

ANCCG Meeting

Monitoring Period

May 2018 – July 2018

Meeting: 4 September 2018



Flight

Aircraft Operations

Figure 1: Number of Aircraft Operations per Month

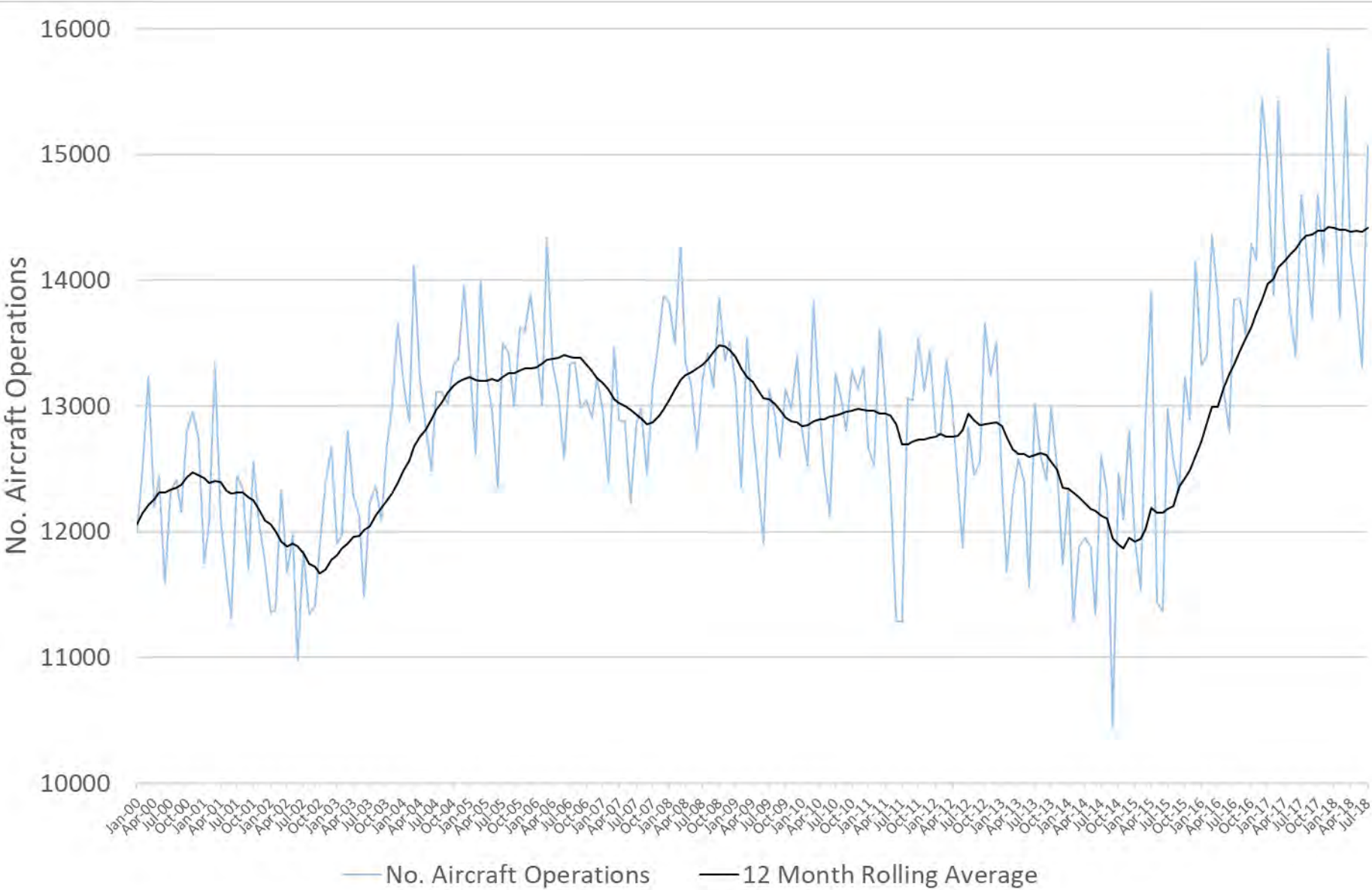


Table 1: Summary of Aircraft Operations

Operation	Total	Day	Night
Arrivals	21,266	18,271	2,995
Departures	20,901	19,071	1,830
Circuit	62	60	2
Total	42,229	37,402	4,827

Table 2: Average Daily Aircraft Operations

Total	Day	Night
459	407	52

Figure 2: Aircraft Operations by Time

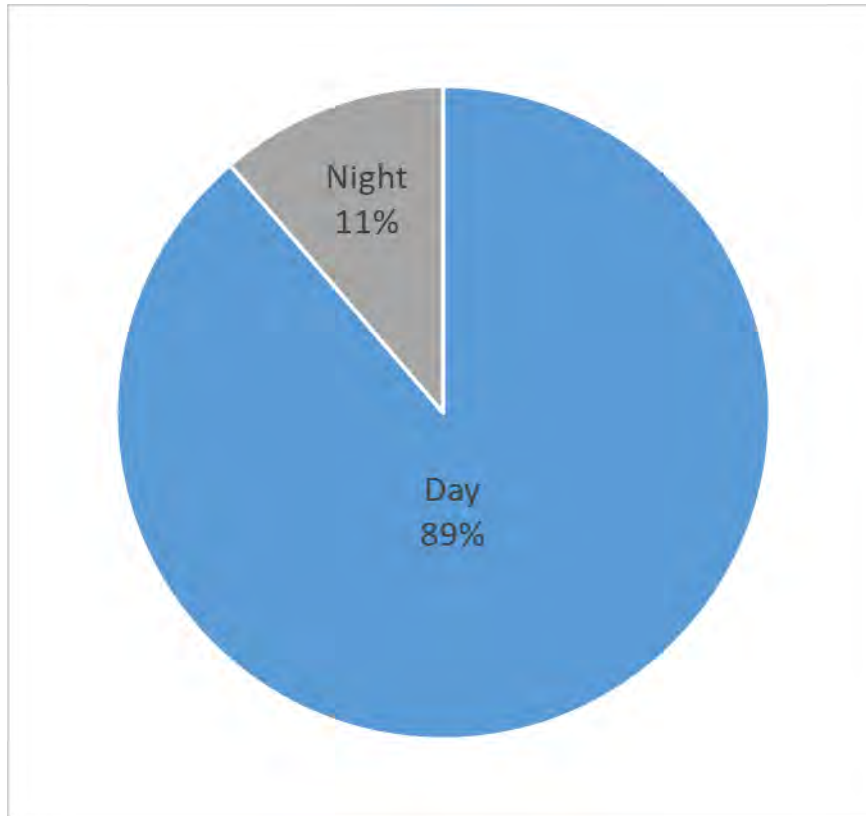


Figure 3: Aircraft Operations by Aircraft Type

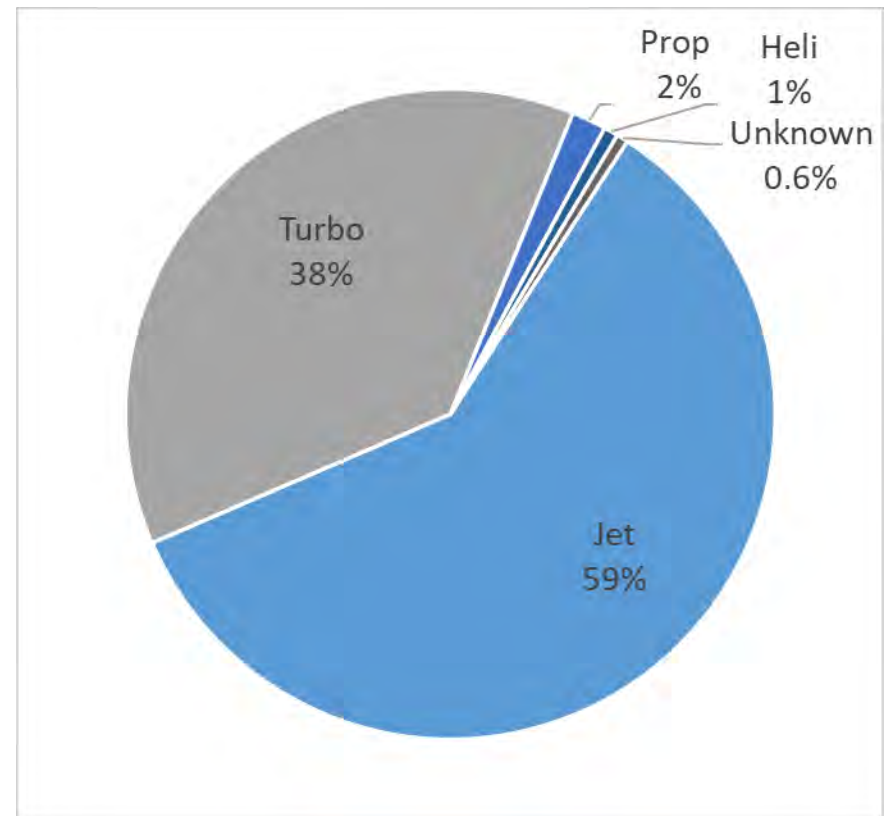


Figure 4: Aircraft Operations by Runway

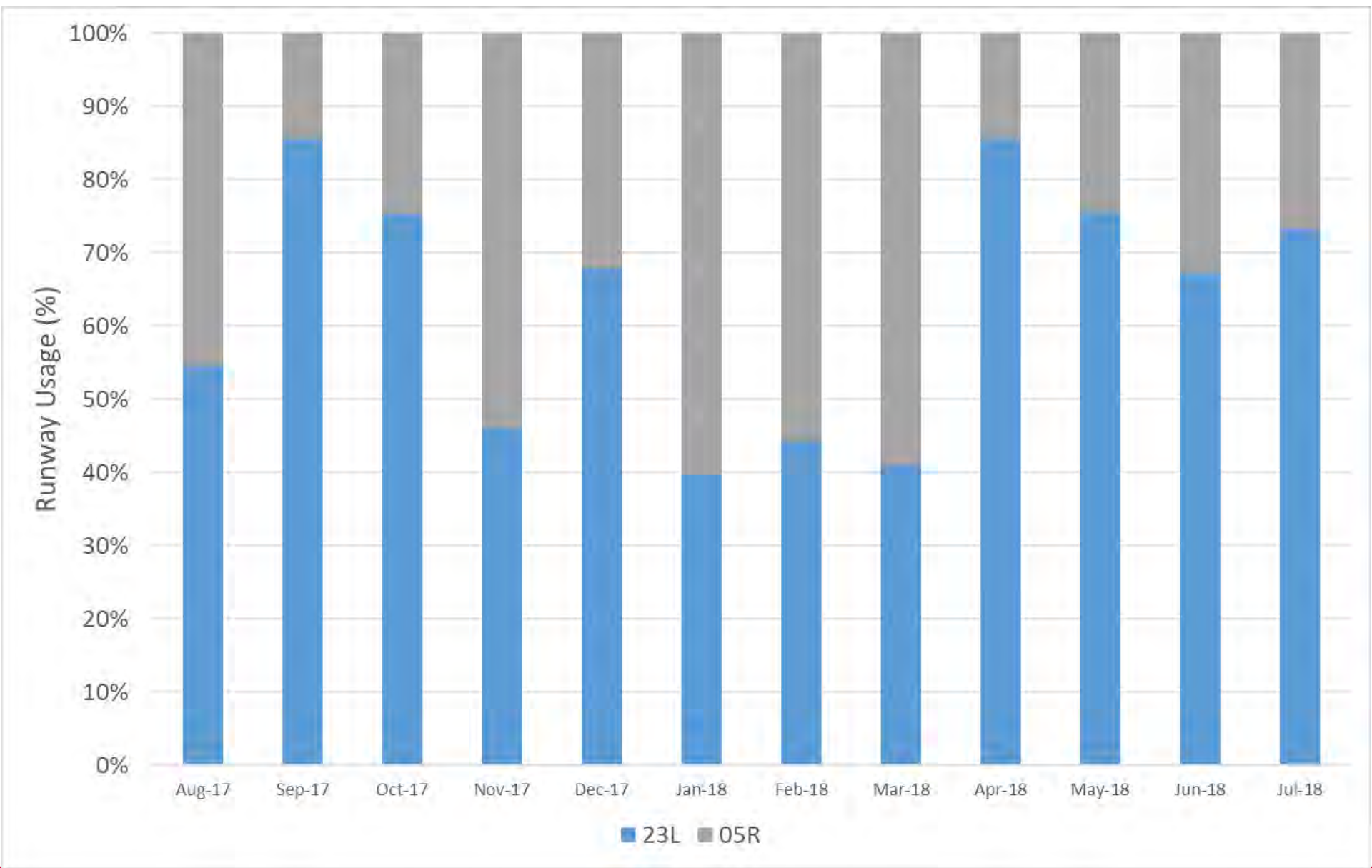
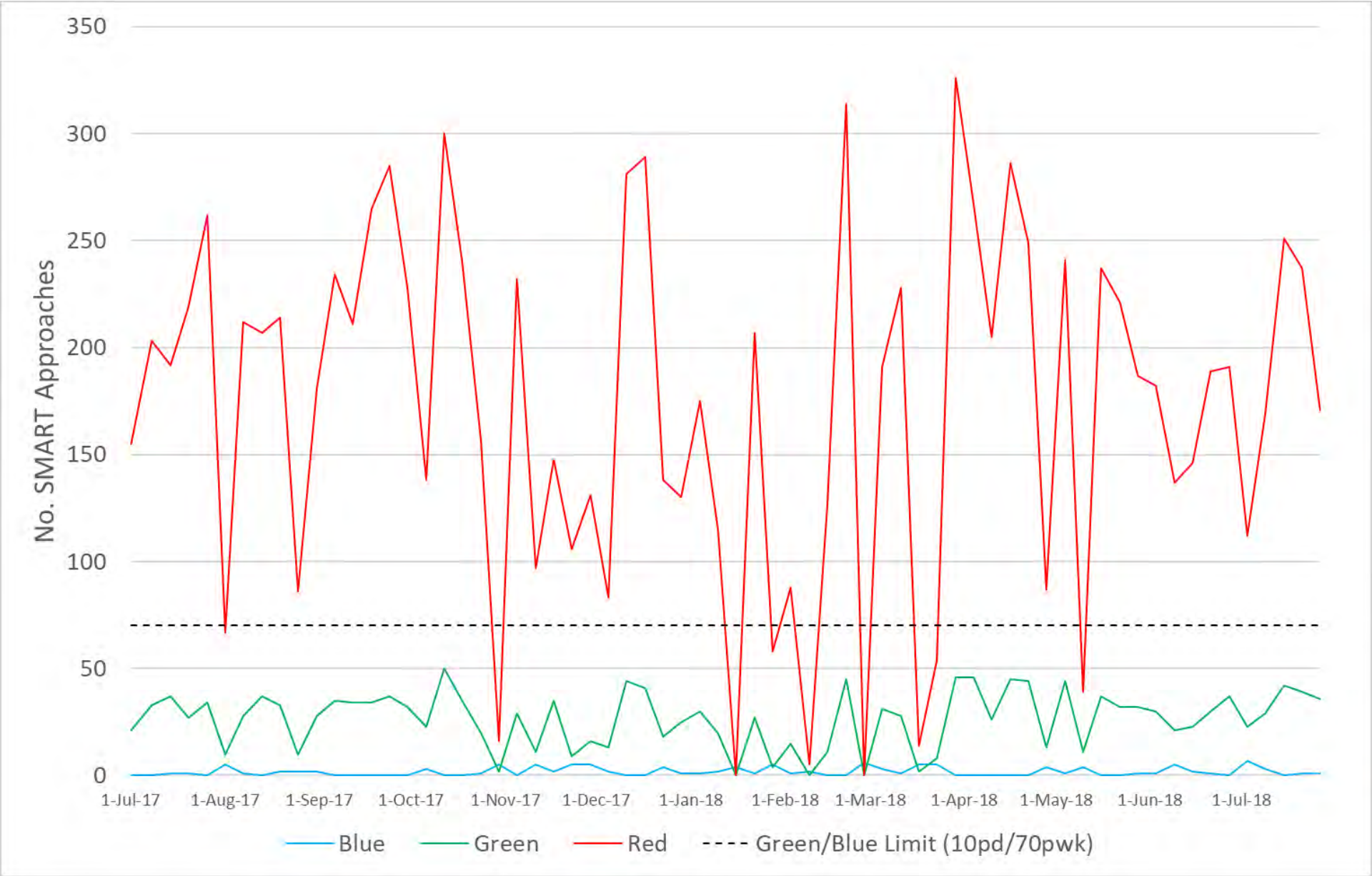


