

ANCCG Meeting

Monitoring Period

February 2019 – April 2019

Meeting: 10 June 2019



Flight

Aircraft Operations

Figure 1: Number of Aircraft Operations per Month

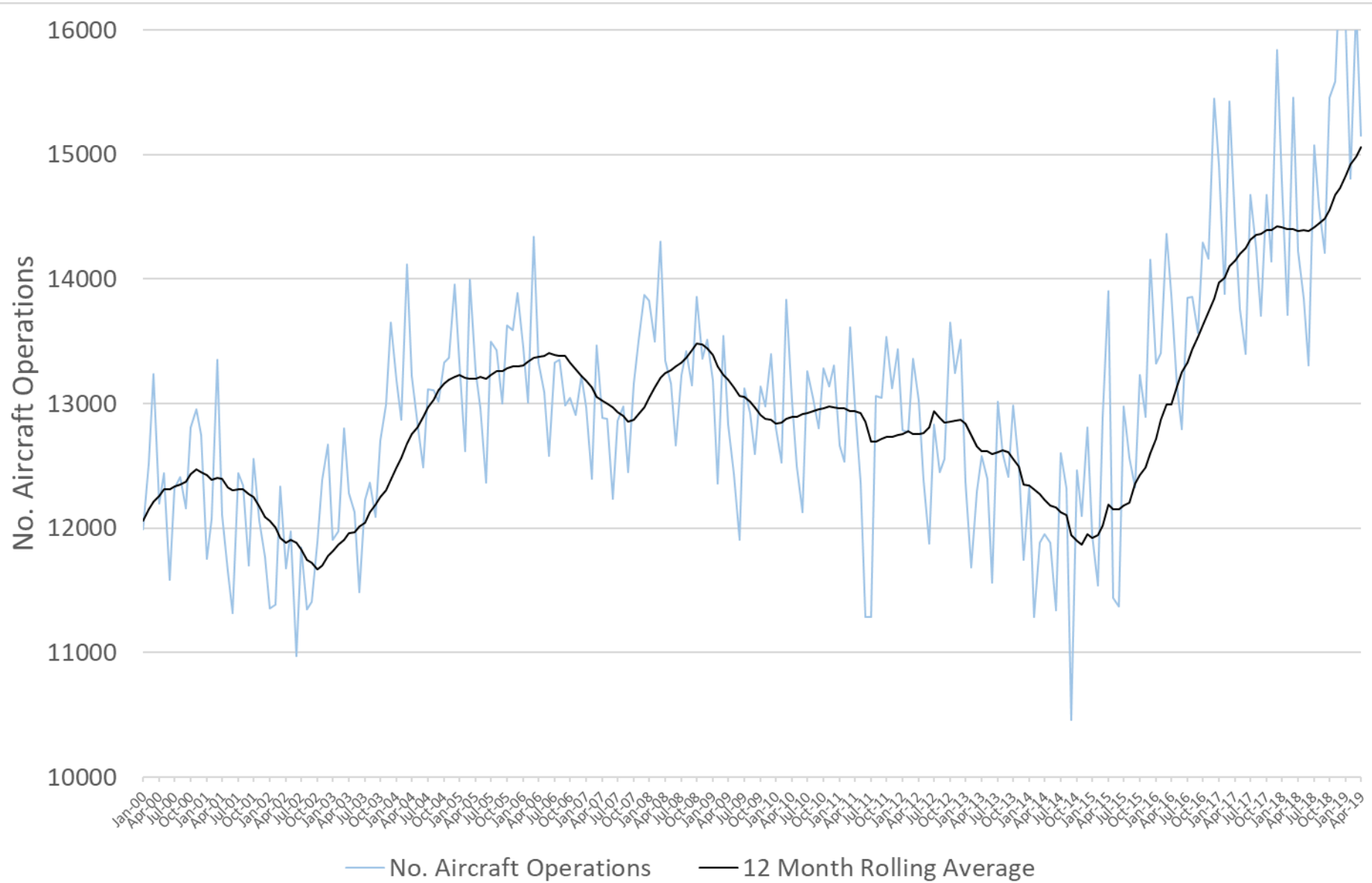


Table 1: Summary of Aircraft Operations

Operation	Total	Day	Night
Arrivals	23,087	20,056	3,031
Departures	22,997	20,983	2,014
Circuit	67	61	6
Total	46,151	41,100	5,051

