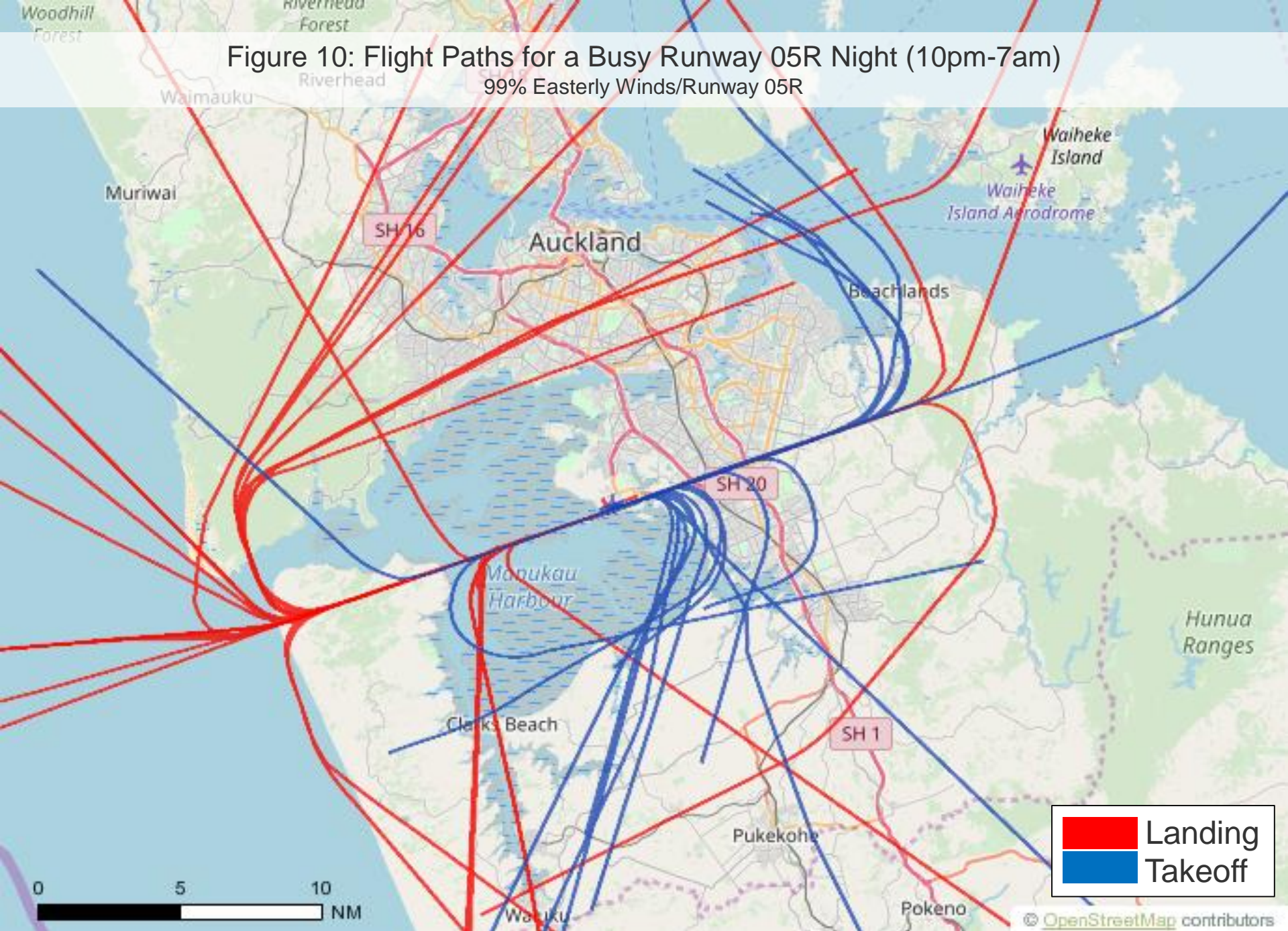




Figure 10: Flight Paths for a Busy Runway 05R Night (10pm-7am)

99% Easterly Winds/Runway 05R





# Noise Complaints



Figure 11: Number of Aircraft Noise Complaints per Month

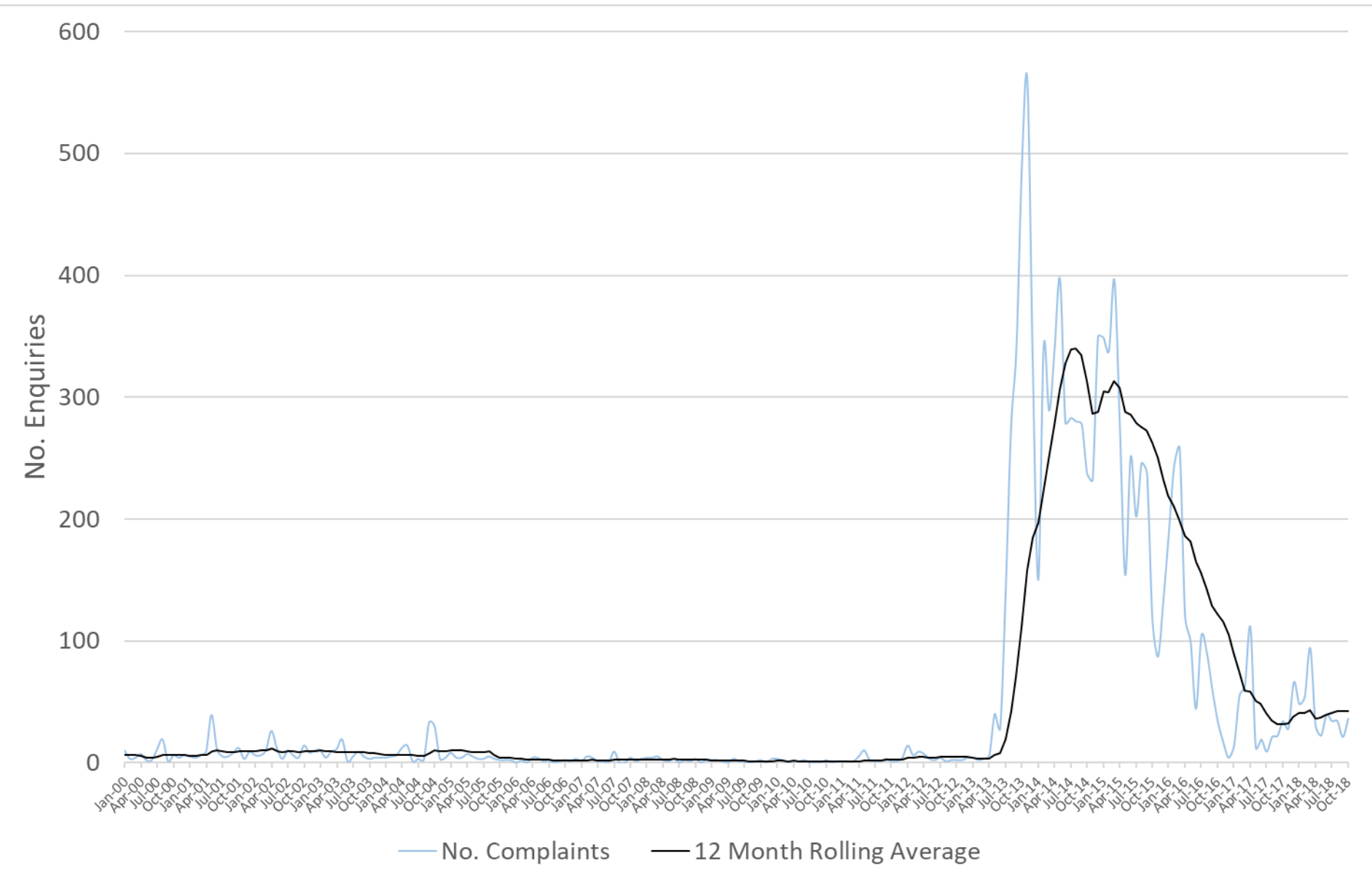


Table 3: Summary of Noise Complaints

	Total	August	September	October
Number of Complaints	91	34	21	36
<i>Specific</i>	61	23	16	22
<i>Generic</i>	24	9	3	12
<i>Question</i>	6	2	2	2
Number of People Complaining	38	16	15	18

*Note: Five people made 52% (48) of the total number of noise complaints for the three month period. These people were located in Mt Eden, Beachlands, Titirangi, Mt Albert and One Tree Hill.*

**Figure 12: Map of Noise Complaints**

**Legend**

**Location of Complainants**

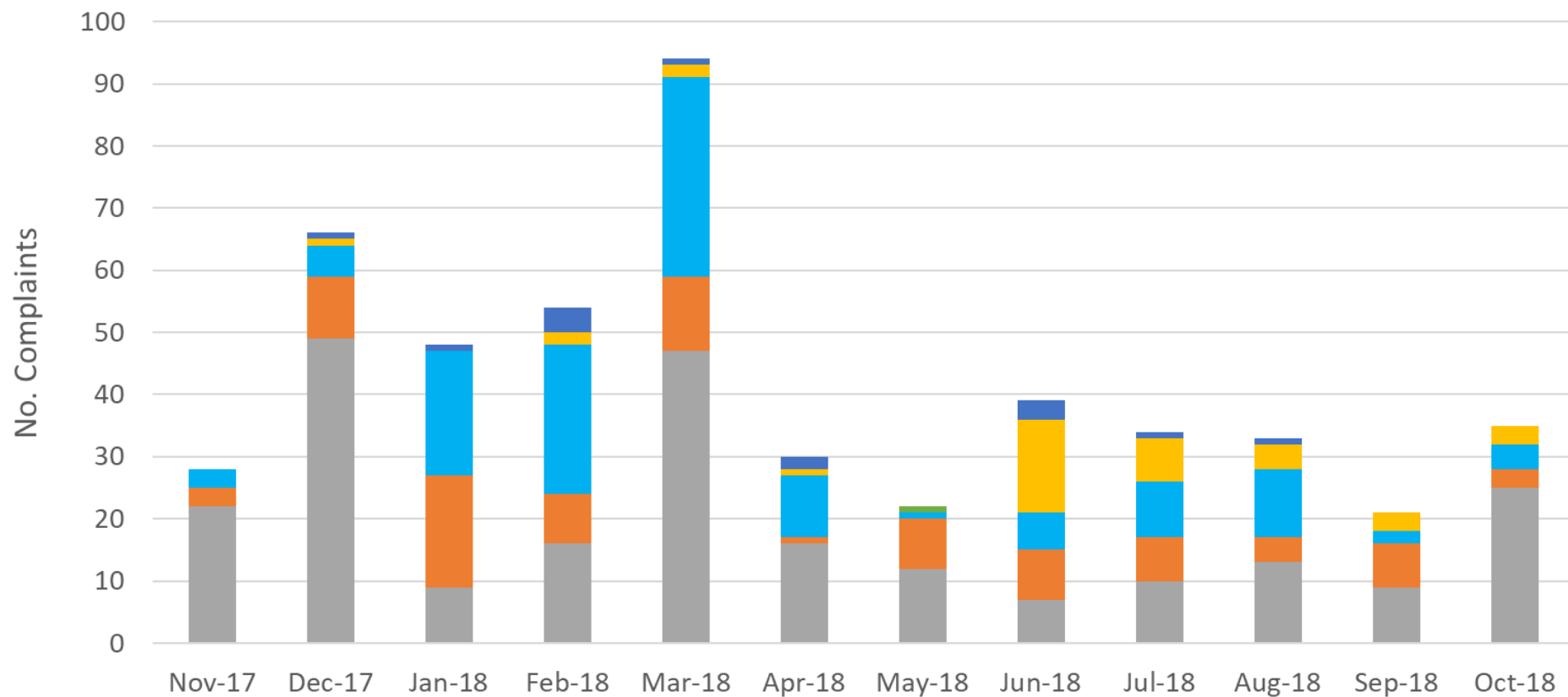
- New Complainants (Yellow circle)
- Existing Complainants (Grey circle)