Figure 5: Number of SMART Approaches per week





Flight Path Diagrams

Figure 6: Flight Paths for a Busy Runway 23L Day (7am-10pm)
100% Westerly Winds/Runway 23L

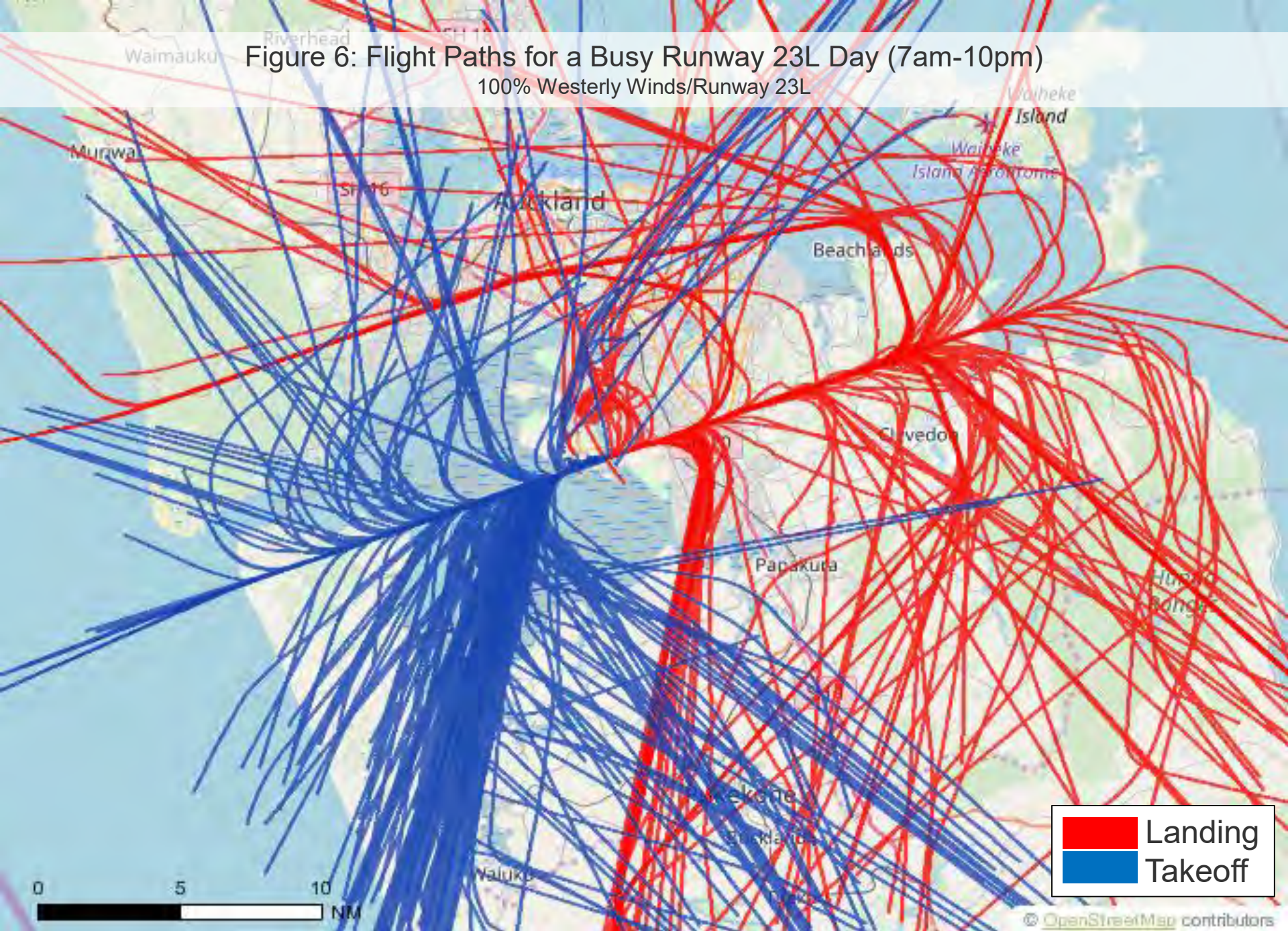


Figure 7: Flight Paths for a Busy Runway 23L Night (10pm-7am)

100% Westerly Winds/Runway 23L

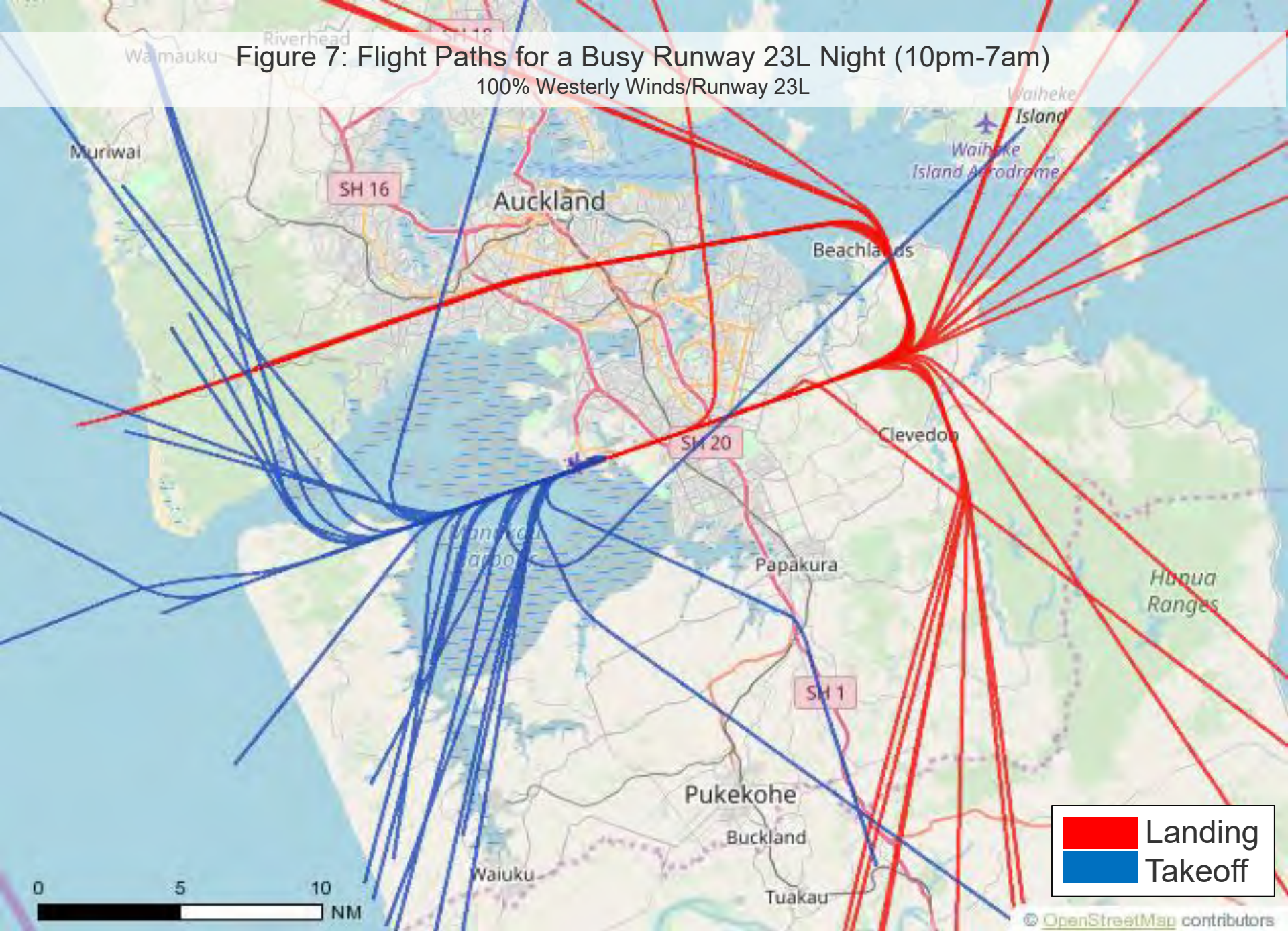


Figure 8: Flight Paths for a Busy Runway 05R Day (7am-10pm)

97% Easterly Winds/Runway 05R

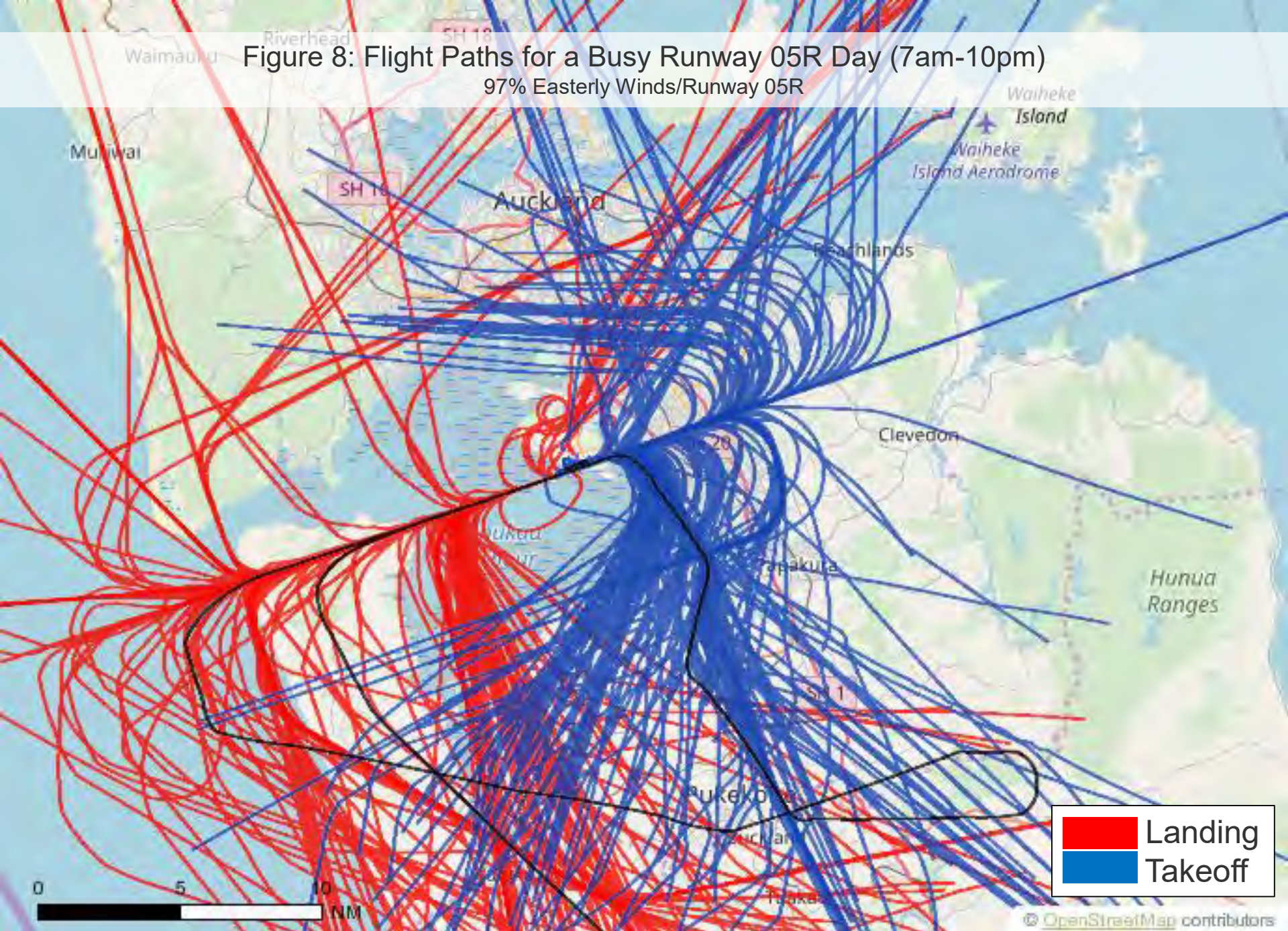
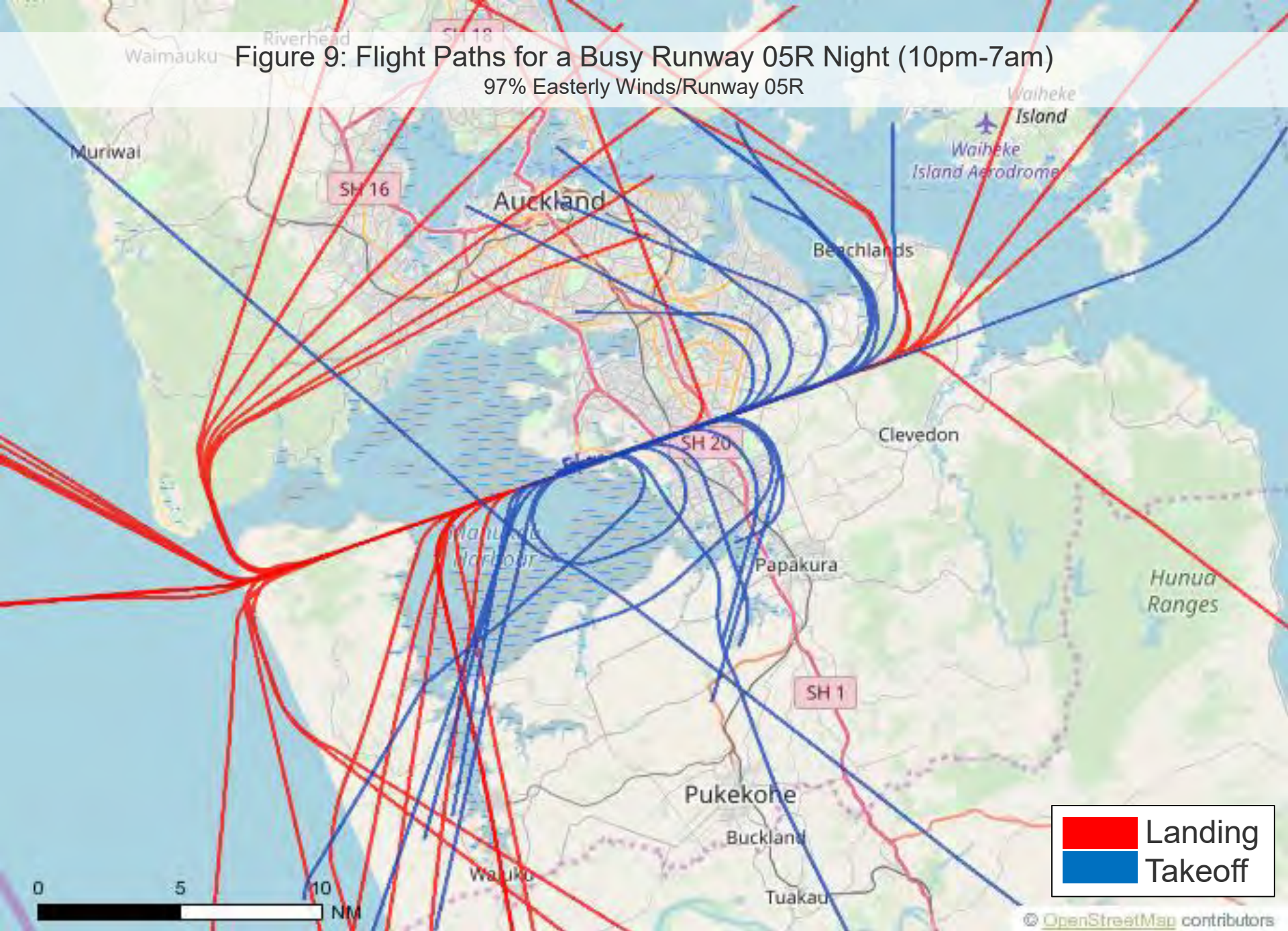