Table 2: Average Daily Aircraft Operations

Total	Day	Night
519	462	57

Figure 2: Aircraft Operations by Time

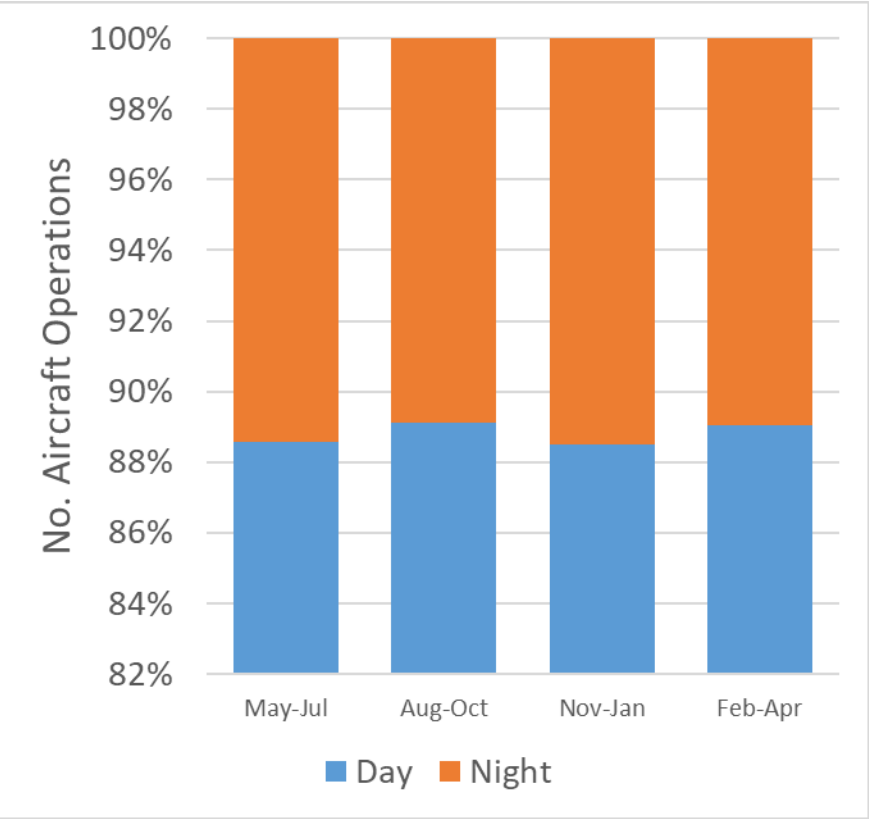