**NB: Numbers show a tally of complaints over 3mth**

**Aircraft Noise Areas**

- ANNA (55 dB Ldn) (Green line)
- MANA (60 dB Ldn) (Orange line)
- HANA (65 dB Ldn) (Pink line)

# Figure 13: Number of Noise Complaints by Area



	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18
Not in Auckland	0	0	0	0	0	0	1	0	0	0	0	0
North Shore	0	1	1	4	1	2	0	3	1	1	0	0
West Auckland	0	1	0	2	2	1	0	15	7	4	3	3
East Auckland	3	5	20	24	32	10	1	6	9	11	2	4
South Auckland	3	10	18	8	12	1	8	8	7	4	7	3
Central Suburbs	22	49	9	16	47	16	12	7	10	13	9	25

Central Suburbs
  South Auckland
  East Auckland
  West Auckland
  North Shore
  Not in Auckland



Figure 14: Noise Complaints by Time

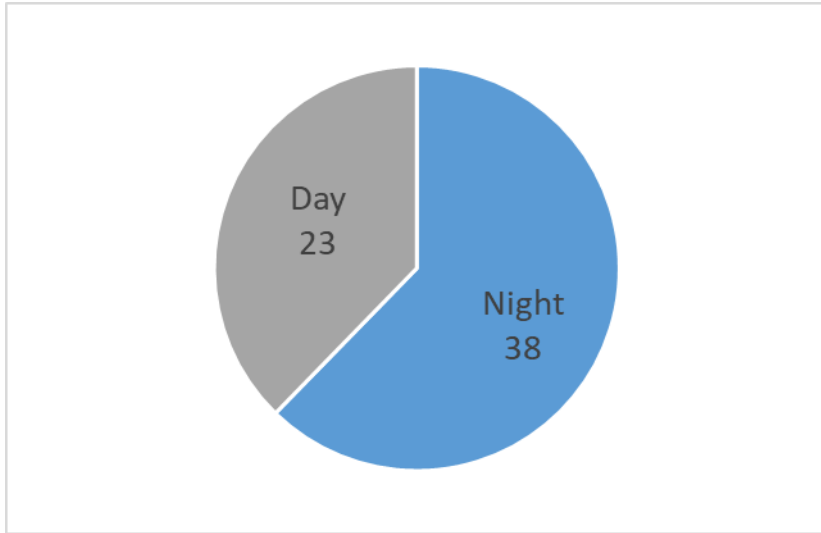


Figure 15: Noise Complaints by Runway

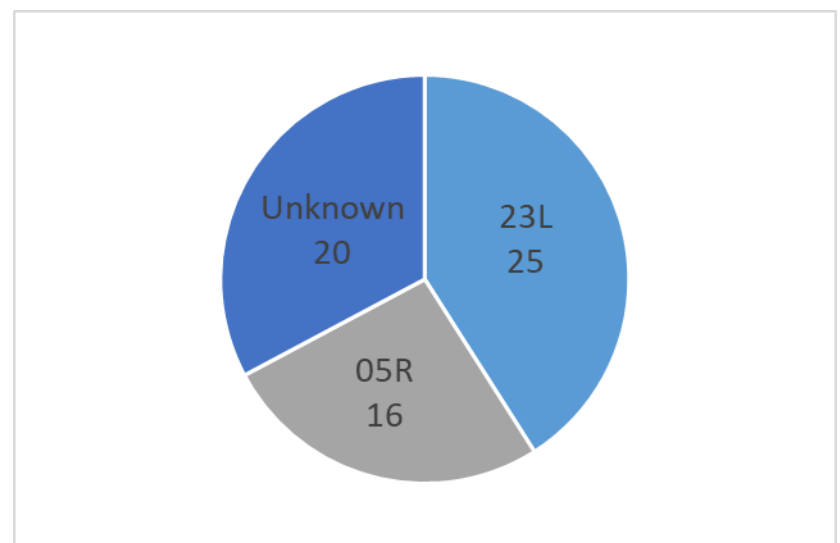


Figure 16: Noise Complaints by Aircraft

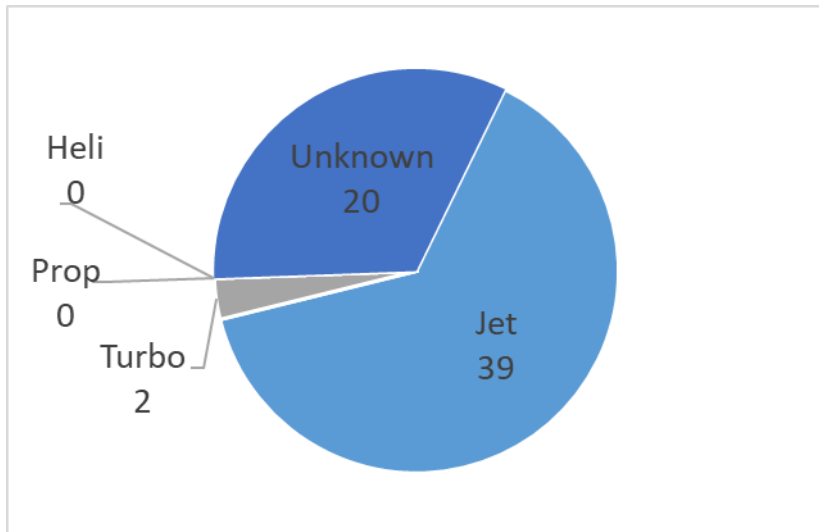


Figure 17: Noise Complaints by Operation

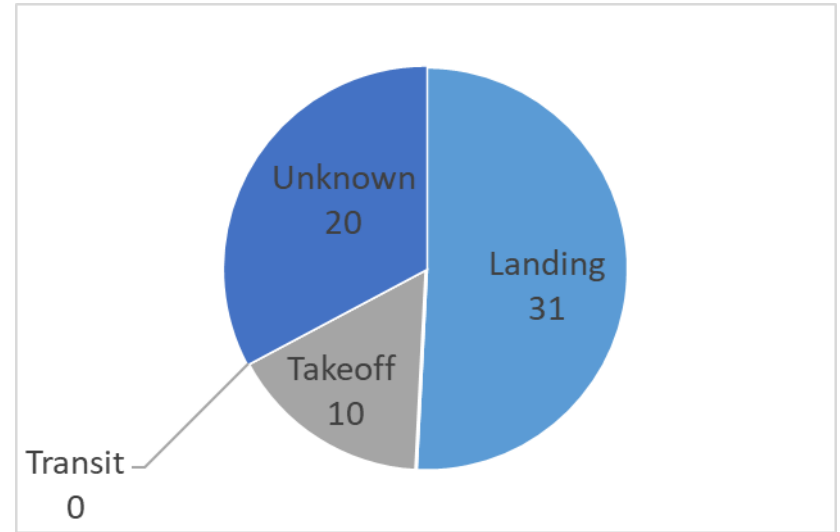


Figure 18: Noise Complaints by Destination

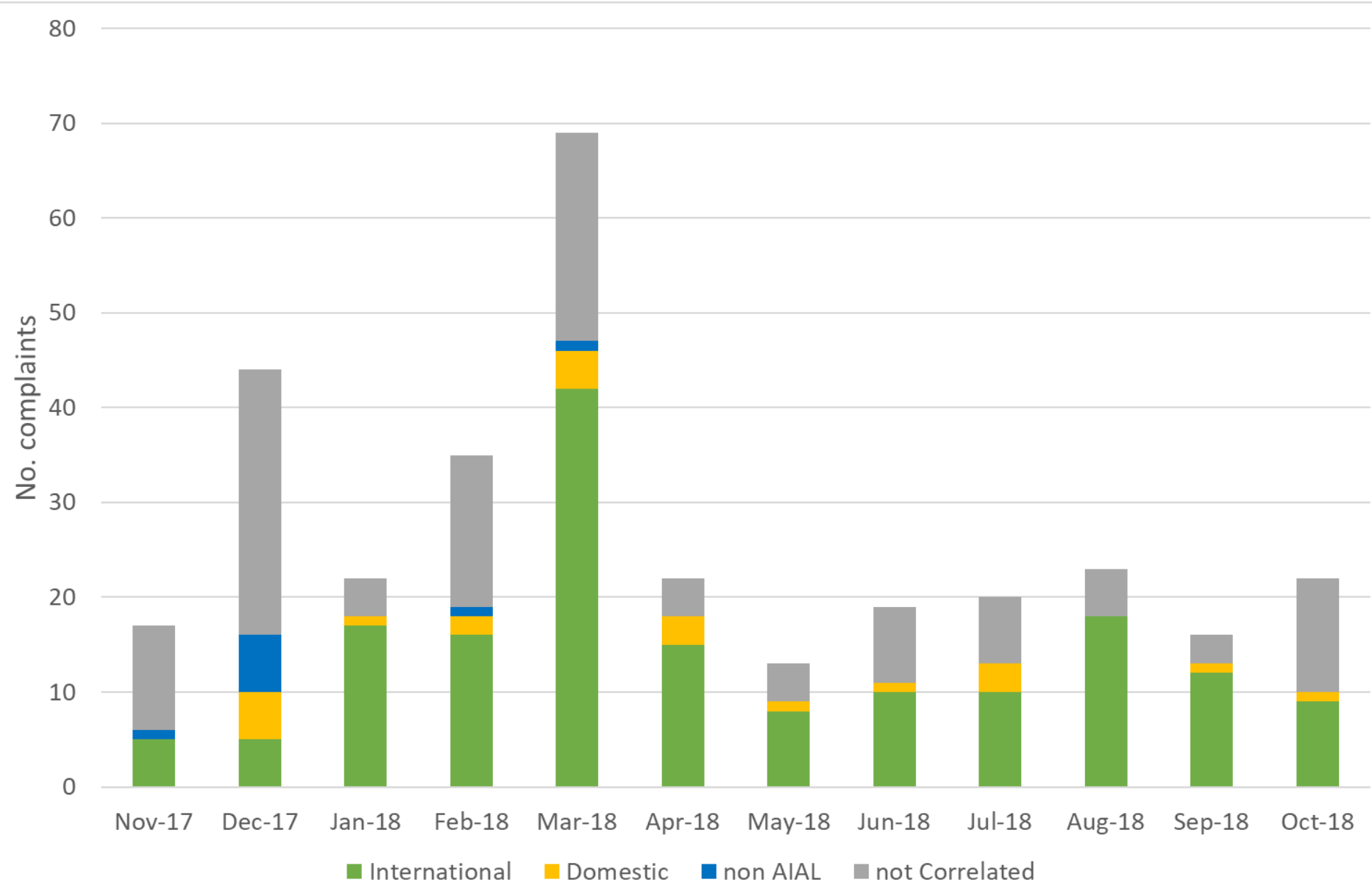