Figure 9: Flight Paths for a Busy Runway 05R Night (10pm-7am)

97% Easterly Winds/Runway 05R



Noise Complaints



Figure 10: Number of Aircraft Noise Complaints per Month

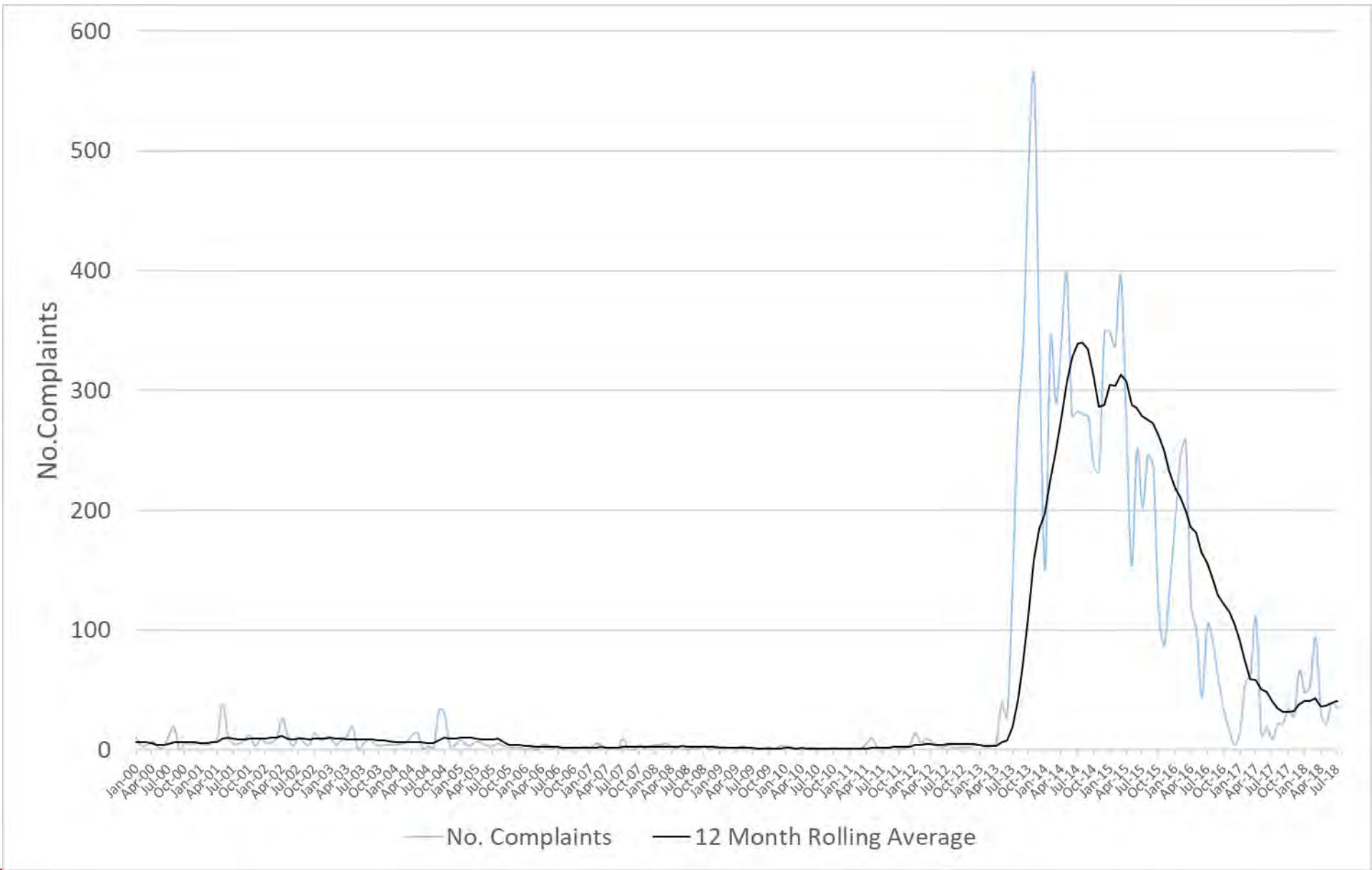


Table 3: Summary of Noise Complaints

	Total	May	June	July
Number of Complaints	95	22	39	34
<i>Specific</i>	52	13	19	20
<i>Generic</i>	40	7	19	14
<i>Question</i>	3	2	1	0
Number of People Complaining	44	13	20	18

Note: Two people made 29% (28) of the total number of noise complaints for the three month period. These people were located in Greenlane and Titirangi.