Figure 3: Aircraft Operations by Aircraft Type

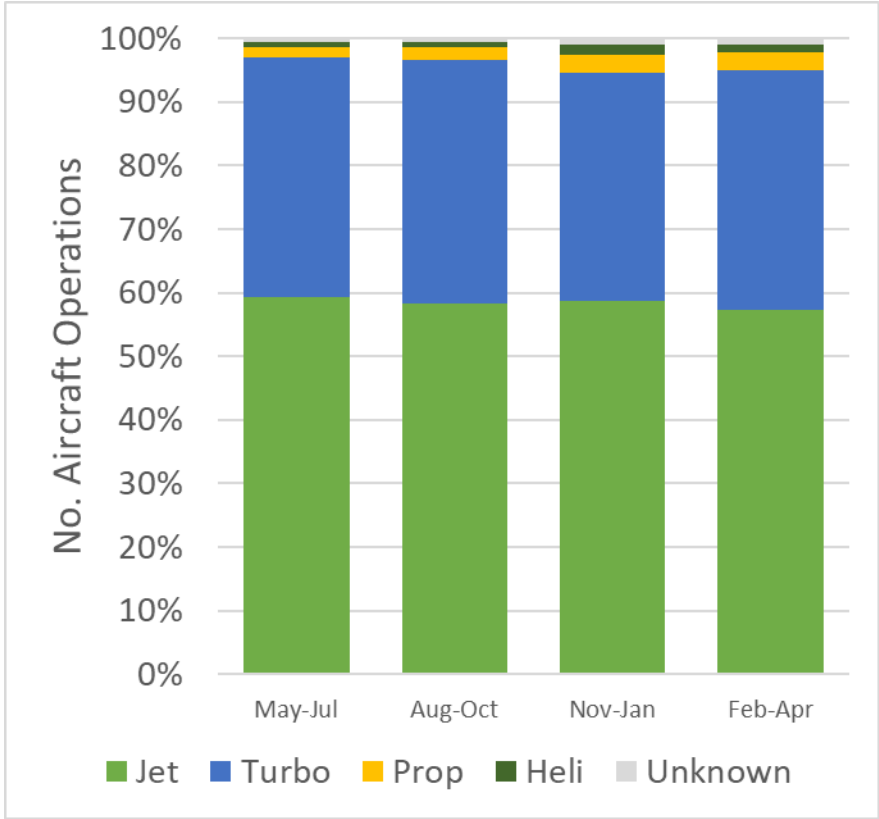


Figure 4: Aircraft Operations by Runway