Figure 19: Noise Complaints vs Usage of Runway 05R

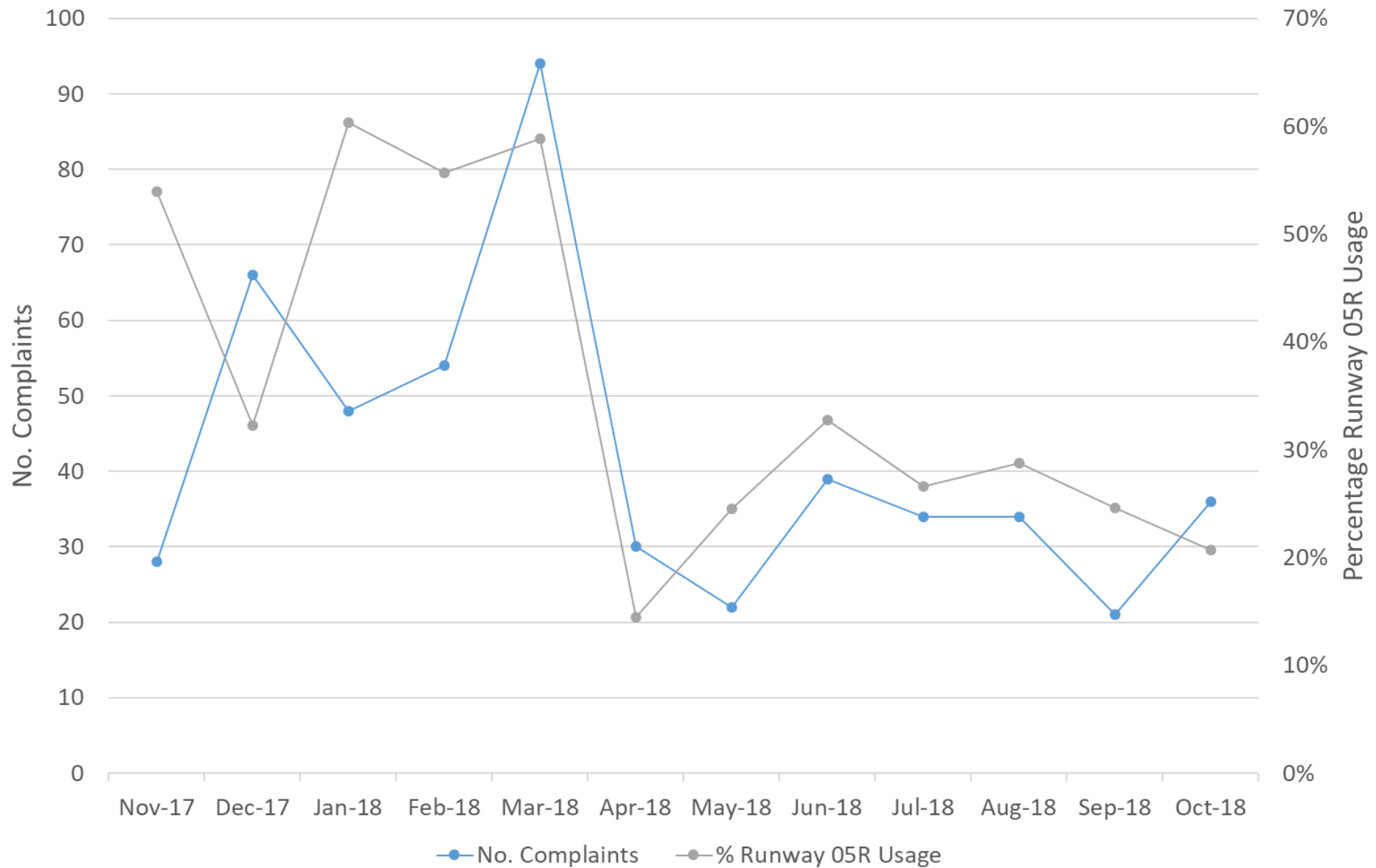


Figure 20: Noise Complaints by Hour vs Aircraft Operations by Hour

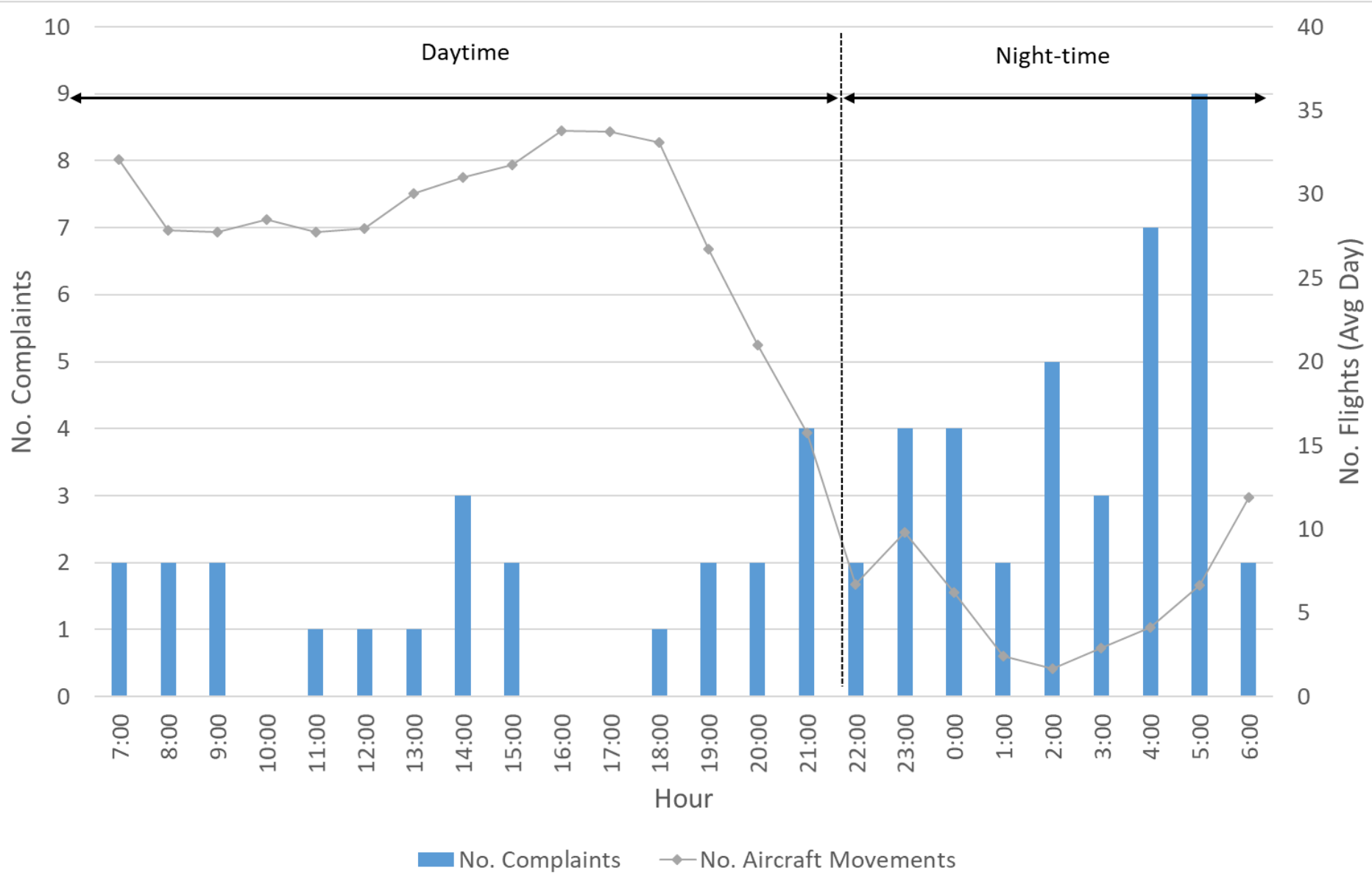


Figure 21: Noise Complaints by Type

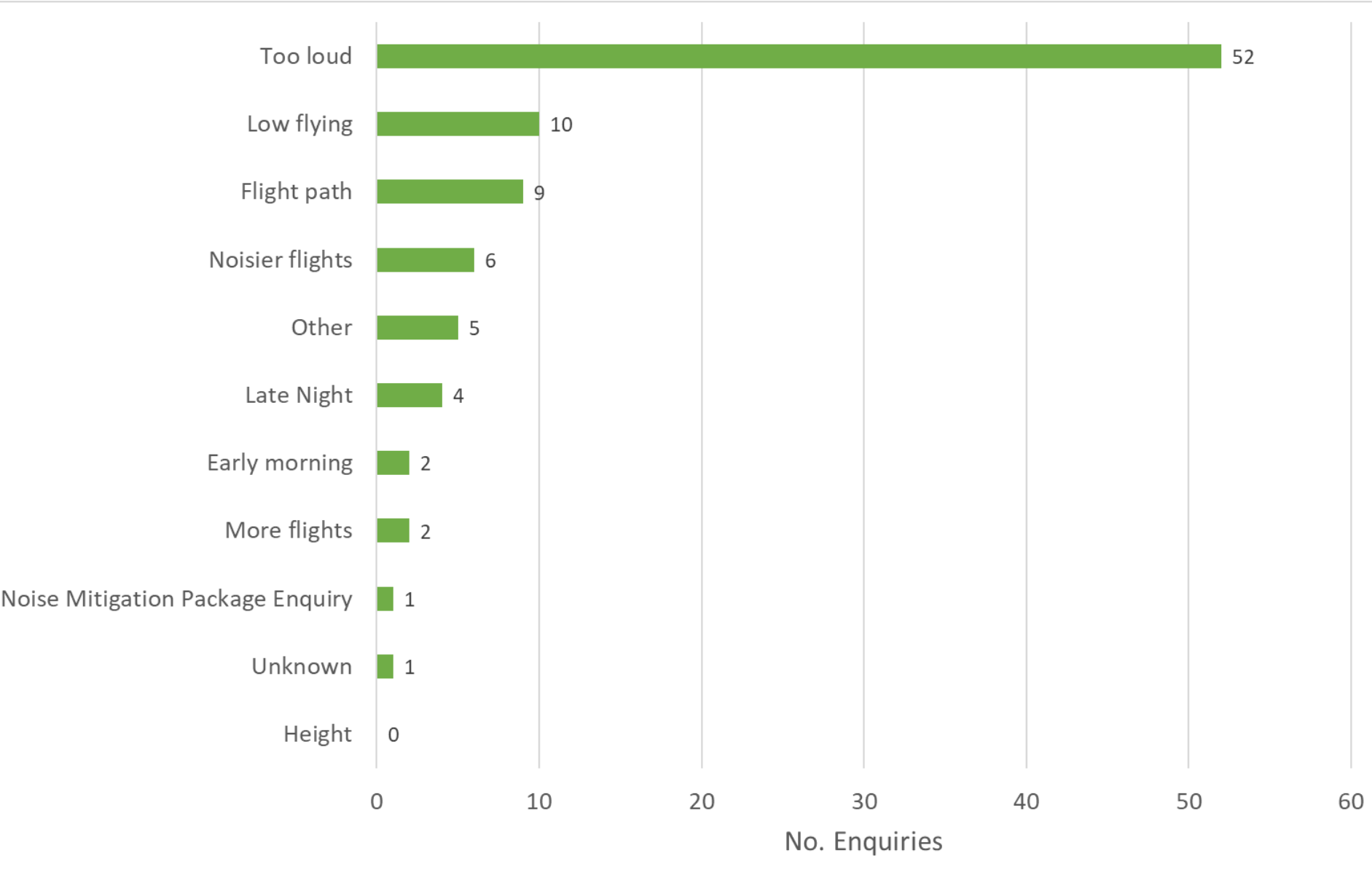




Figure 22: Specific Aircraft Identified in Noise Complaints

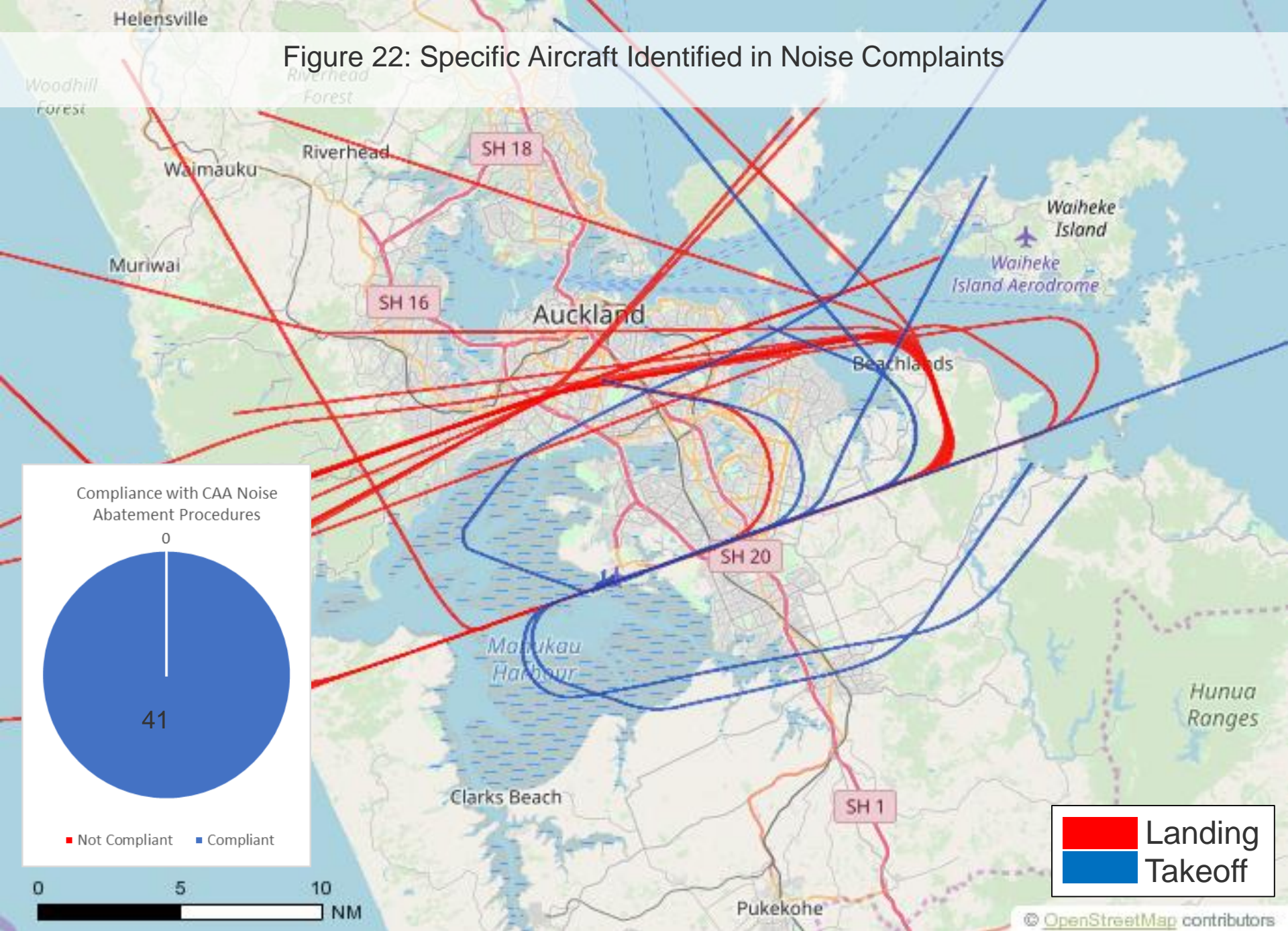
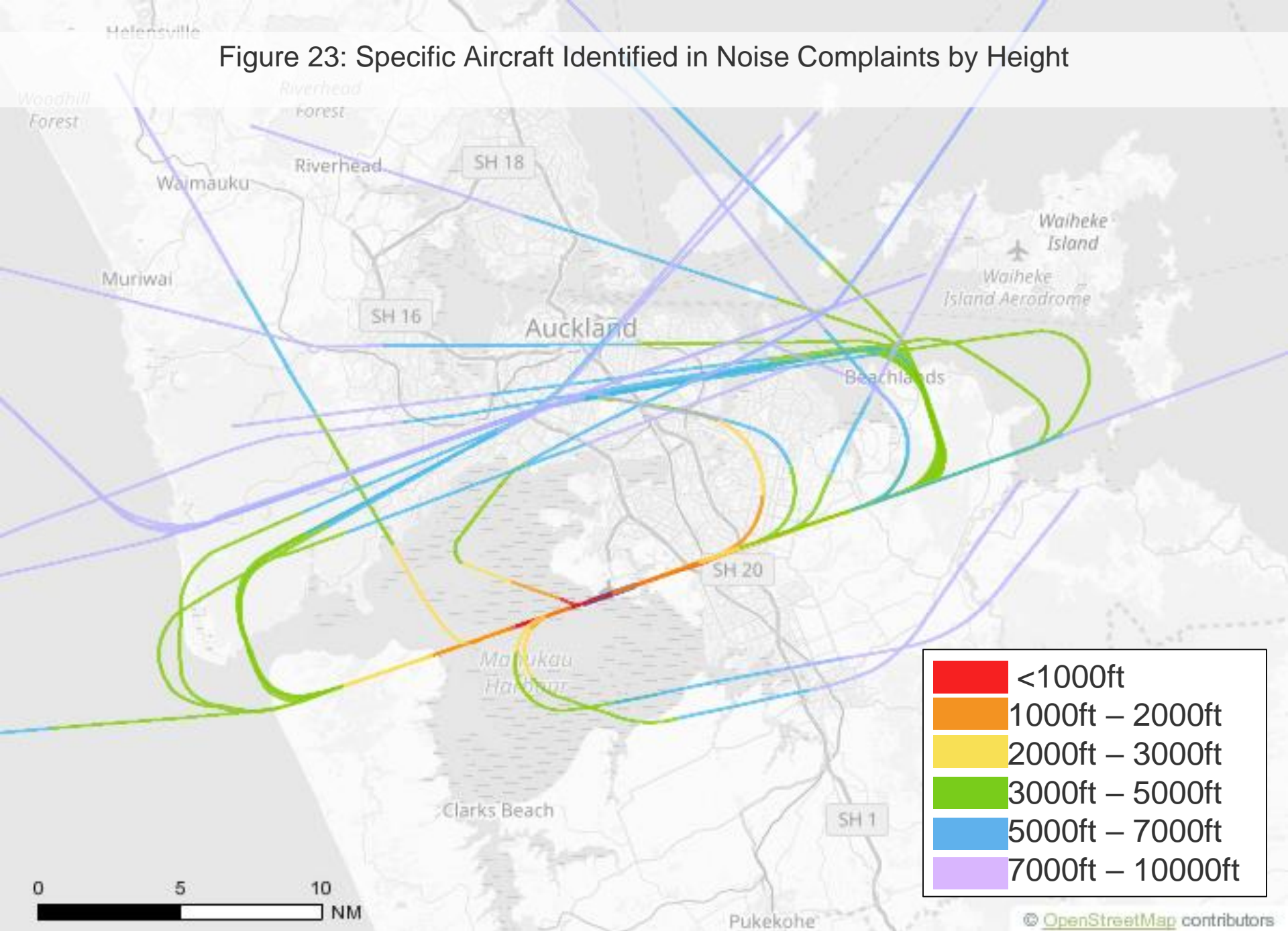


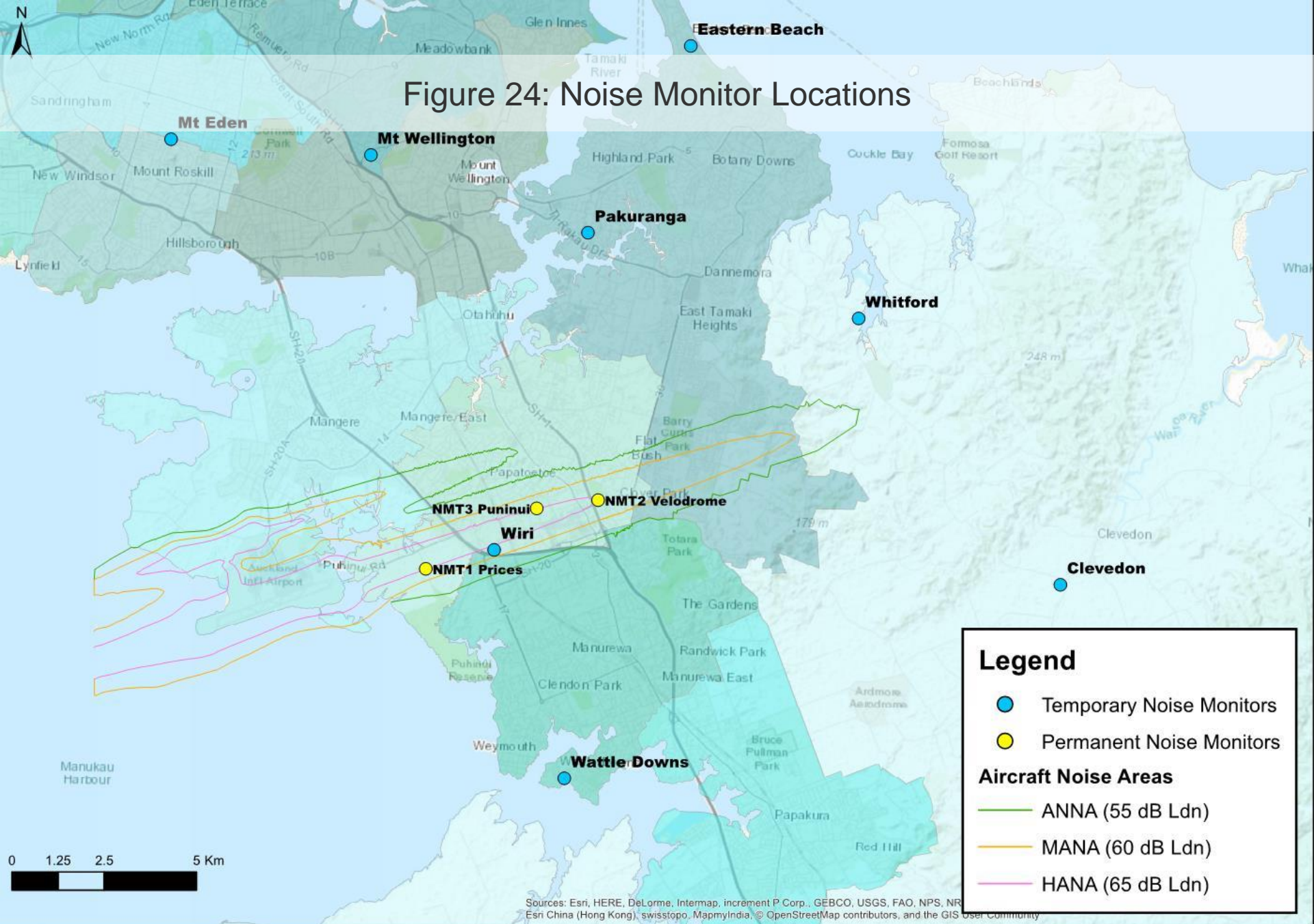
Figure 23: Specific Aircraft Identified in Noise Complaints by Height