Figure 11: Map of Noise Complaints

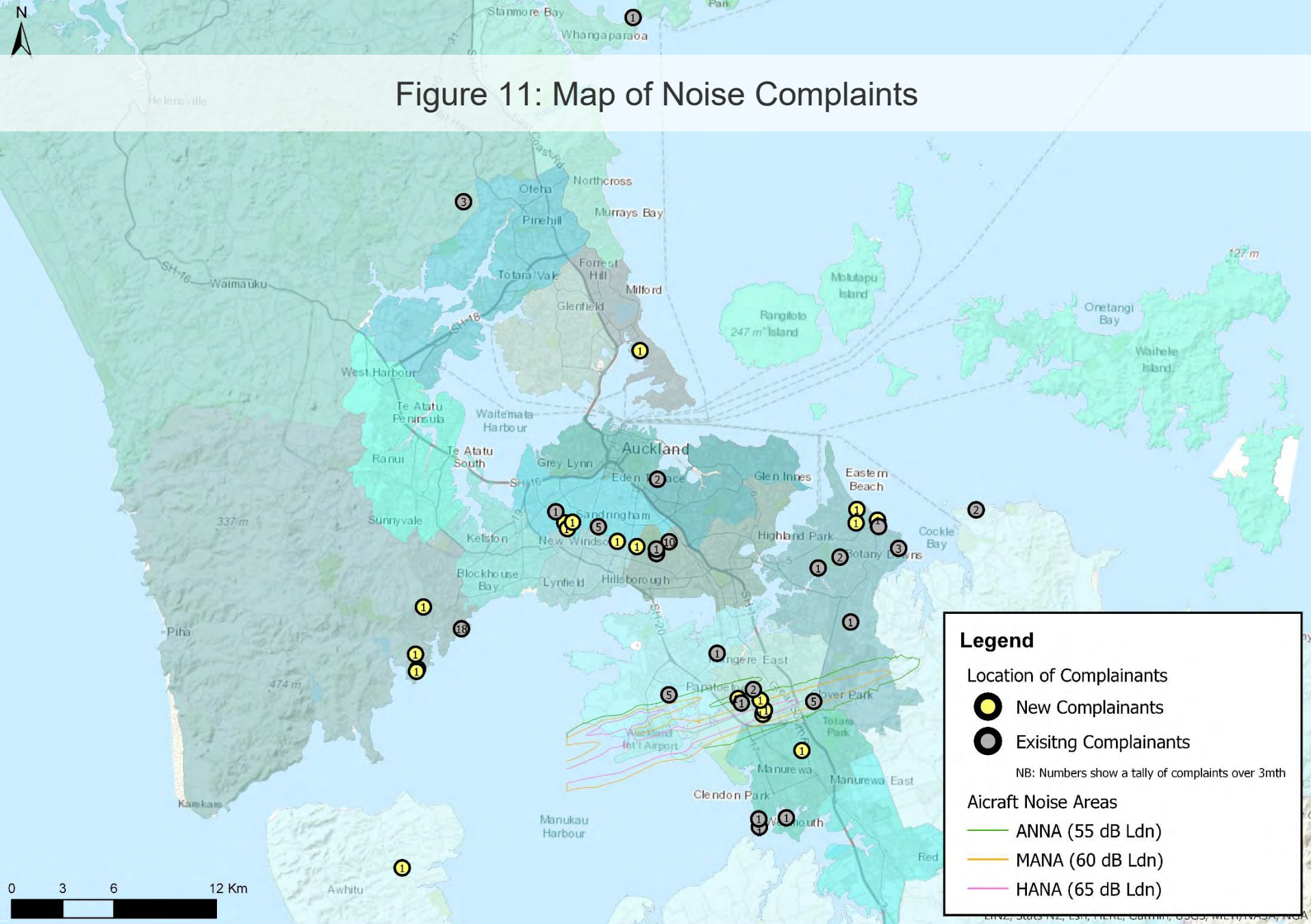


Figure 12: Number of Noise Complaints by Area

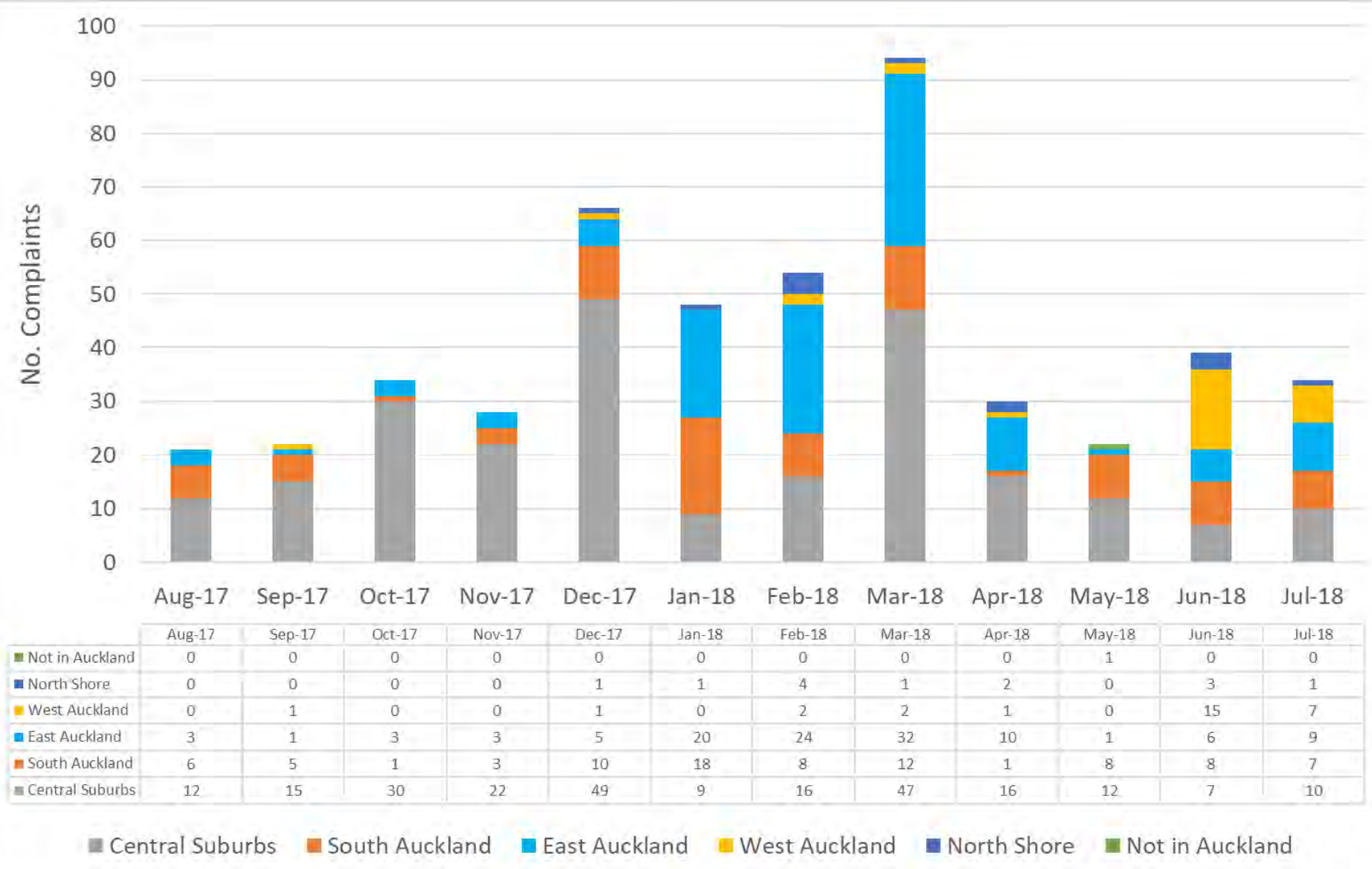


Figure 13: Noise Complaints by Time

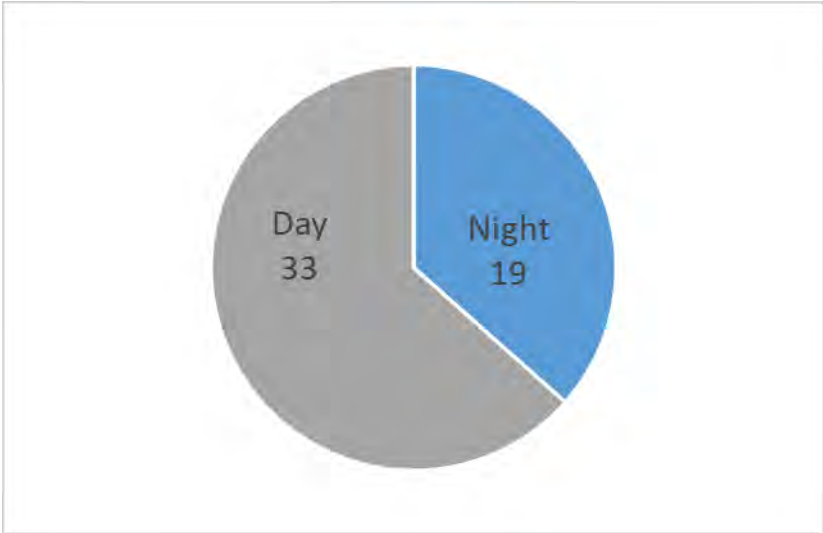


Figure 14: Noise Complaints by Runway

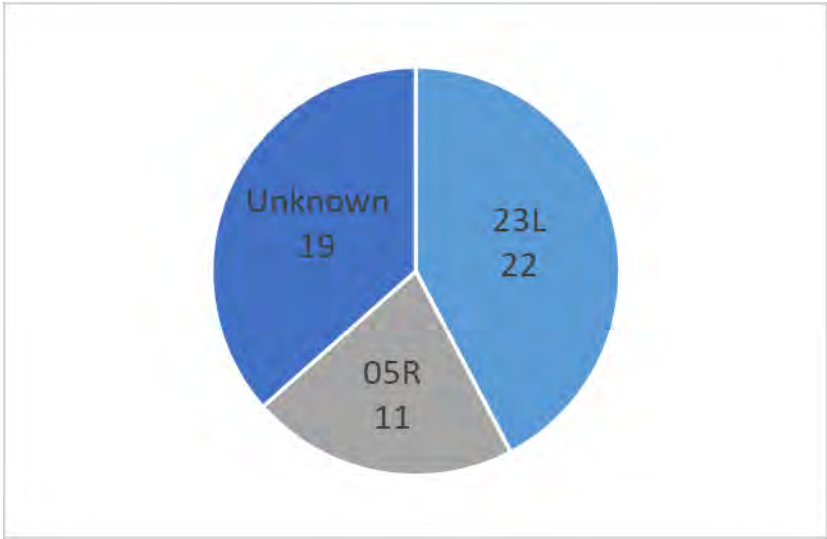


Figure 15: Noise Complaints by Aircraft

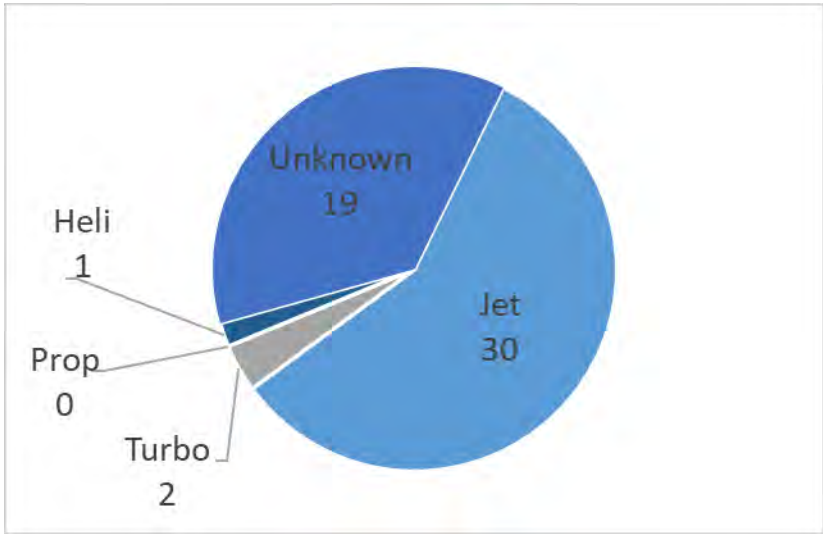


Figure 16: Noise Complaints by Operation

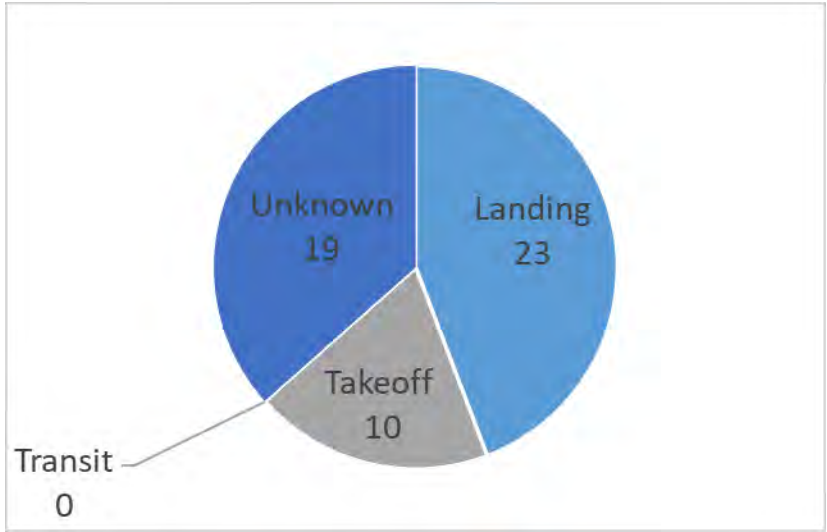