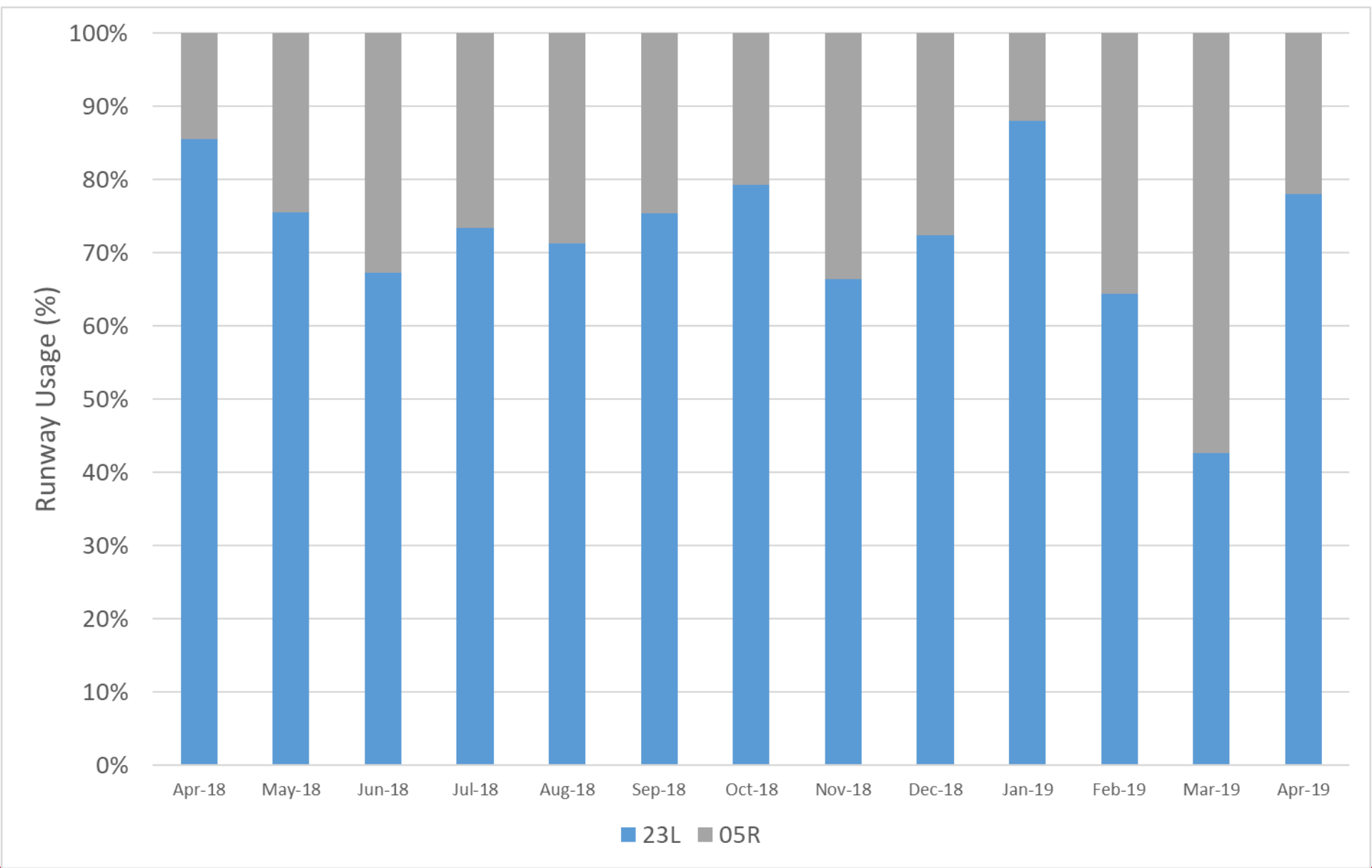


Figure 5: Number of SMART Approaches per week

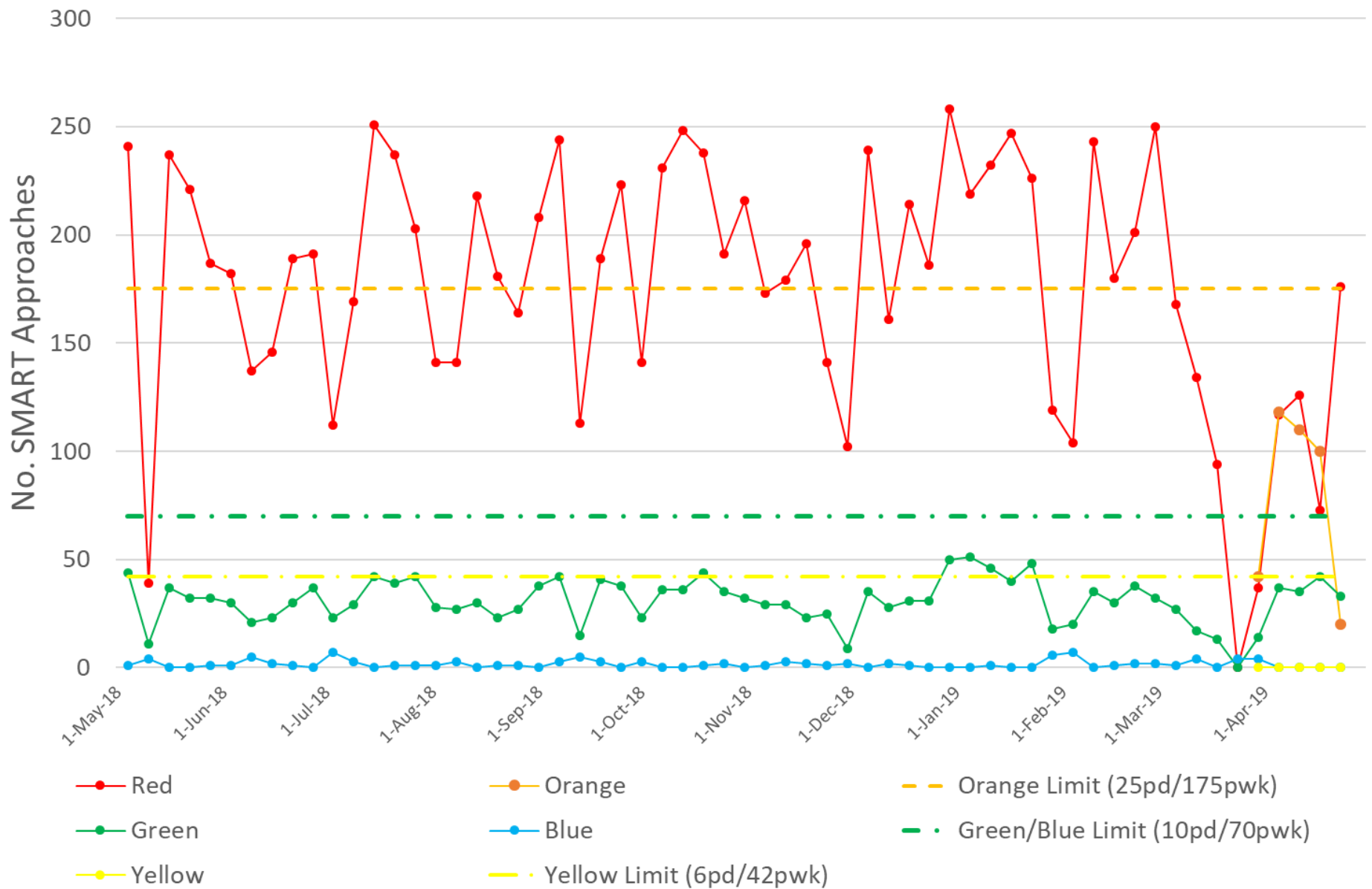
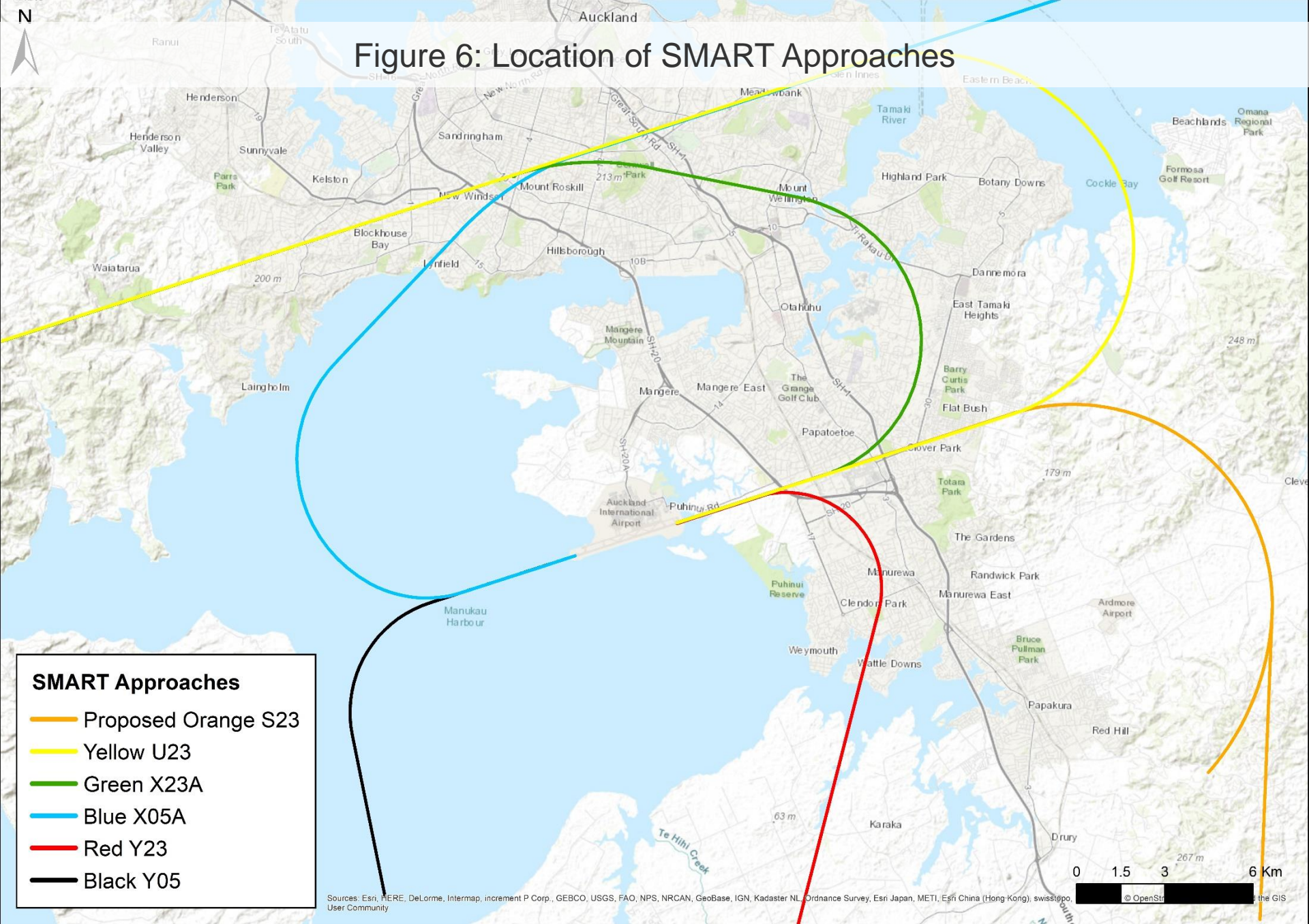