# Noise Monitoring



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRC, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Figure 25: Measured 365 Day Rolling Noise Exposure ( $L_{dn}$ ) – Permanent Monitors

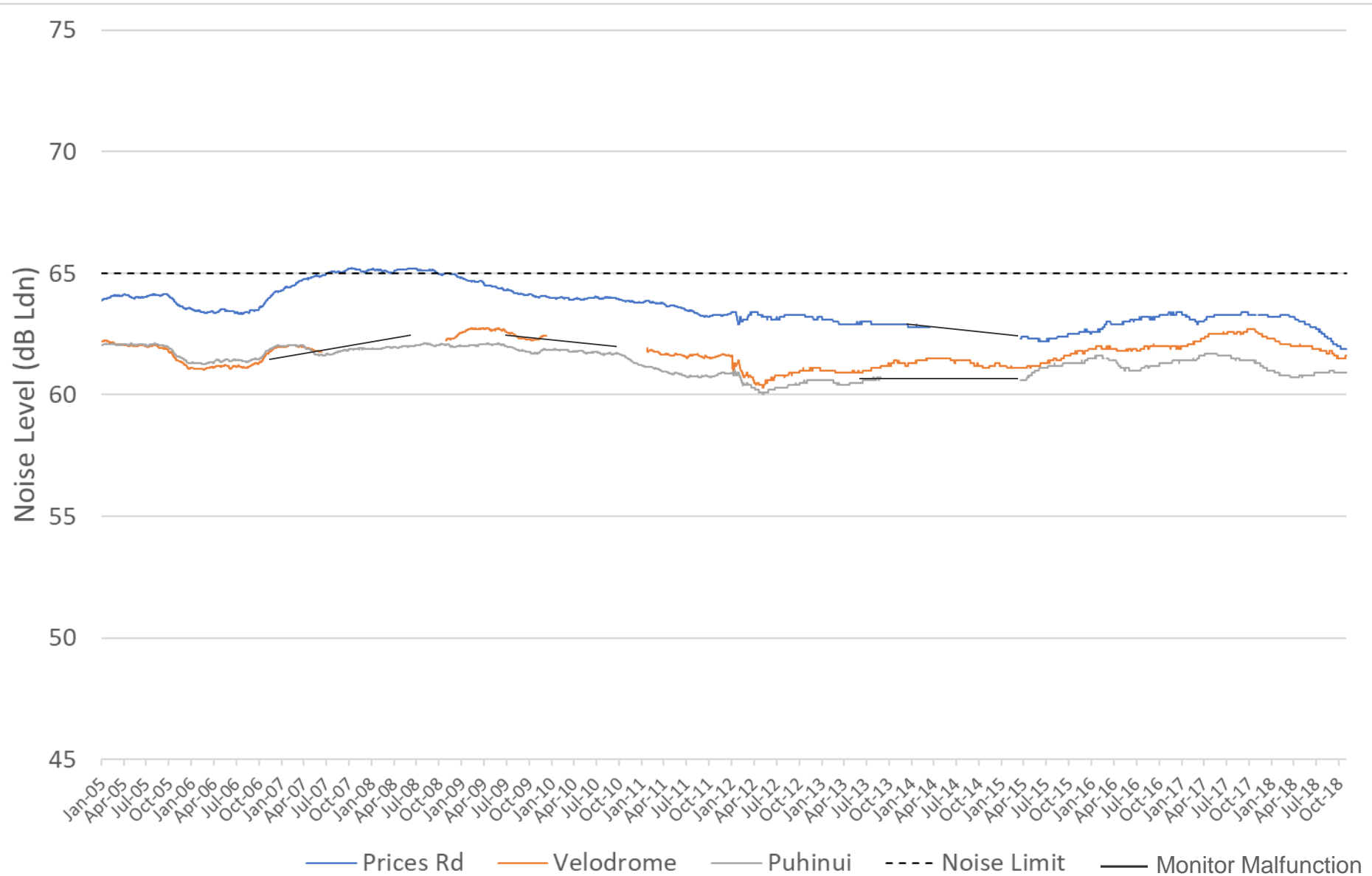




Figure 26: Number of Aircraft Noise Events in Each Noise Band - Permanent Monitors  
( $L_{Amax}$  – Maximum Noise Level)

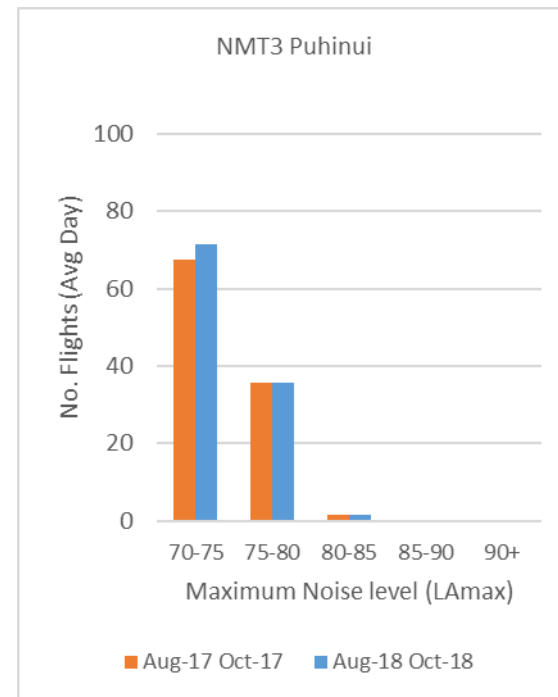
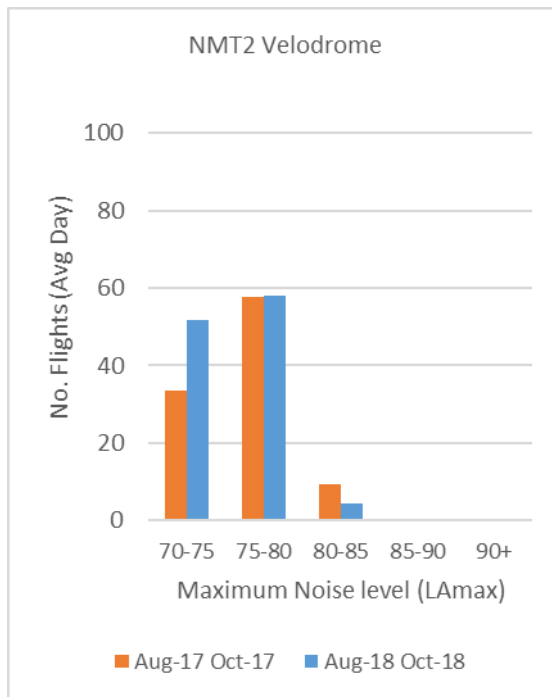
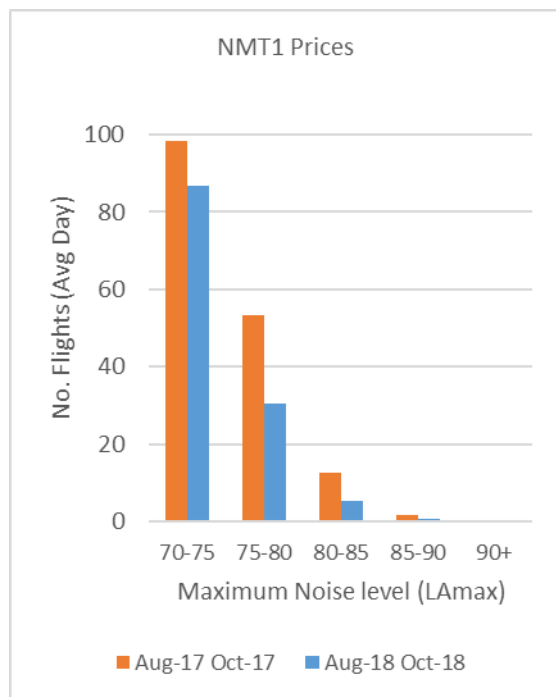


Table 4: Correlation of Aircraft Operations with Noise Events – Permanent Monitors

	NMT1 Prices	NMT2 Velodrome	NMT3 Puhinui
No. Aircraft Operations	20,785	13,640	14,875
No. Noise Events	16,805	10,758	14,202
Correlation	81%	79%	95%

Table 5: Temporary Noise Monitor Summary of Measured Aircraft Events

	Date Deployed	Days in Field	Measured $L_{dn}$	Average $L_{Amax}$
Mt Eden	1-Apr-15	1310	41	62
Pakuranga	9-Apr-15	1302	41	66
Mt Wellington	17-Apr-15	1294	41	65
Whitford	10-Jun-15	1240	41	60
Eastern Beach	11-Jun-15	1239	43	61
Wiri	2-May-17	546	61	76
Wattle Downs	23-Dec-17	313	48	67
Clevedon	9-Mar-18	236	39	63

*NB The Marriott Rd monitor was brought in in November as the owner sold the house.*

Figure 27: Measured Monthly Noise Exposure ( $L_{dn}$ ) – Central Suburbs Temporary Monitors