Figure 17: Noise Complaints by Destination

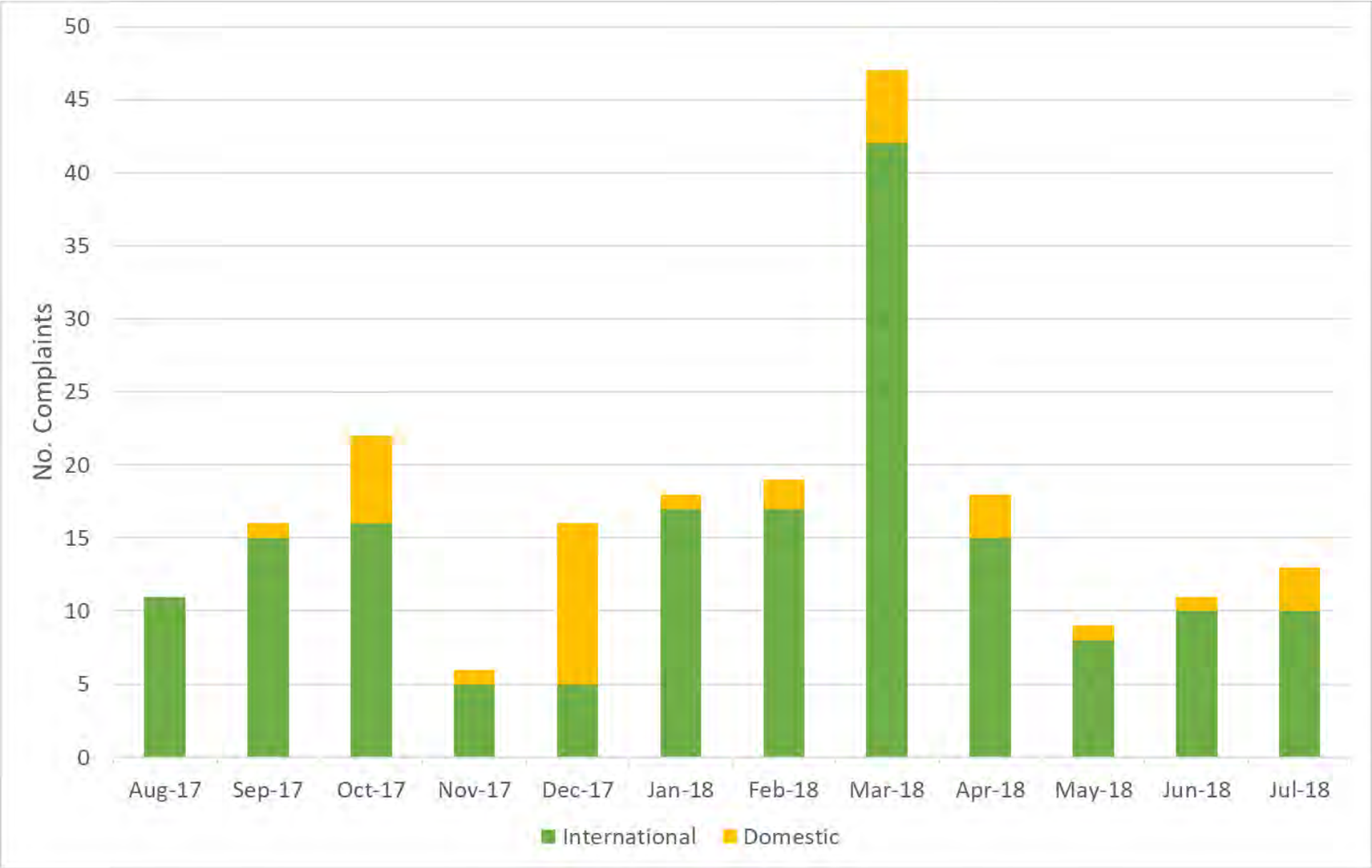


Figure 18: Noise Complaints vs Usage of Runway 05R

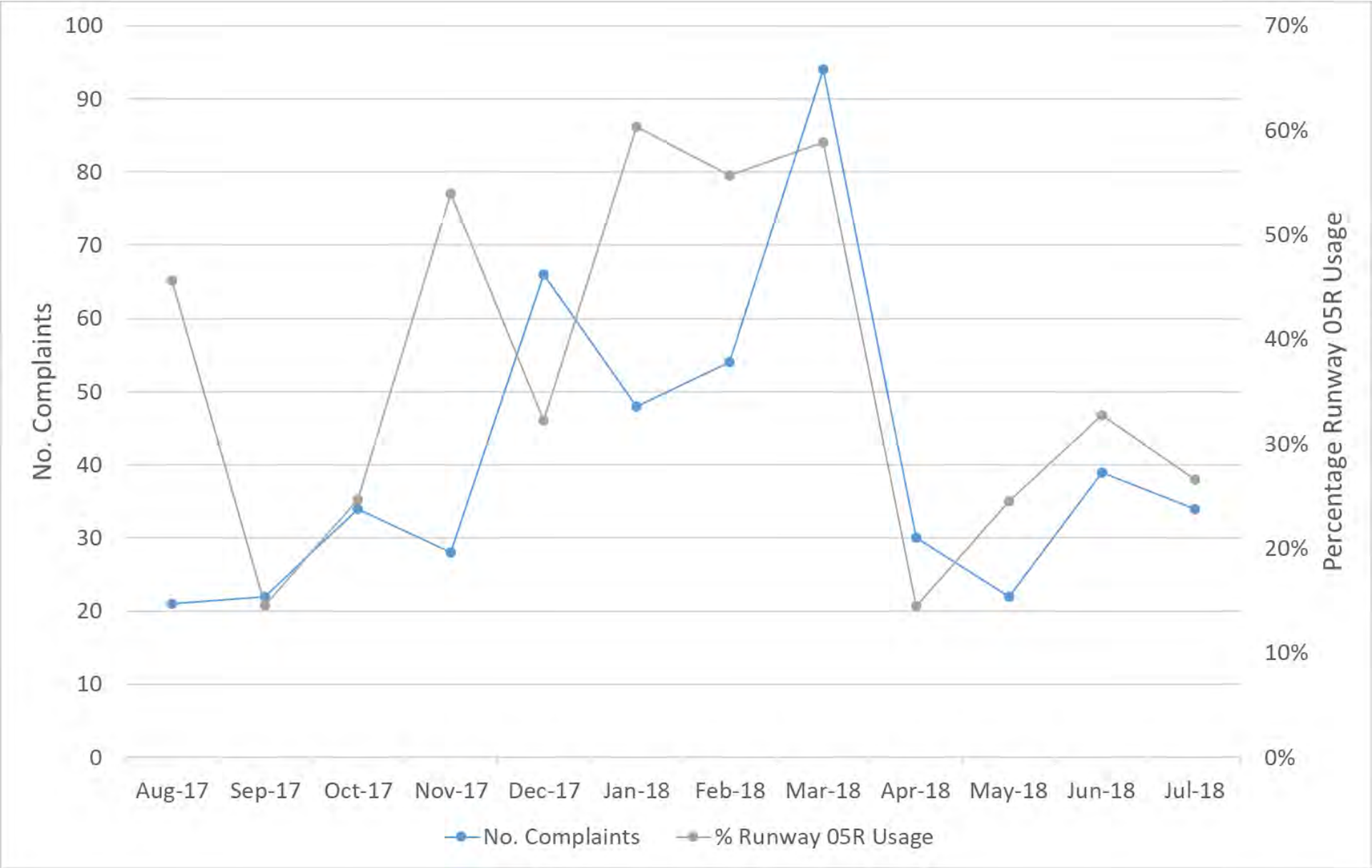


Figure 19: Noise Complaints by Hour vs Aircraft Operations by Hour

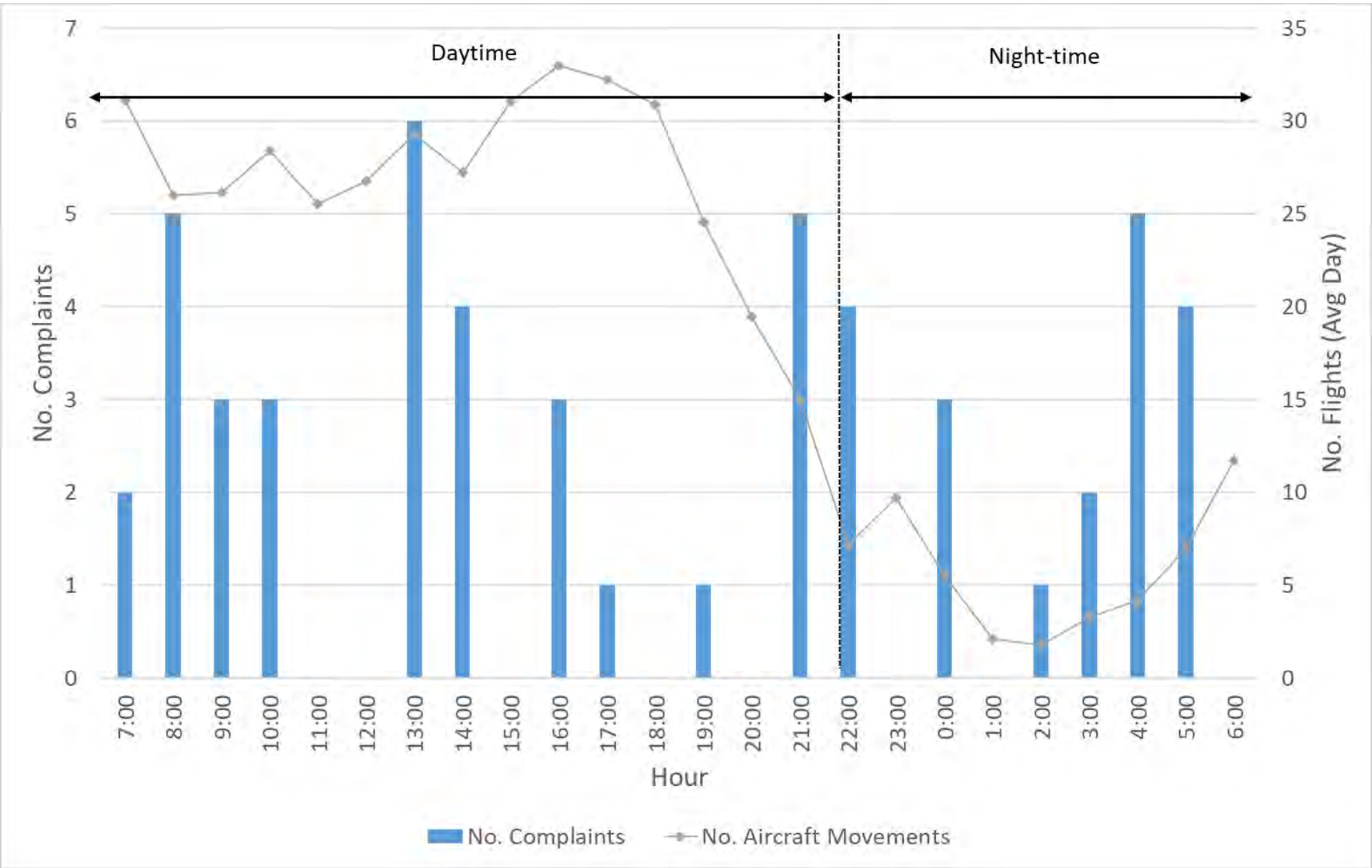


Figure 20: Noise Complaints by Type

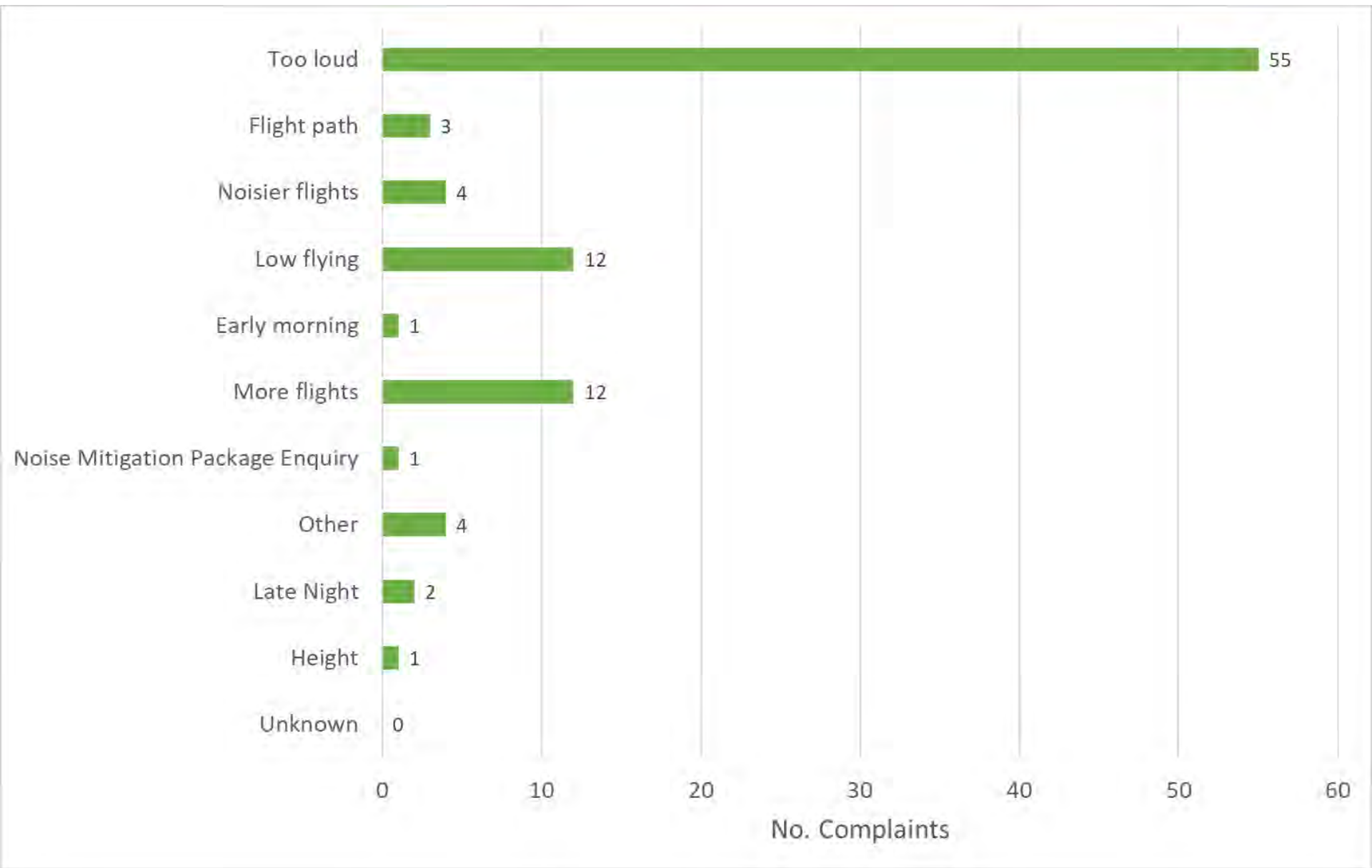


Figure 21: Specific Aircraft Identified in Noise Complaints

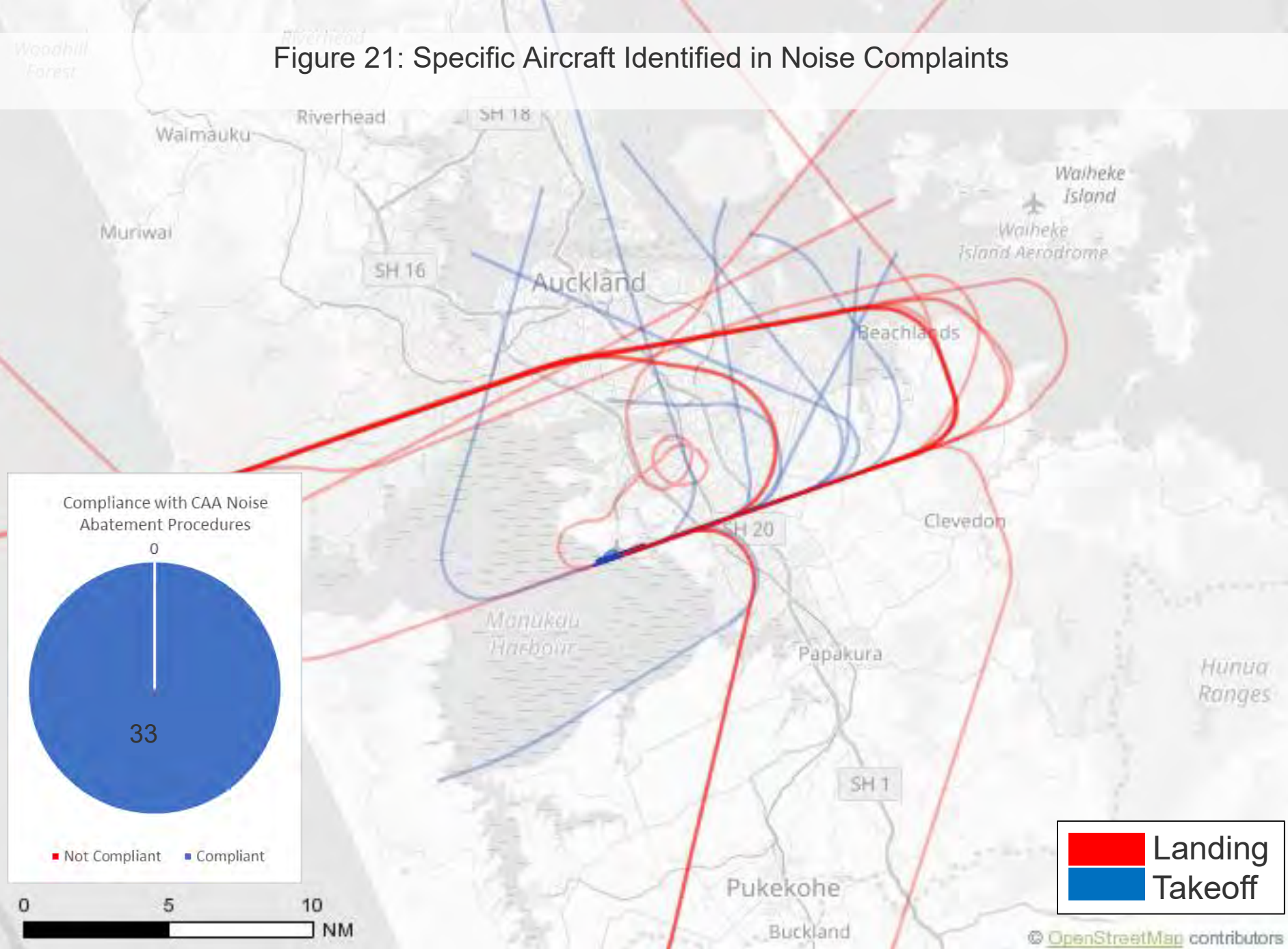
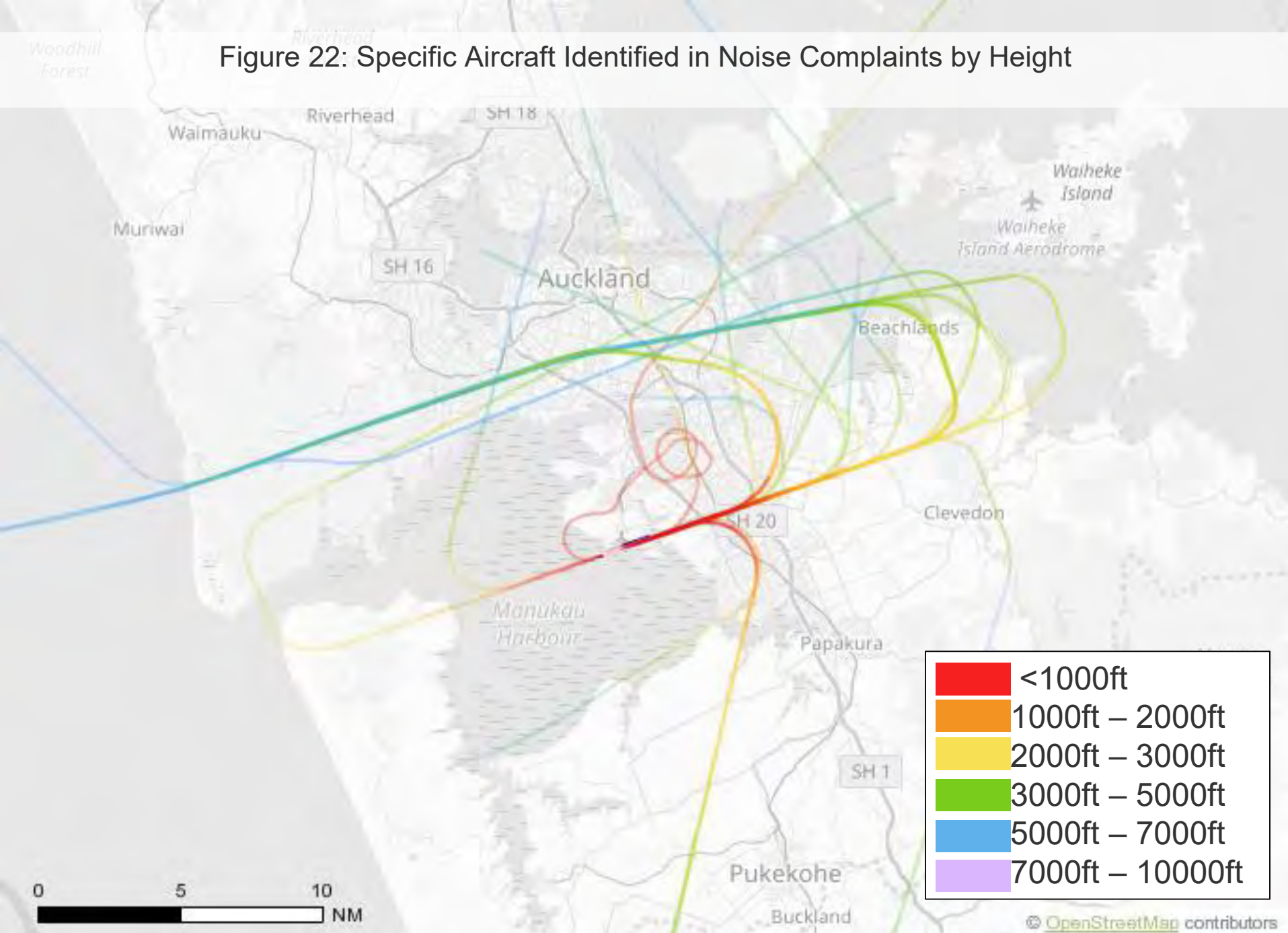