Figure 6: Location of SMART Approaches





Flight Path Diagrams

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

99% Westerly Winds/Runway 23L

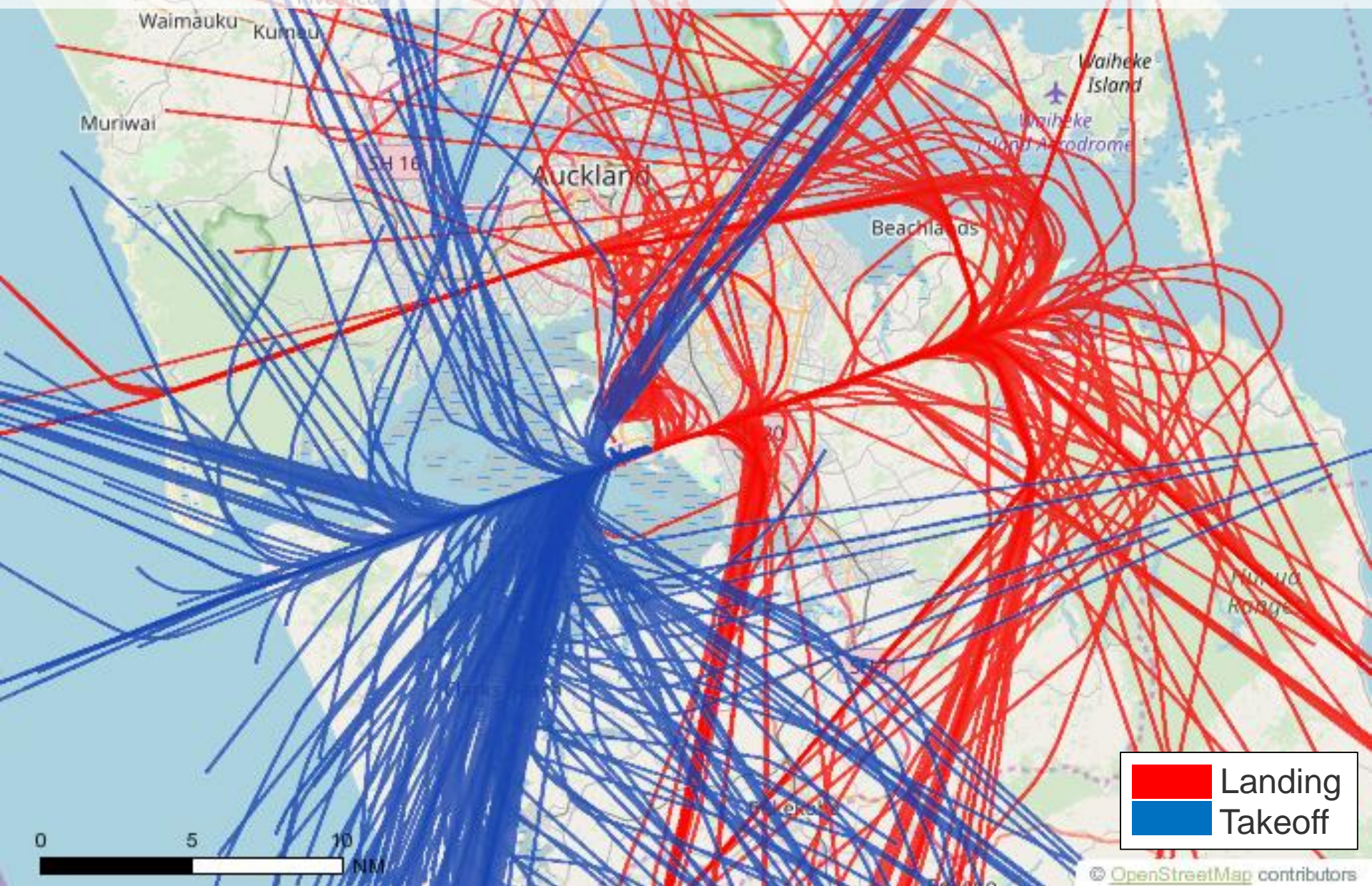


Figure 8: Flight Paths for a Busy Runway 23L Night (10pm-7am)

99% Westerly Winds/Runway 23L

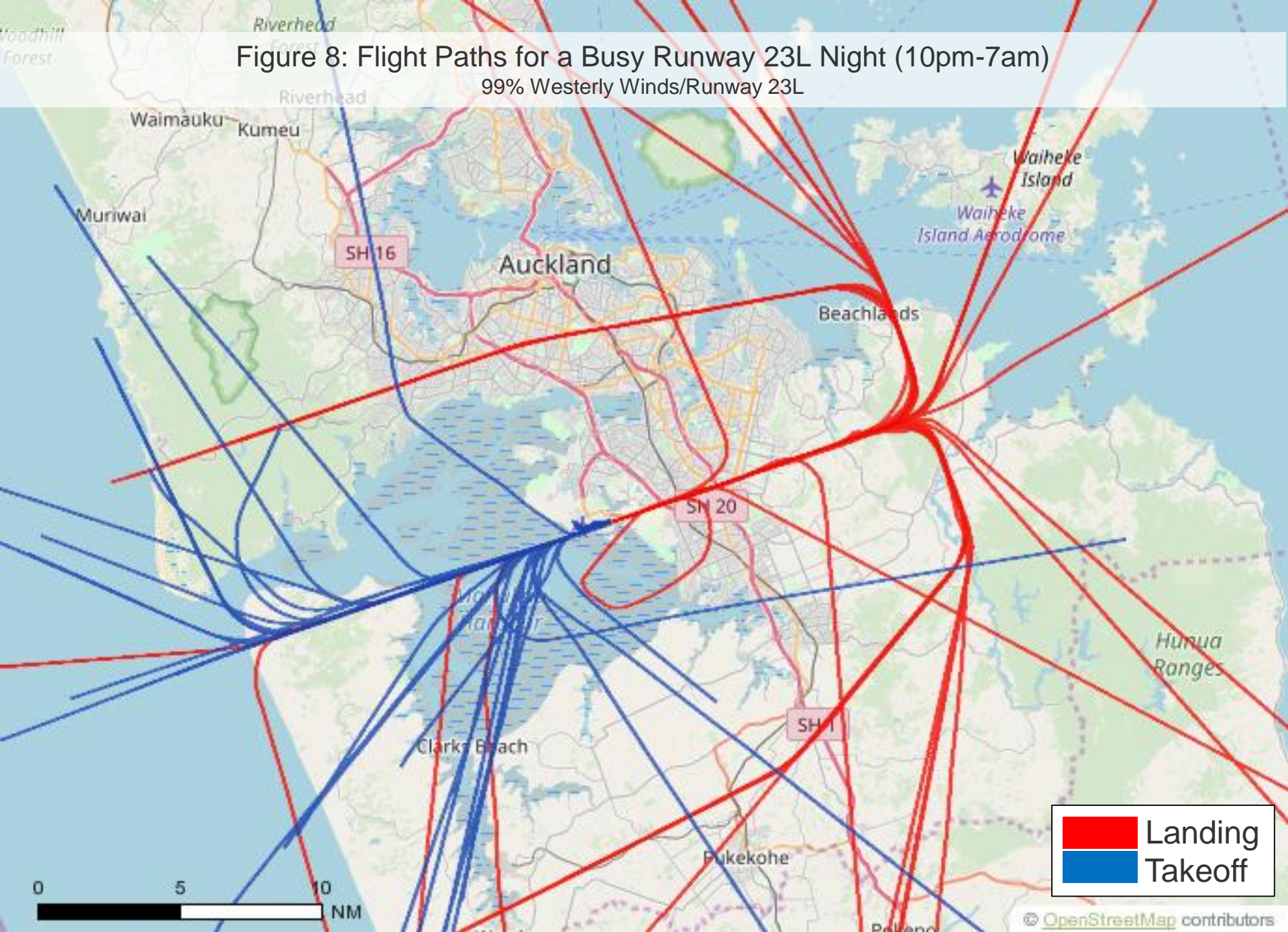


Figure 9: Flight Paths for a Busy Runway 05R Day (7am-10pm)