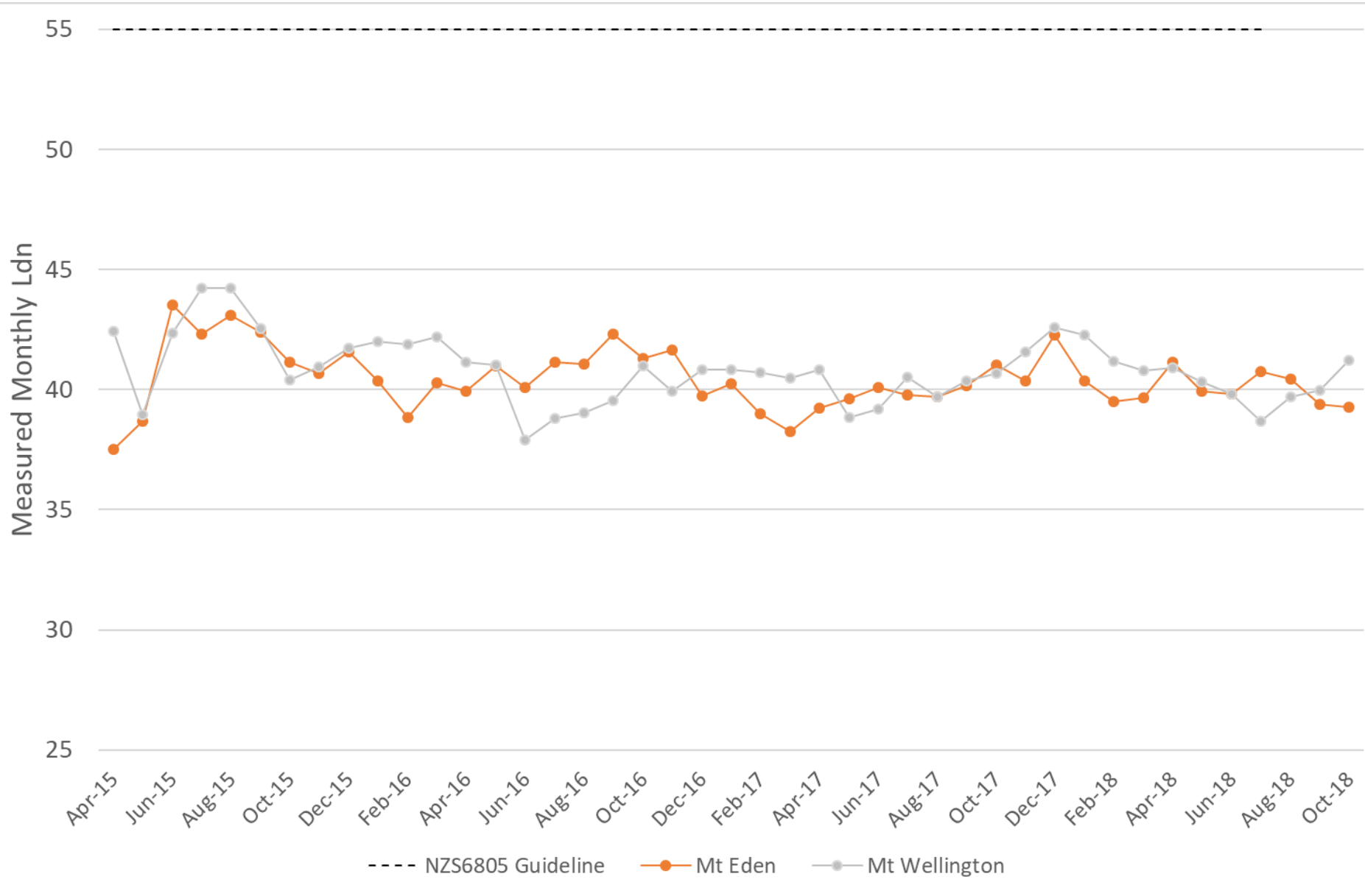


Figure 28: Measured Monthly Noise Exposure ( $L_{dn}$ ) – Eastern Suburbs Temporary Monitors

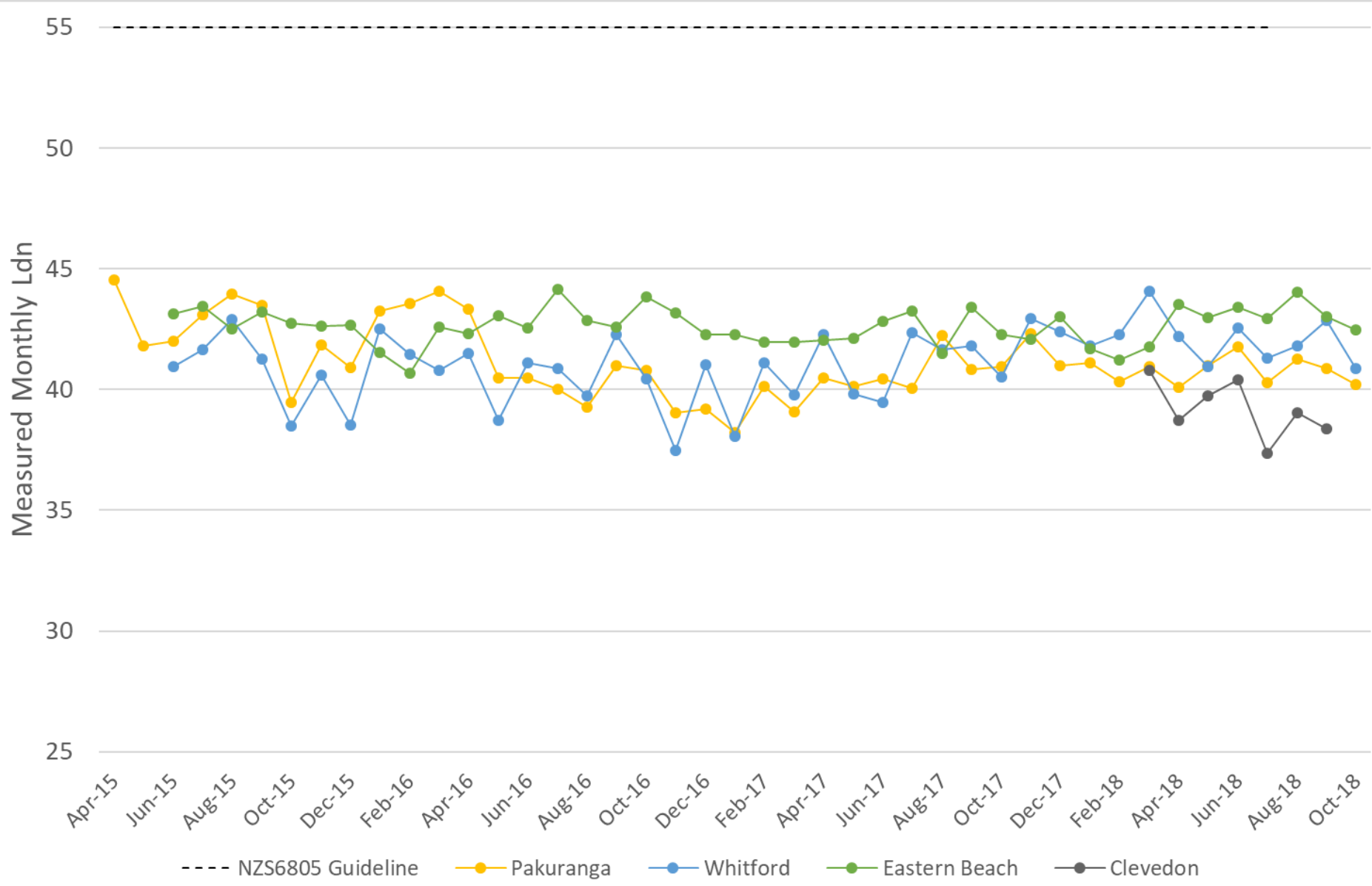


Figure 29: Measured Monthly Noise Exposure ( $L_{dn}$ ) – Southern Suburbs Temporary Monitors

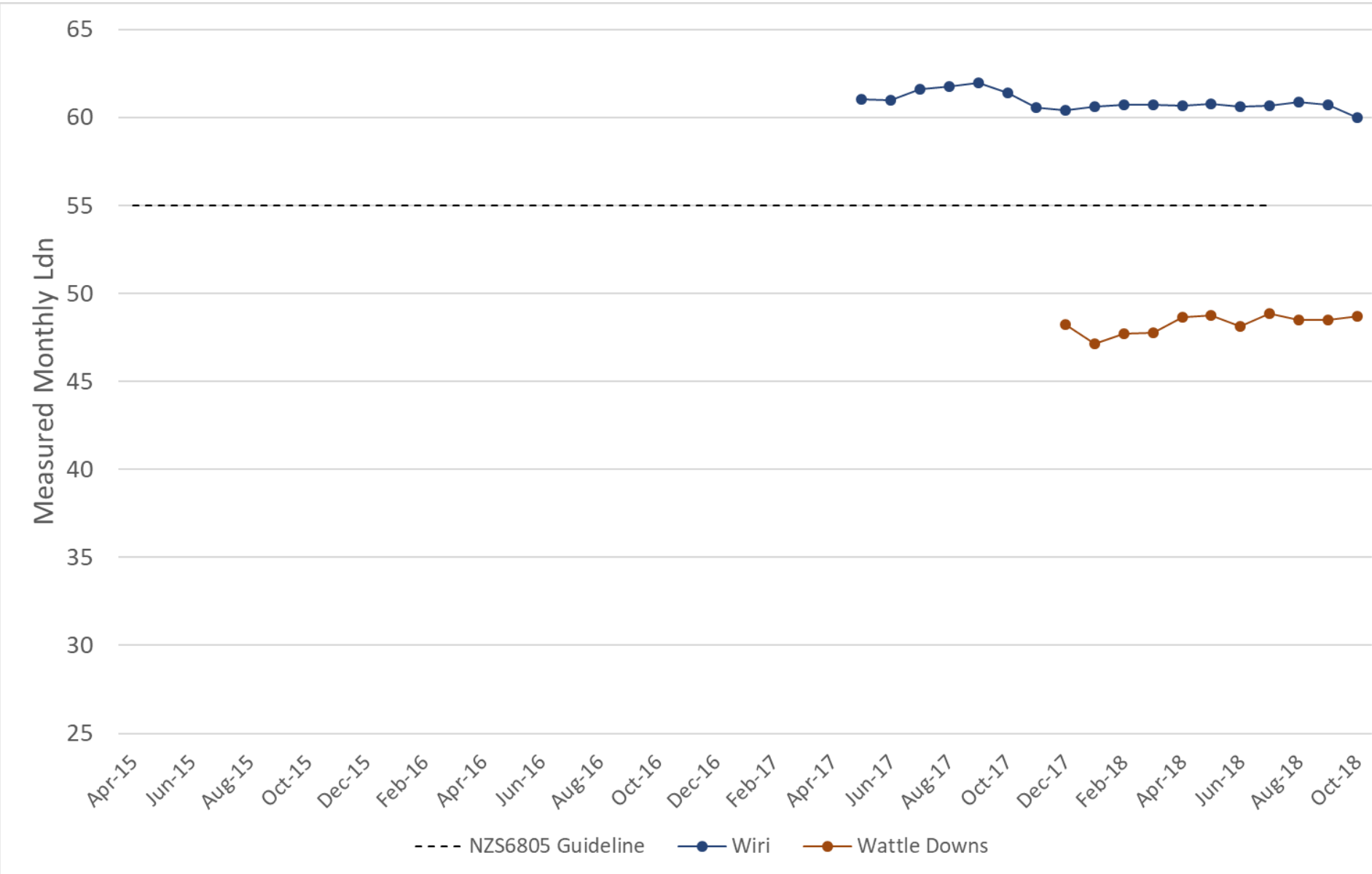


Figure 30: Number of Aircraft Noise Events in Each Noise Band - Central Suburbs Monitors  
( $L_{Amax}$  – Maximum Noise Level)