Figure 22: Specific Aircraft Identified in Noise Complaints by Height





Noise Monitoring

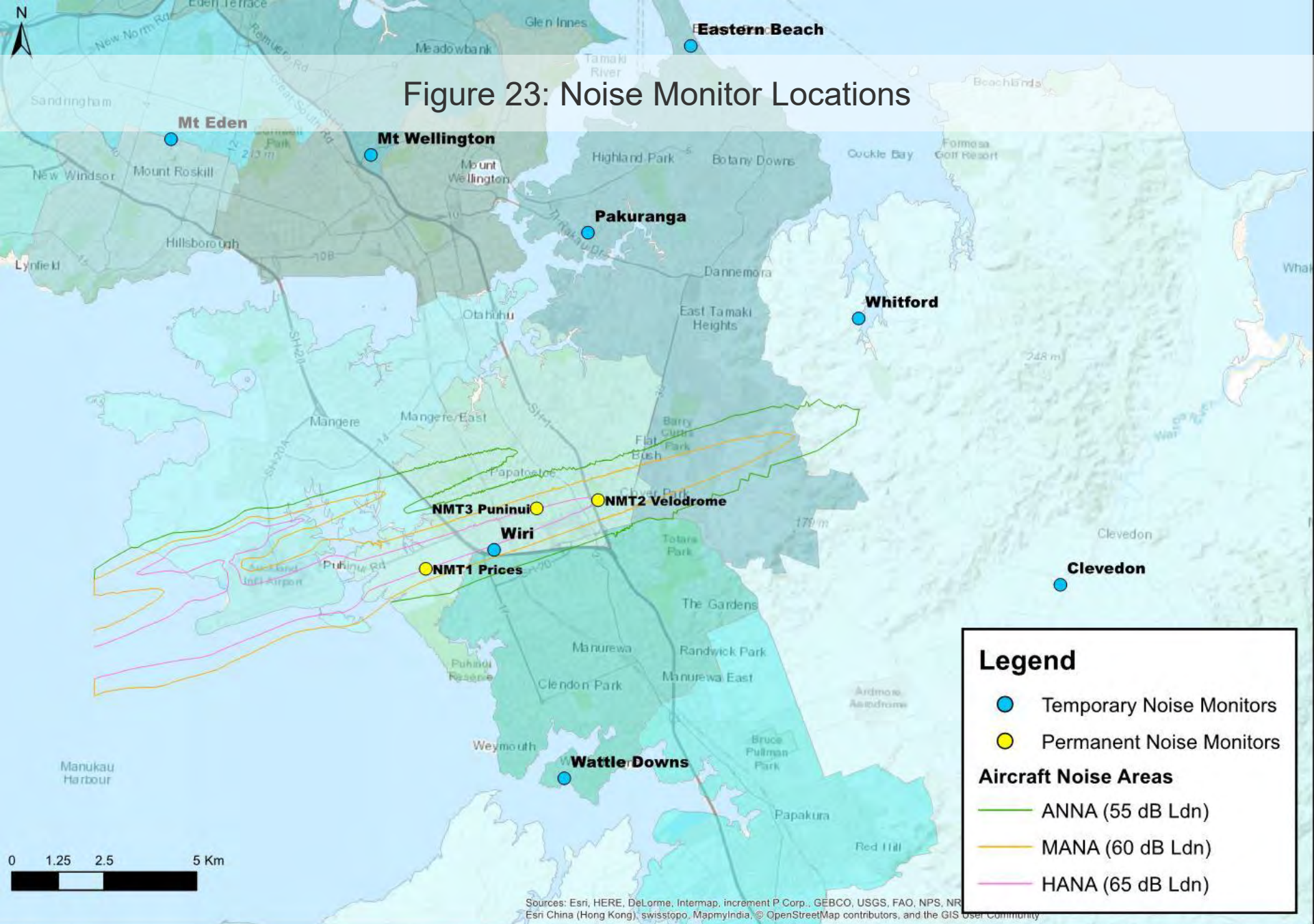


Figure 24: Measured 365 Day Rolling Noise Exposure (L_{dn}) – Permanent Monitors

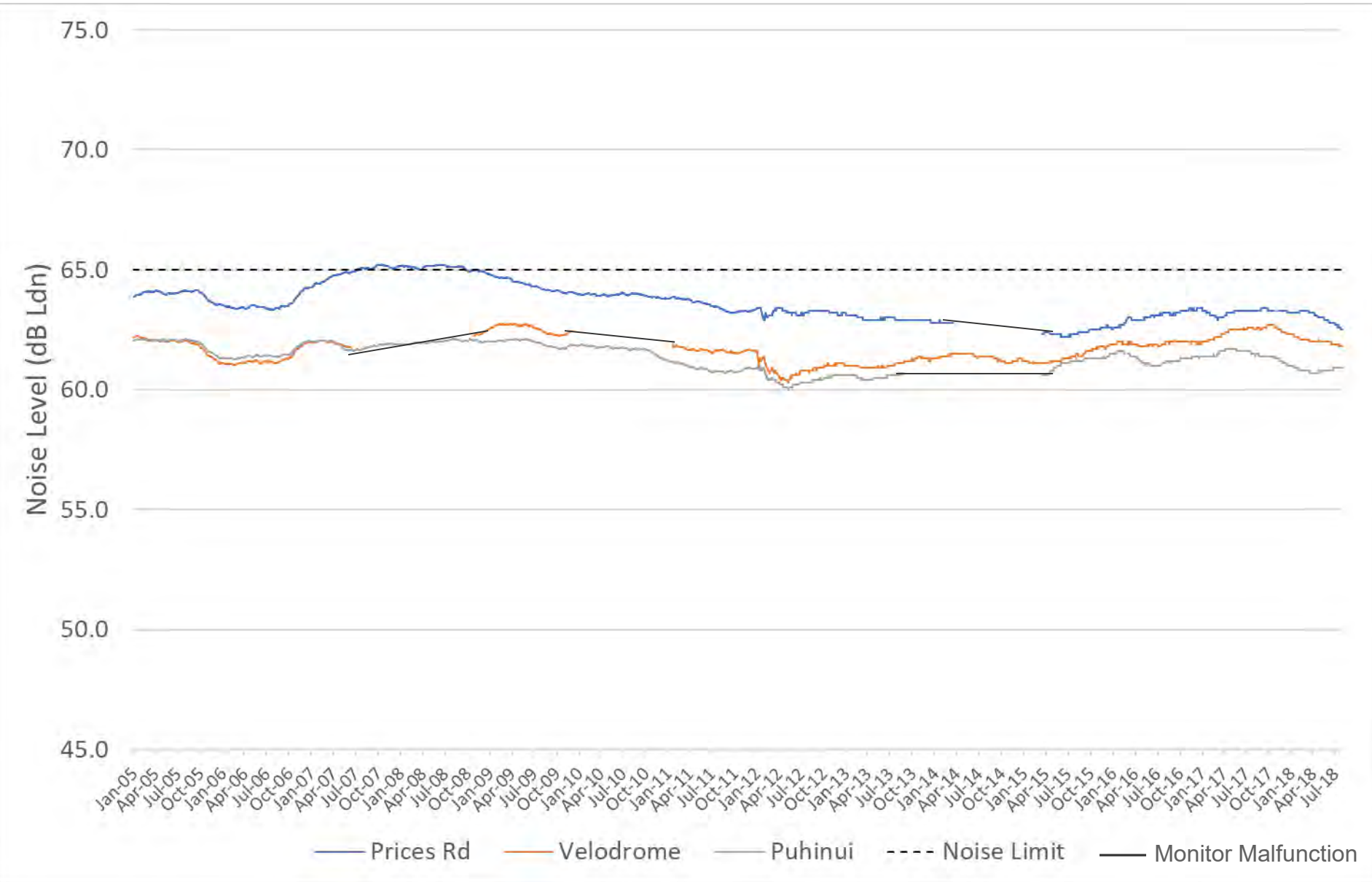


Figure 25: Number of Aircraft Noise Events in Each Noise Band - Permanent Monitors
(L_{Amax} – Maximum Noise Level)

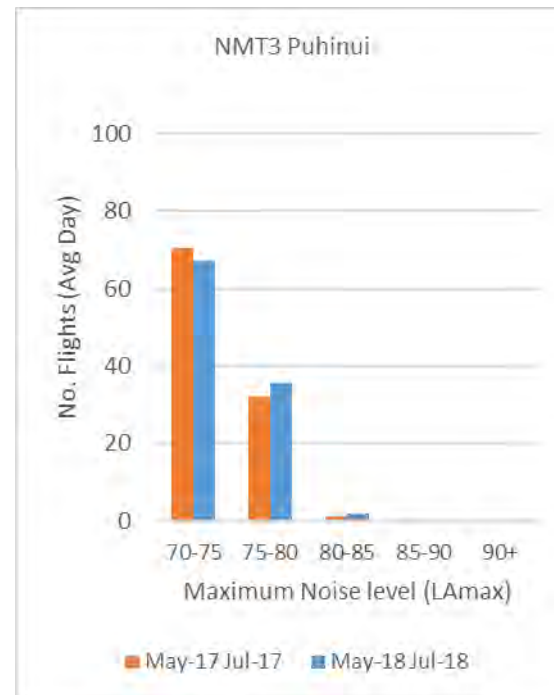
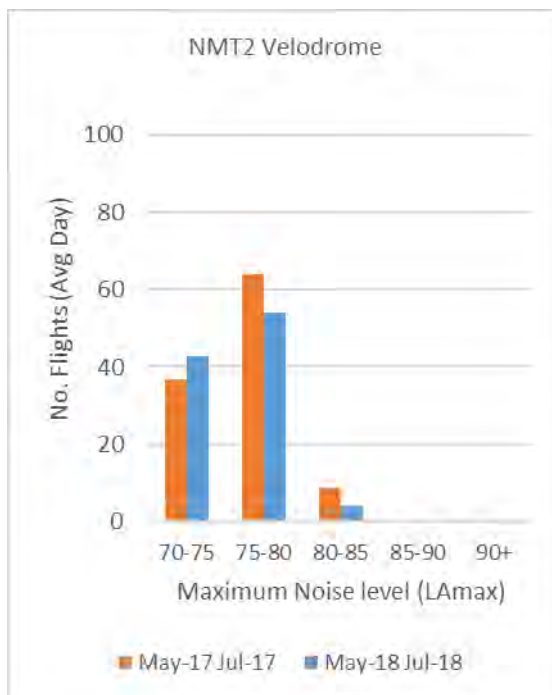
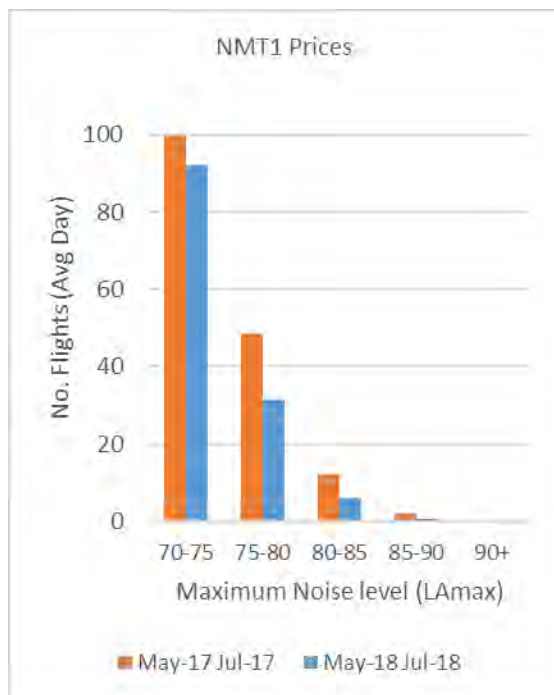


Table 4: Correlation of Aircraft Operations with Noise Events – Permanent Monitors

	NMT1 Prices	NMT2 Velodrome	NMT3 Puhinui
No. Aircraft Operations	19,810	12,898	14,044
No. Noise Events	17,379	9,469	13,130
Correlation	88%	73%	93%

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	1217	41	62
Pakuranga	9-Apr-15	1209	41	66
Mt Wellington	17-Apr-15	1201	41	65
Whitford	10-Jun-15	1147	41	60
Eastern Beach	11-Jun-15	1146	43	61
Wiri	2-May-17	455	61	76
Wattle Downs	23-Dec-17	220	48	67
Clevedon	9-Mar-18	142	40	63

Figure 26: Measured Monthly Noise Exposure (L_{dn}) – Central Suburbs Temporary Monitors