100% Easterly Winds/Runway 05R

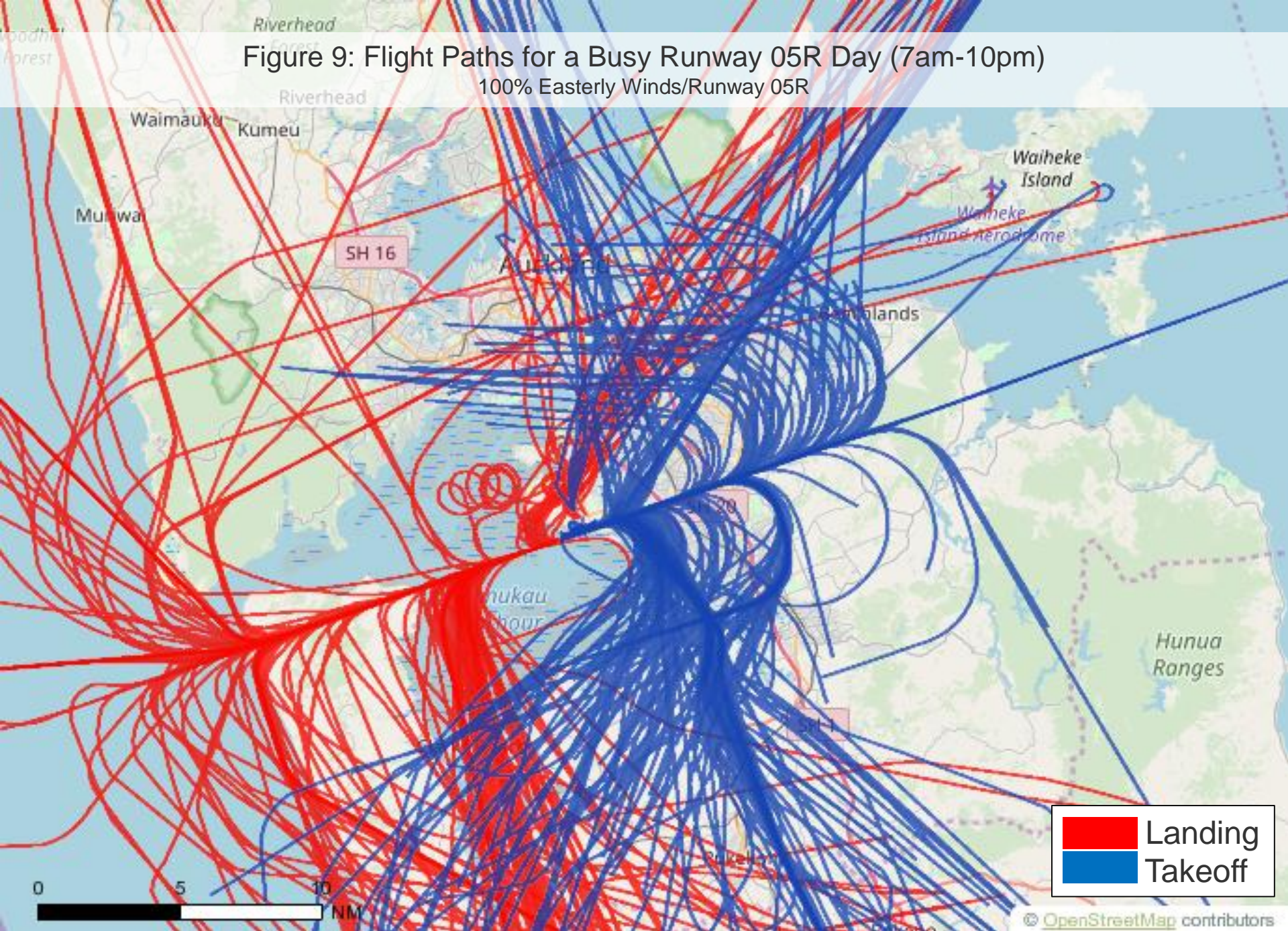
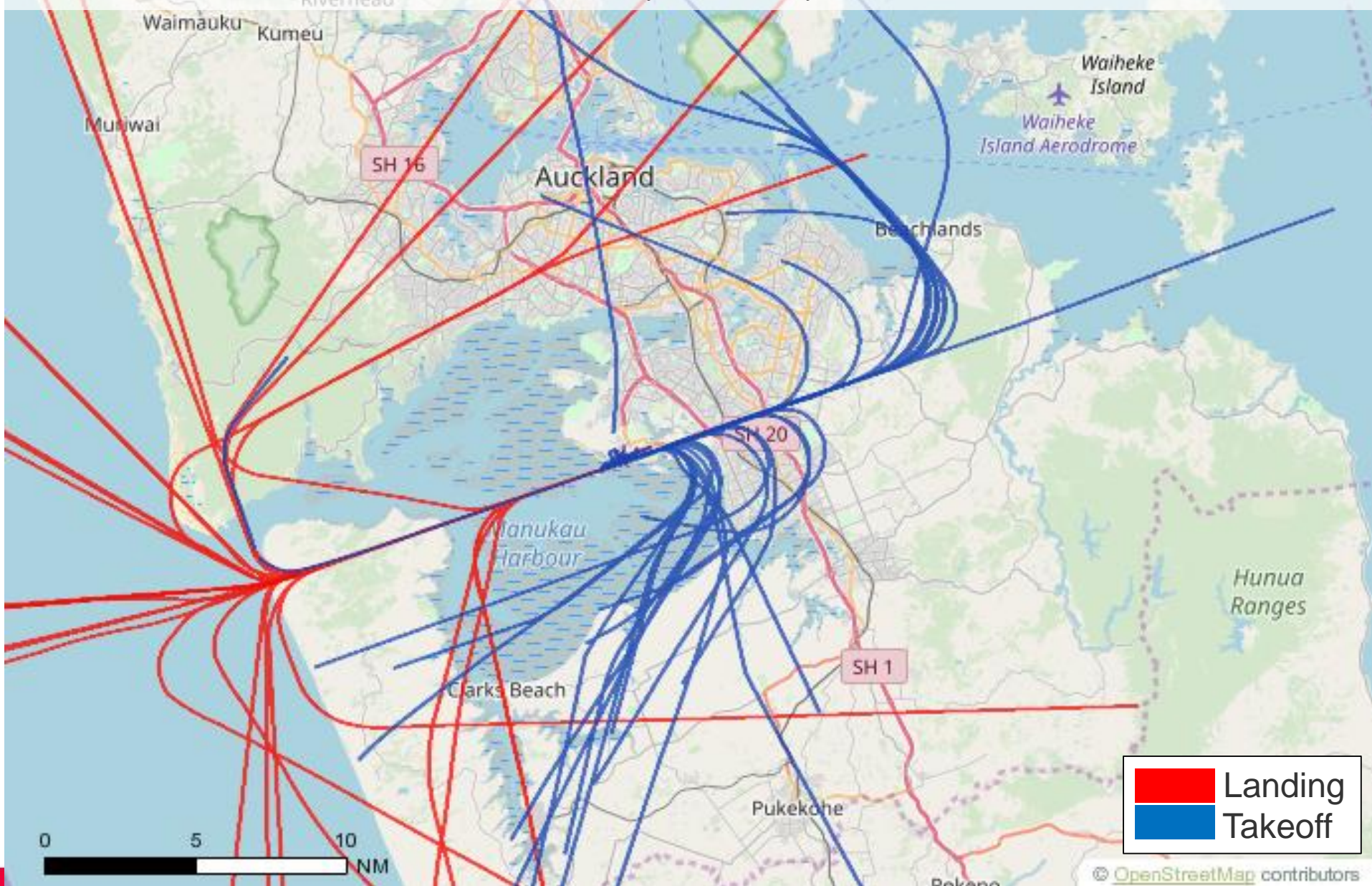