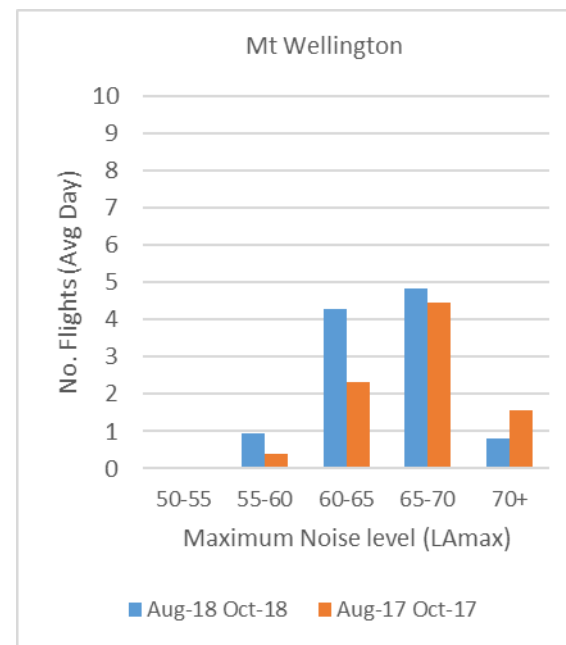
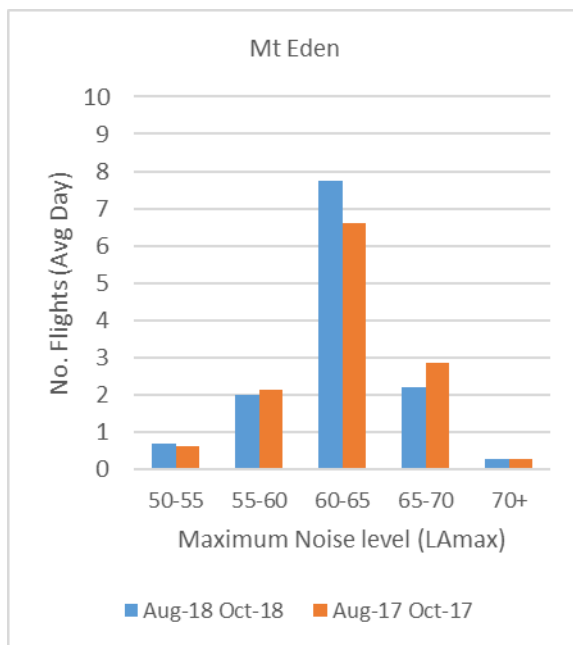




Figure 31: Number of Aircraft Noise Events in Each Noise Band - Eastern Suburbs Monitors (L<sub>Amax</sub> – Maximum Noise Level)

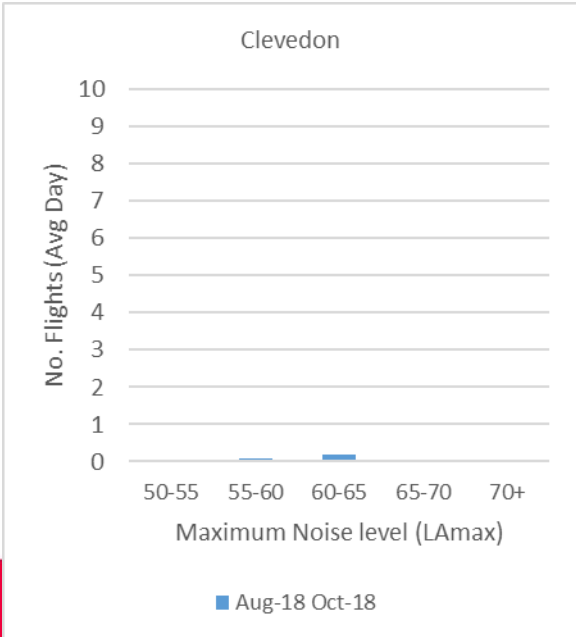
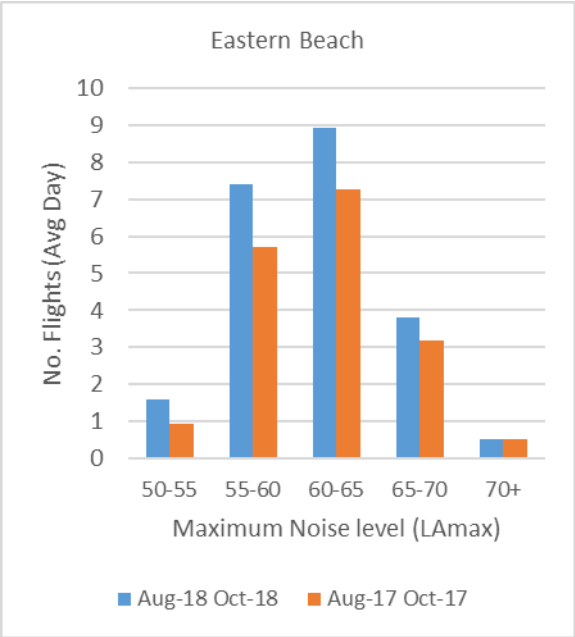
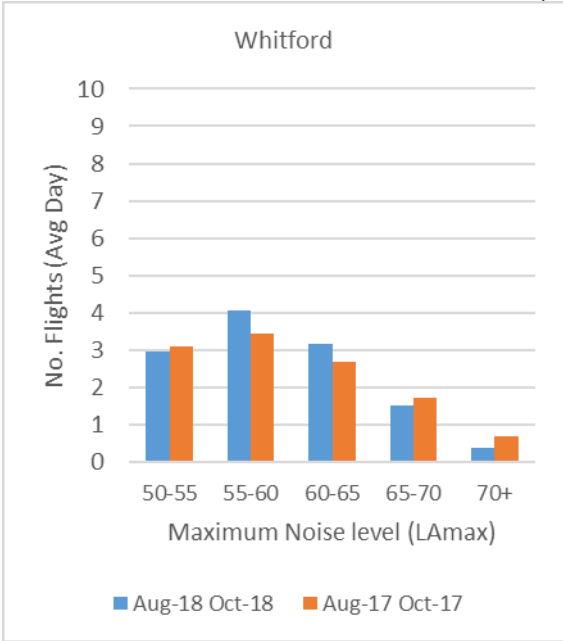
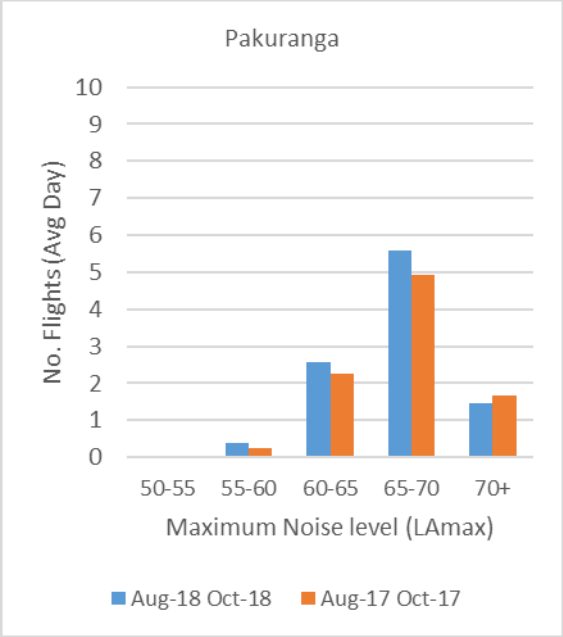
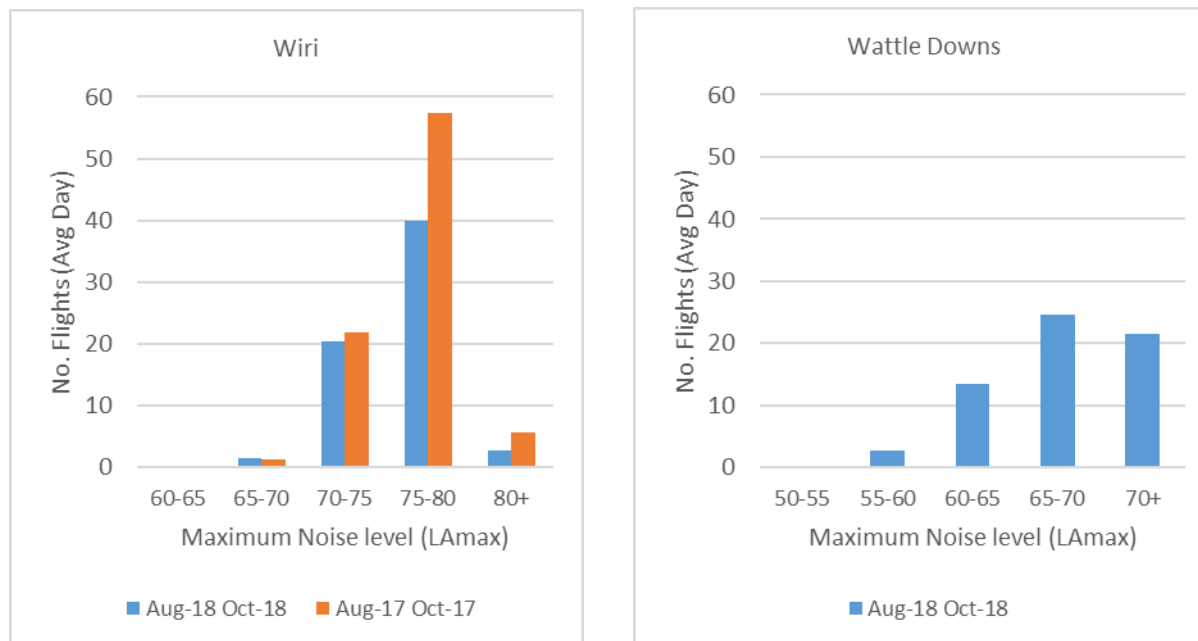


Figure 32: Number of Aircraft Noise Events in Each Noise Band - Southern Suburbs Monitors  
( $L_{Amax}$  – Maximum Noise Level)



A close-up, low-angle shot of a jet engine's fan section. The image shows the intricate design of the fan blades, which are arranged in a circular pattern around a central hub. The blades are dark and have a curved, aerodynamic shape. The central hub is a lighter, metallic color. The overall lighting is warm, with a golden glow emanating from the center, creating a sense of depth and highlighting the metallic textures. A semi-transparent grey banner is overlaid across the middle of the image, containing the text "Engine Testing".