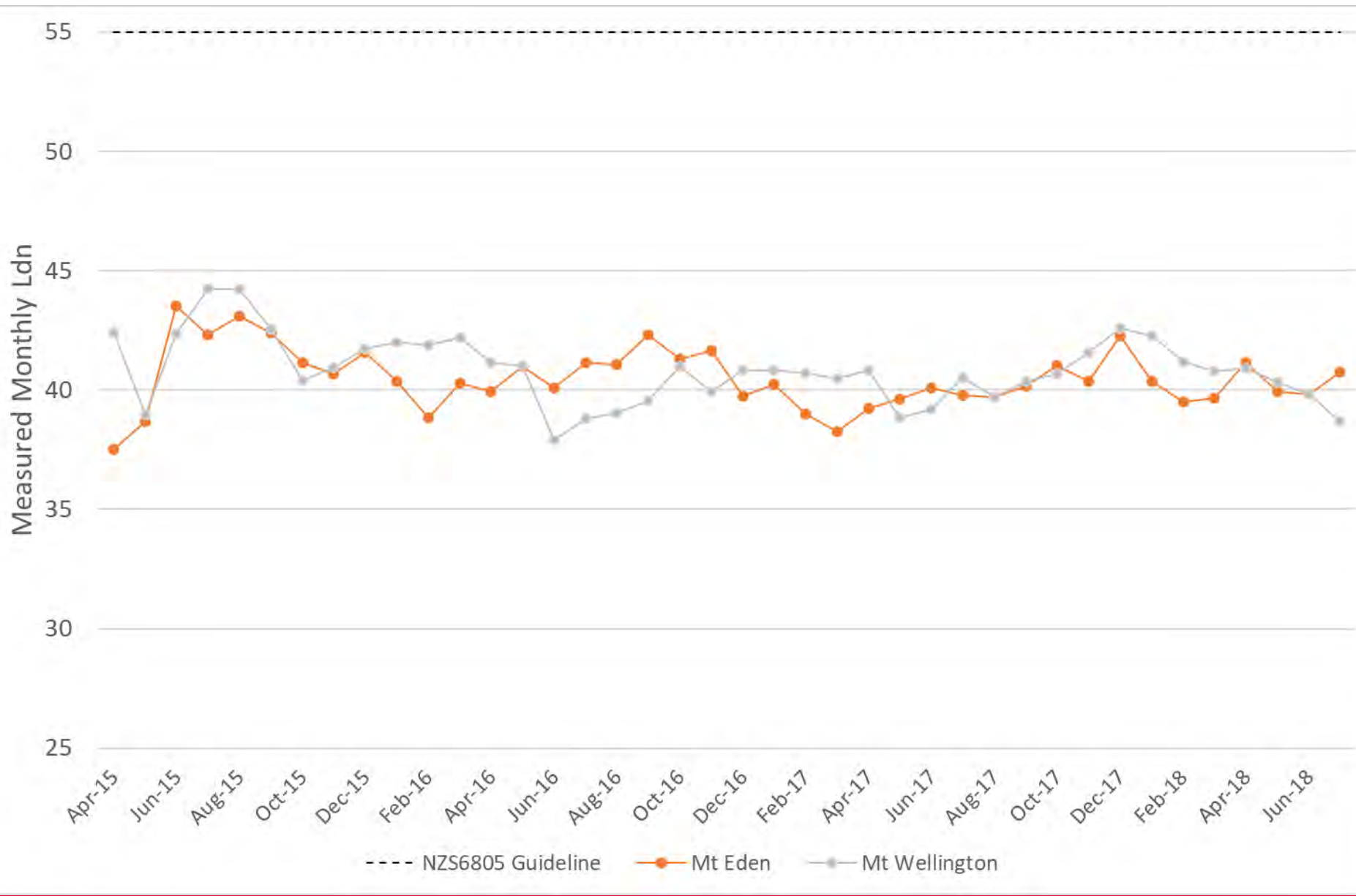


Figure 27: Measured Monthly Noise Exposure (L_{dn}) – Eastern Suburbs Temporary Monitors

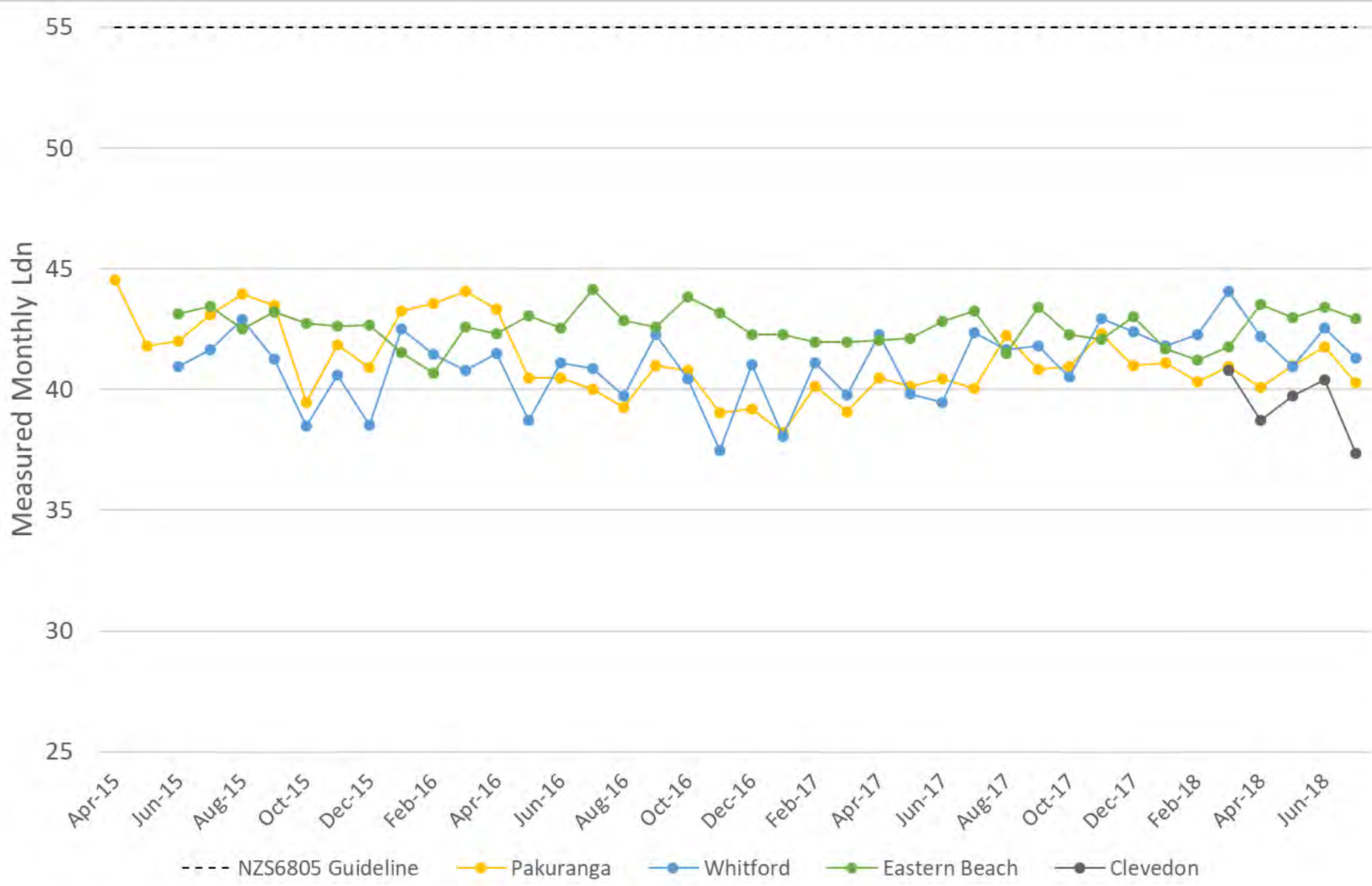


Figure 28: Measured Monthly Noise Exposure (L_{dn}) – Southern Suburbs Temporary Monitors

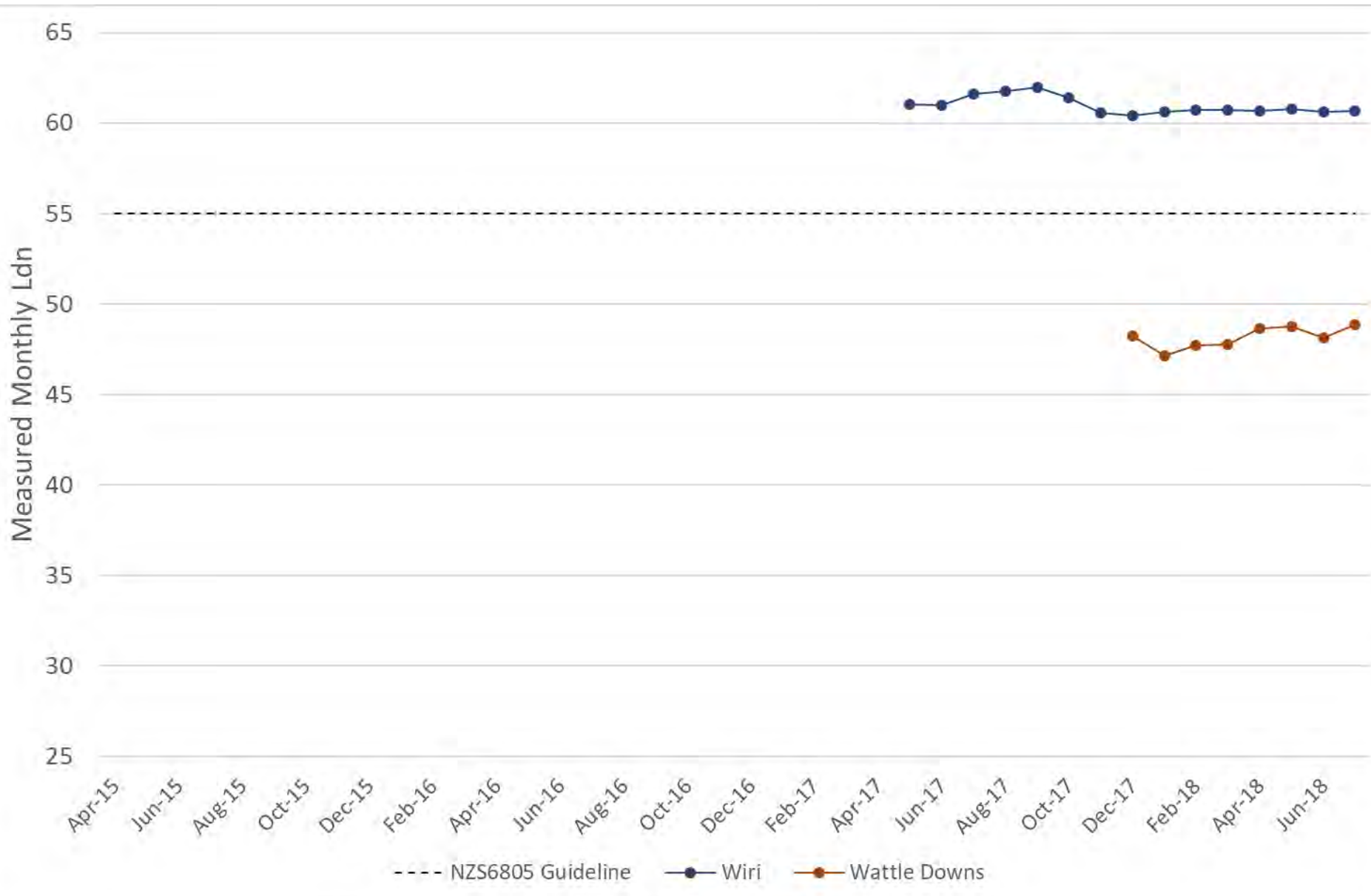


Figure 29: Number of Aircraft Noise Events in Each Noise Band - Central Suburbs Monitors
(L_{Amax} – Maximum Noise Level)

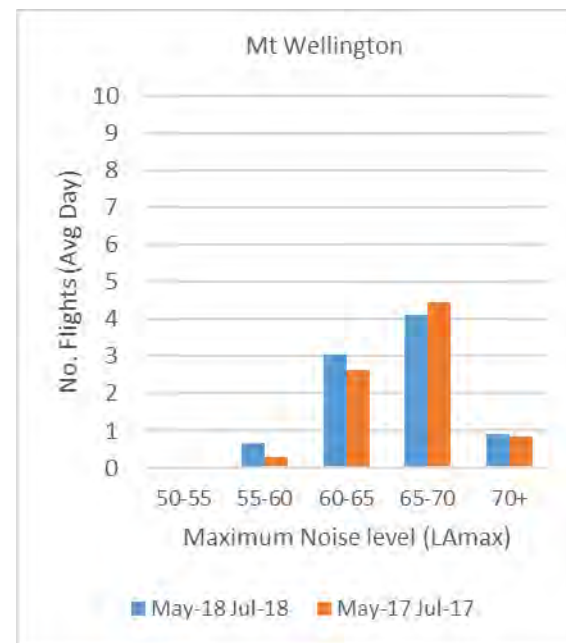
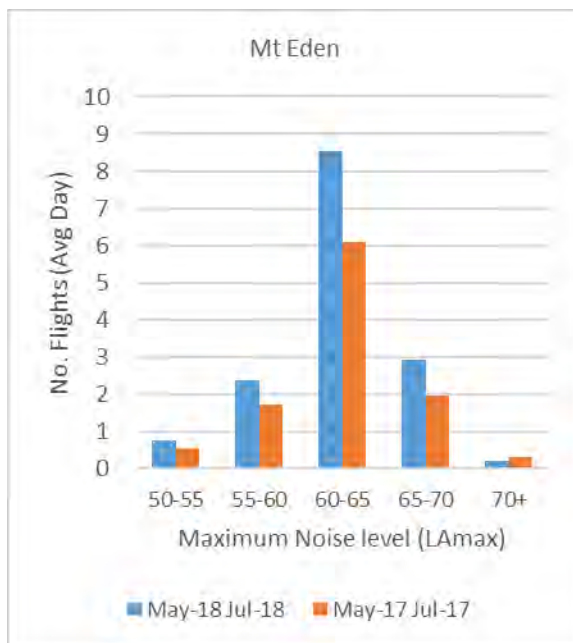


Figure 30: Number of Aircraft Noise Events in Each Noise Band - Eastern Suburbs Monitors
(L_{Amax} – Maximum Noise Level)