Figure 10: Flight Paths for a Busy Runway 05R Night (10pm-7am)

100% Easterly Winds/Runway 05R



Noise Complaints



Figure 11: Number of Aircraft Noise Complaints per Month

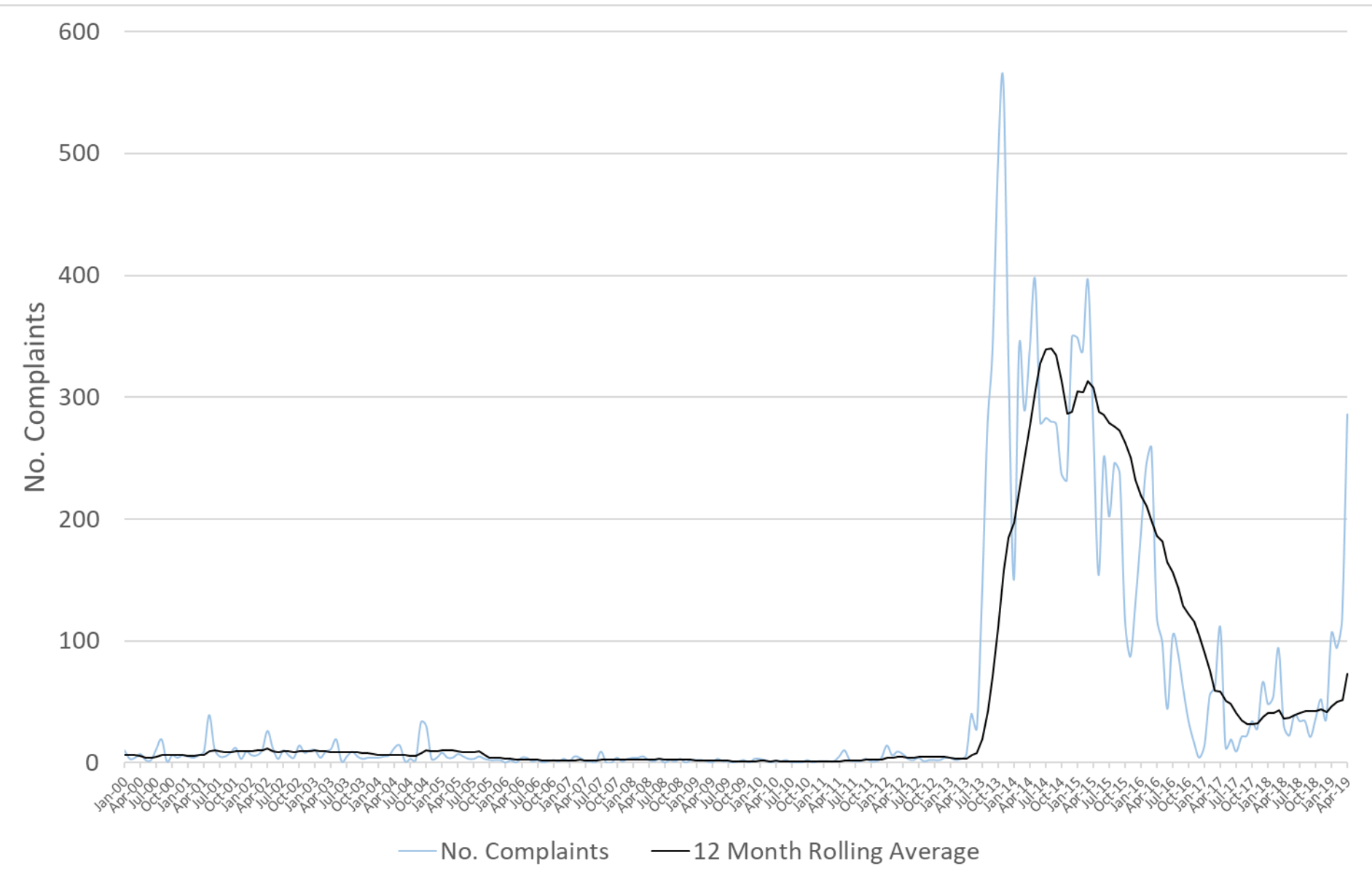


Table 3: Summary of Noise Complaints

	Total	Feb	Mar	Apr	M-J	A-O	N-J
Number of Complaints	498	94	118	286	95	91	194