# Engine Testing

Figure 33: Engine Testing Monitoring Locations

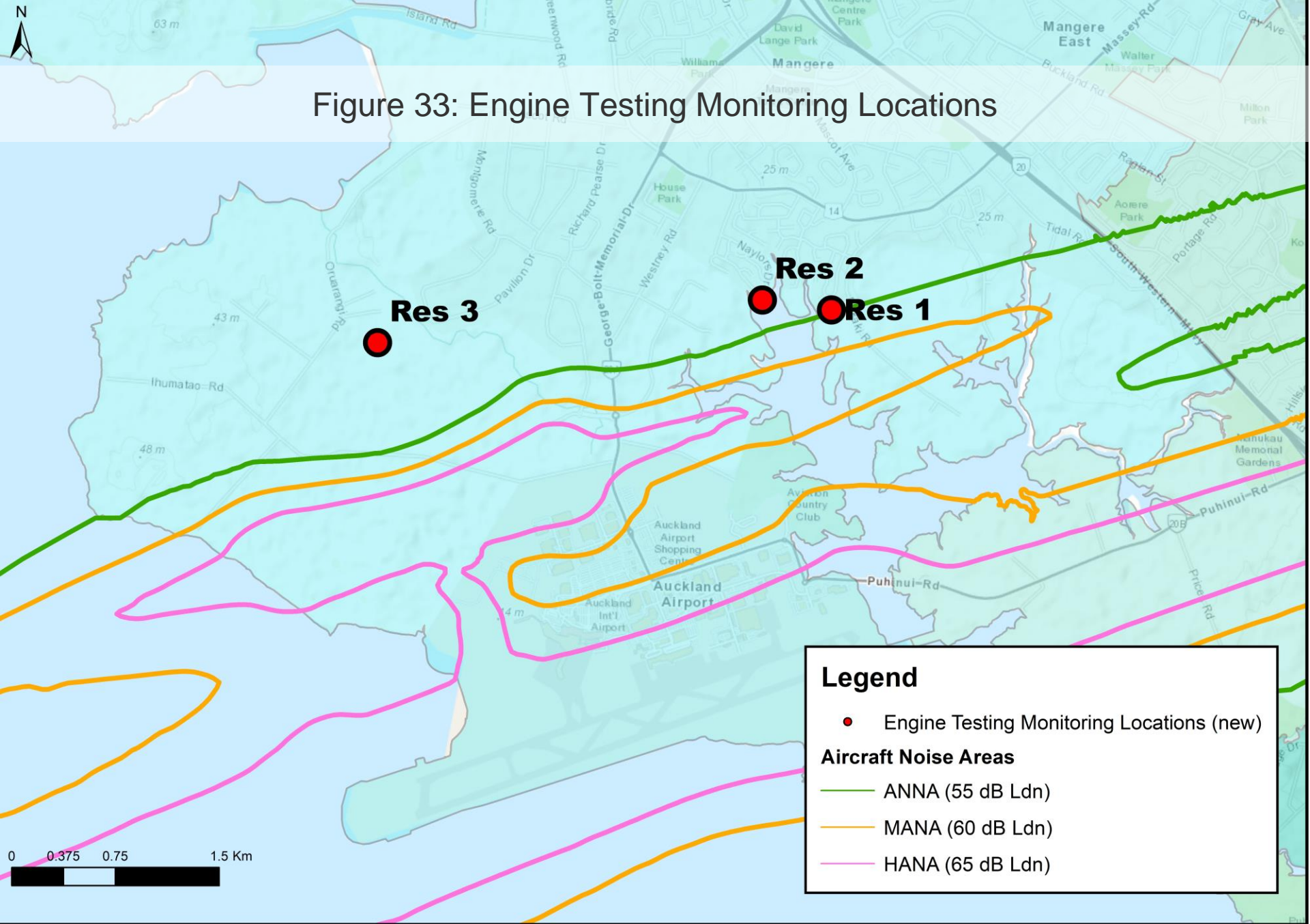
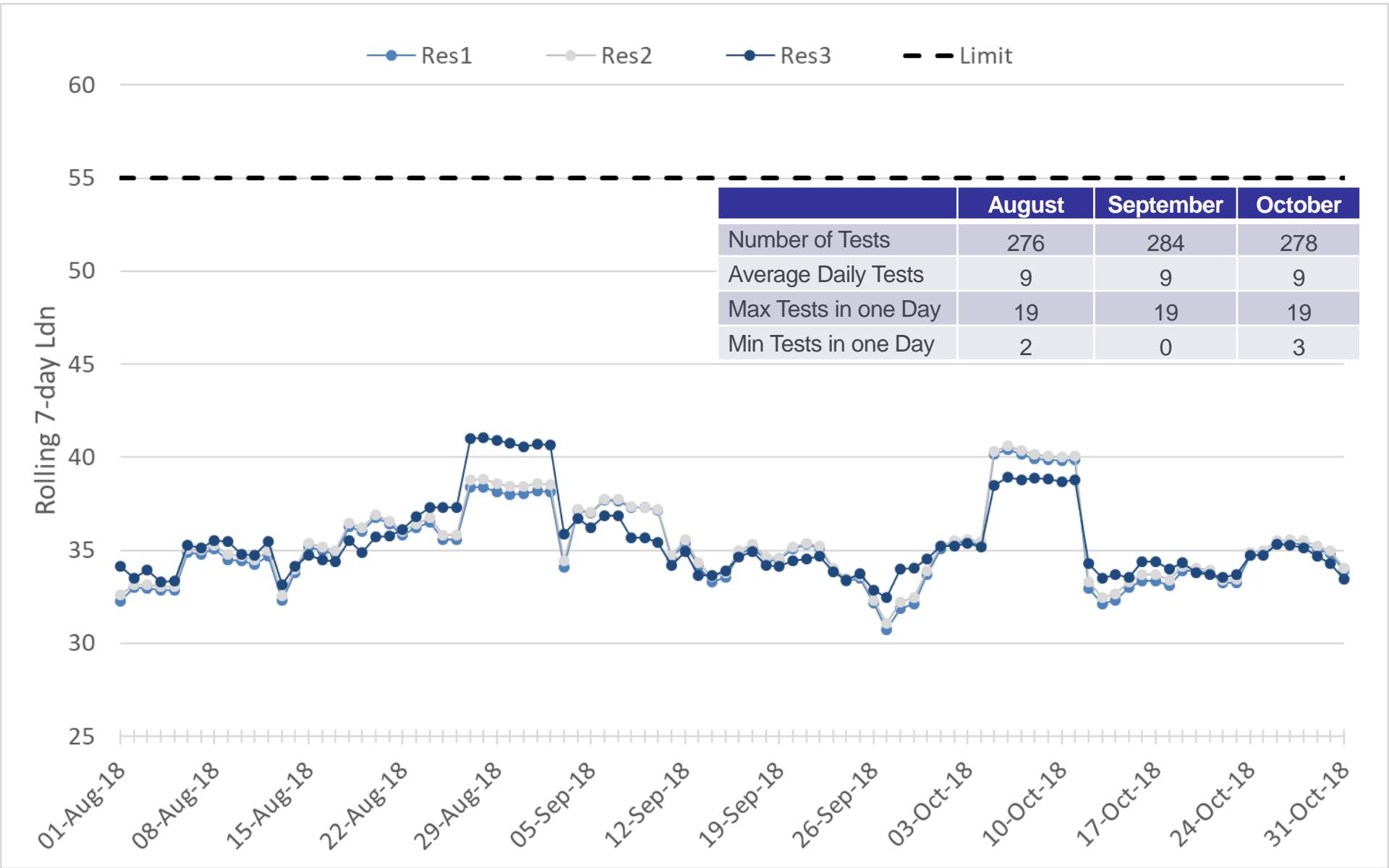
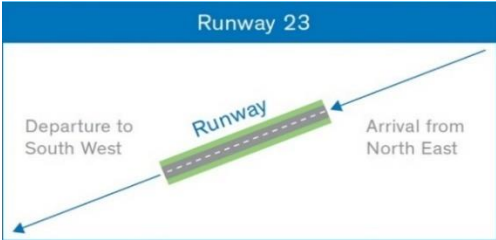
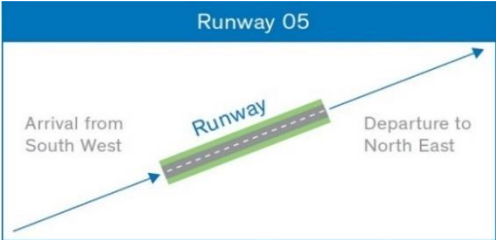


Figure 34: Engine Testing Summary





# 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	<div> <div>Occurs in Westerly Wind Conditions</div>  </div> <div> <div>Occurs in Easterly Wind Conditions</div>  </div>
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	Noise that is from general ambient noise sources (cars, wind etc.).  Excludes 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 dB $L_{dn}$
MANA	Moderate Aircraft Noise Area – Set at 60 dB $L_{dn}$
HANA	High Aircraft Noise Area – Set at 65 dB $L_{dn}$

## Appendix B: Noise Complaint Type

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



## Appendix C: Suburbs by Area

Suburb	Area	Suburb	Area	Suburb	Area
Alfriston	South Auckland	Manurewa	South Auckland	Randwick Park	South Auckland
Anawhata	West Auckland	Meadowbank	Central Suburbs	Remuera	Central Suburbs
Beachlands	East Auckland	Mellons Bay	East Auckland	Saint Heliers	Central Suburbs
Bucklands Beach	East Auckland	Milford	North Shore	Sandringham	Central Suburbs
Clover Park	South Auckland	Mount Eden	Central Suburbs	Shelly Park	South Auckland
Cockle Bay	East Auckland	Mount Roskill	Central Suburbs	Somerville	South Auckland
Cornwallis	West Auckland	Mount Wellington	Central Suburbs	Takanini	West Auckland
East Tamaki Heights	East Auckland	Muriwai	West Auckland	Te Atatu South	West Auckland
Ellerslie	Central Suburbs	Northpark	South Auckland	The Gardens	South Auckland
Epsom	Central Suburbs	One Tree Hill	Central Suburbs	Titirangi	West Auckland
Flat Bush	East Auckland	Onehunga	Central Suburbs	Totara Heights	South Auckland
Glendowie	Central Suburbs	Onewhero	South Auckland	Totara Vale	South Auckland
Greenlane	Central Suburbs	Otahuhu	South Auckland	Waitakere	West Auckland
Grey Lynn	Central Suburbs	Otara	South Auckland	Waiuku	South Auckland
Half Moon Bay	East Auckland	Pakuranga Heights	East Auckland	Wattle Downs	South Auckland
Herne Bay	Central Suburbs	Panmure	Central Suburbs	Westmere	Central Suburbs
Howick	East Auckland	Papatoetoe	South Auckland	Weymouth	South Auckland
Karaka	South Auckland	Point Chevalier	Central Suburbs	Whanganui	Not in Auckland
Mangere	South Auckland	Point England	East Auckland	Whangaparaoa	Not in Auckland
Mangere Bridge	South Auckland	Pollok	South Auckland		
Manukau	South Auckland				