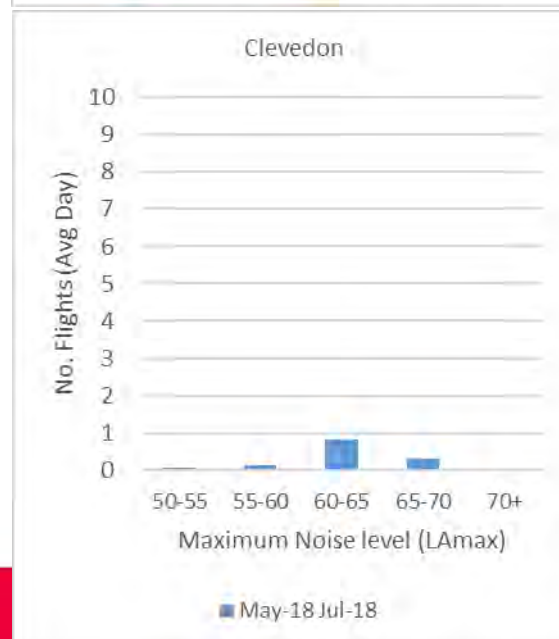
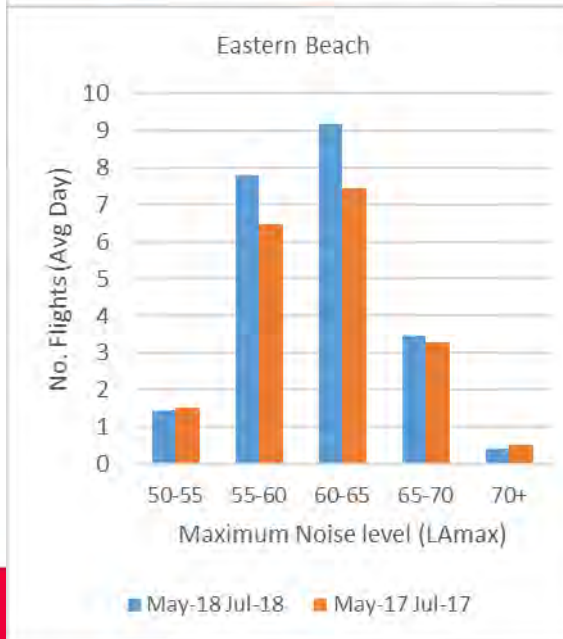
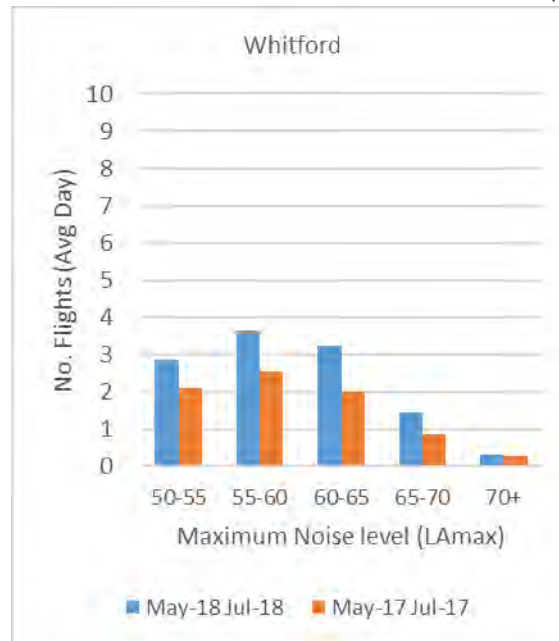
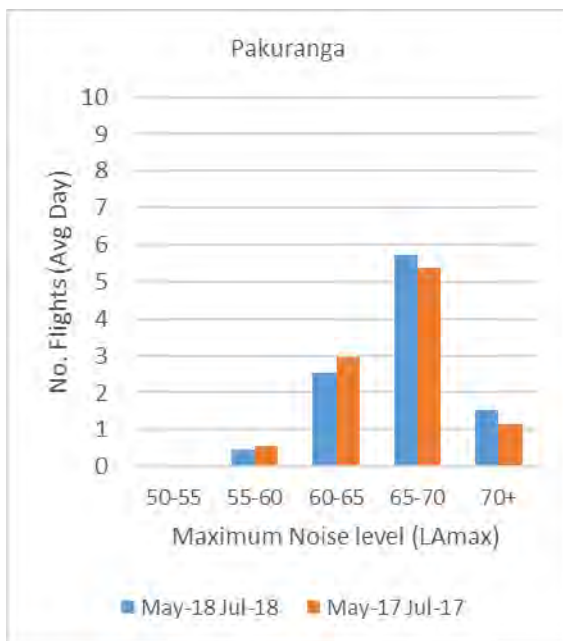
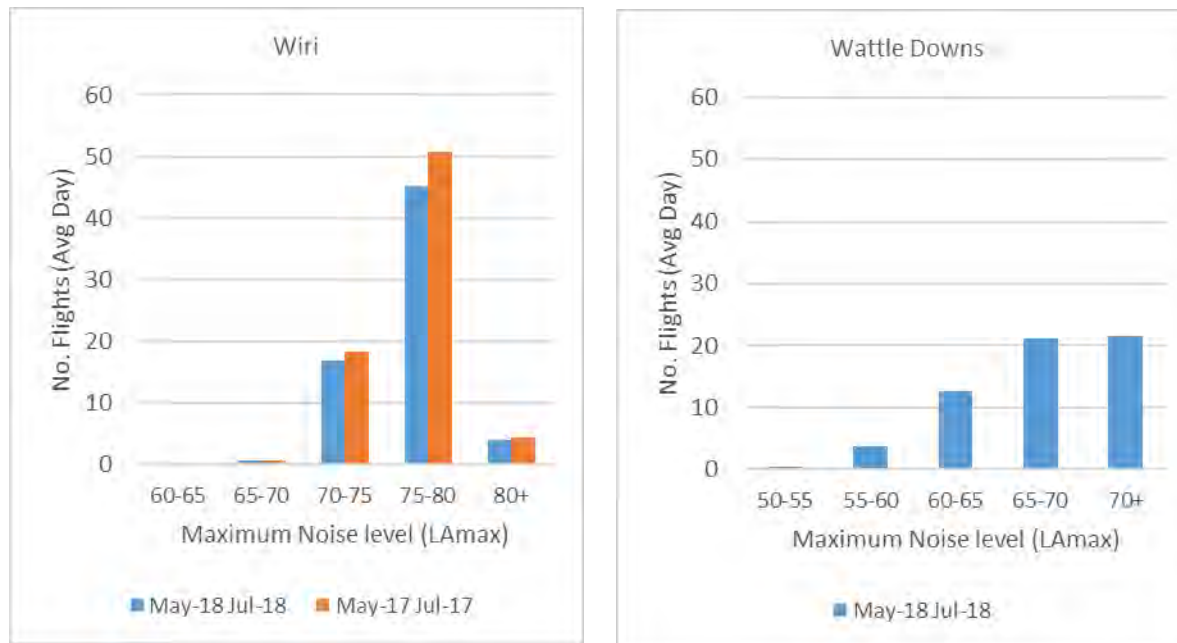


Figure 31: Number of Aircraft Noise Events in Each Noise Band - Southern Suburbs Monitors
(L_{Amax} – Maximum Noise Level)



A close-up, low-angle shot of a jet engine's fan section. The image shows multiple rows of dark, curved fan blades arranged in a circular pattern, radiating from a central hub. The lighting is dramatic, with strong highlights on the edges of the blades and the central hub, while the interior of the engine is in deep shadow. A semi-transparent grey horizontal band is overlaid across the middle of the image, containing the text "Engine Testing".

Engine Testing

Figure 32: Engine Testing Monitoring Locations

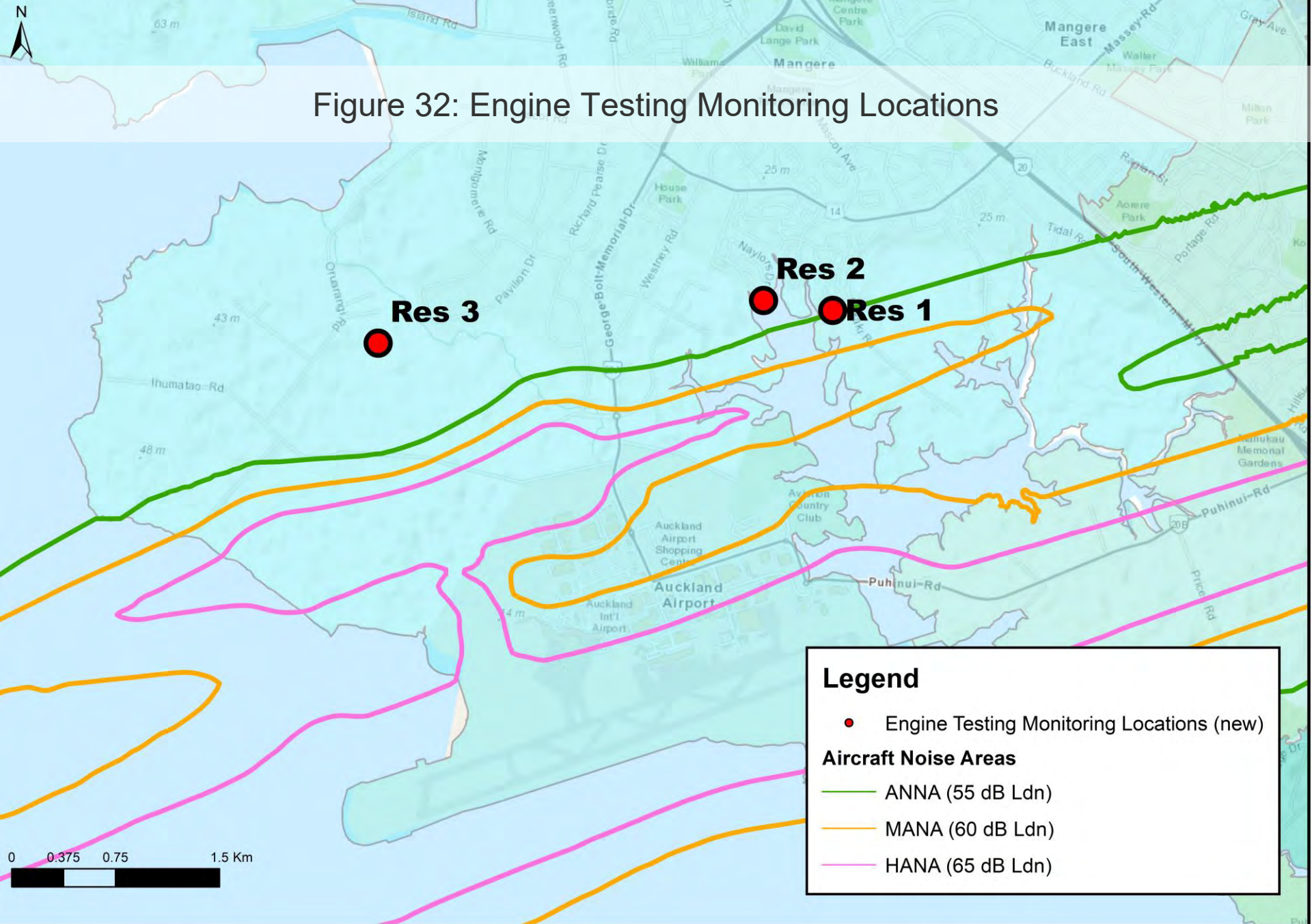
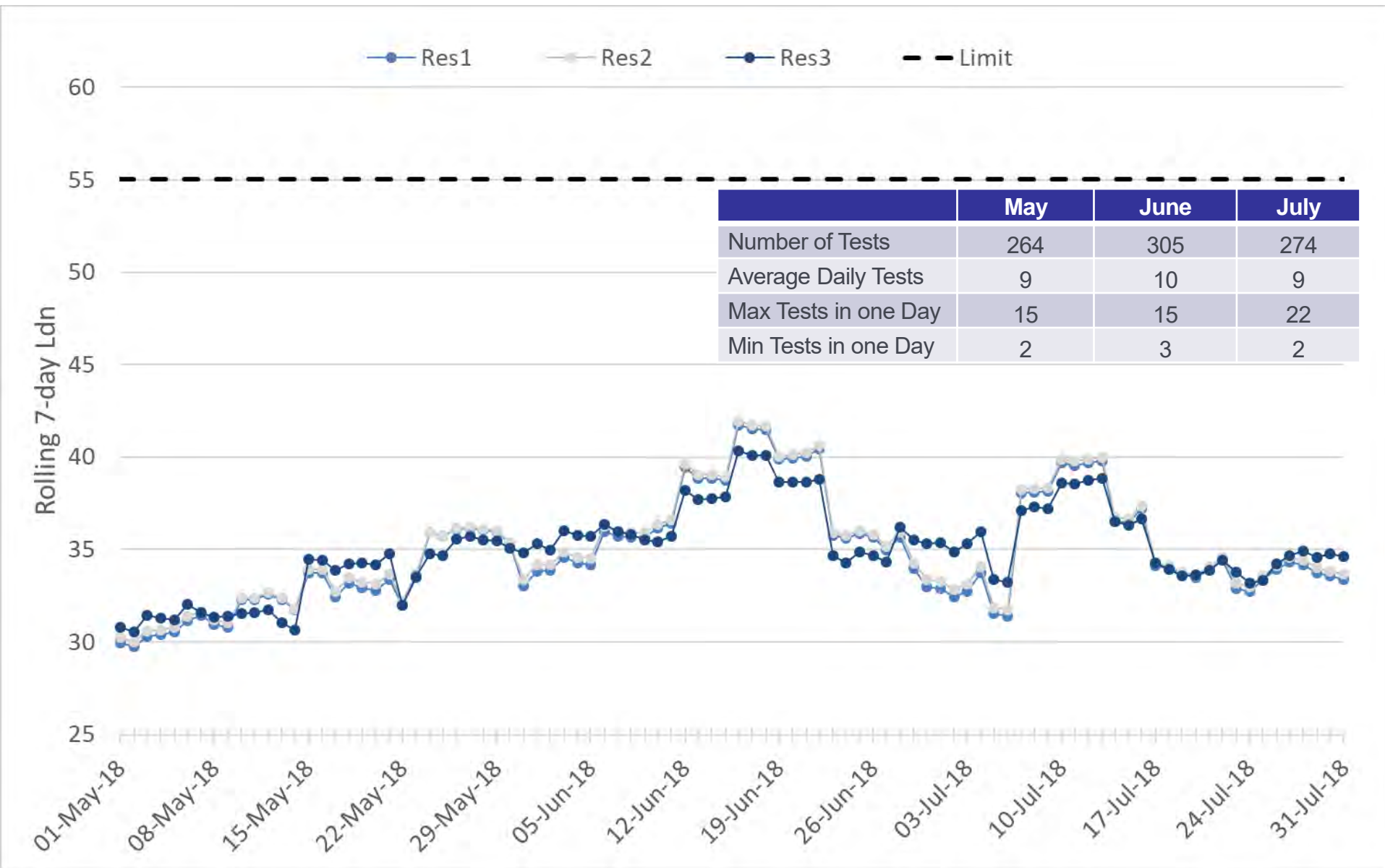


Figure 33: Engine Testing Summary



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>Occurs in Easterly Wind Conditions</div> </div>
	<div> <div> </div> <div> </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				