<i>Specific</i>	440	69	101	270	52	61	169
<i>Generic</i>	53	23	15	15	40	24	23
<i>Question</i>	5	2	2	1	3	6	2
Number of People Complaining	51	23	18	18	44	38	33

Note: One person made 64% (318) of the complaints for the three month period. This person was located in Papatoetoe.

Figure 12: Map of Noise Complaints

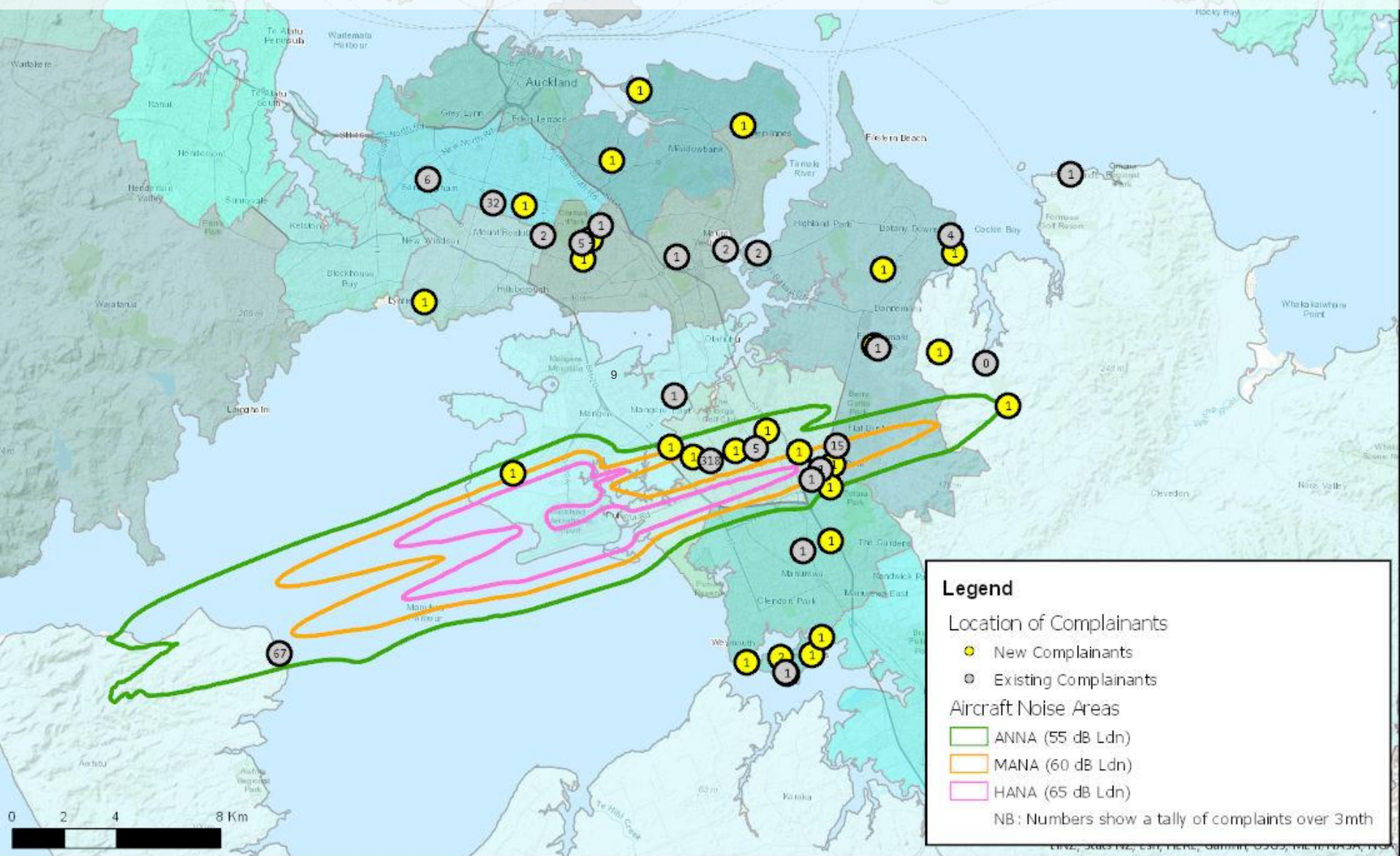
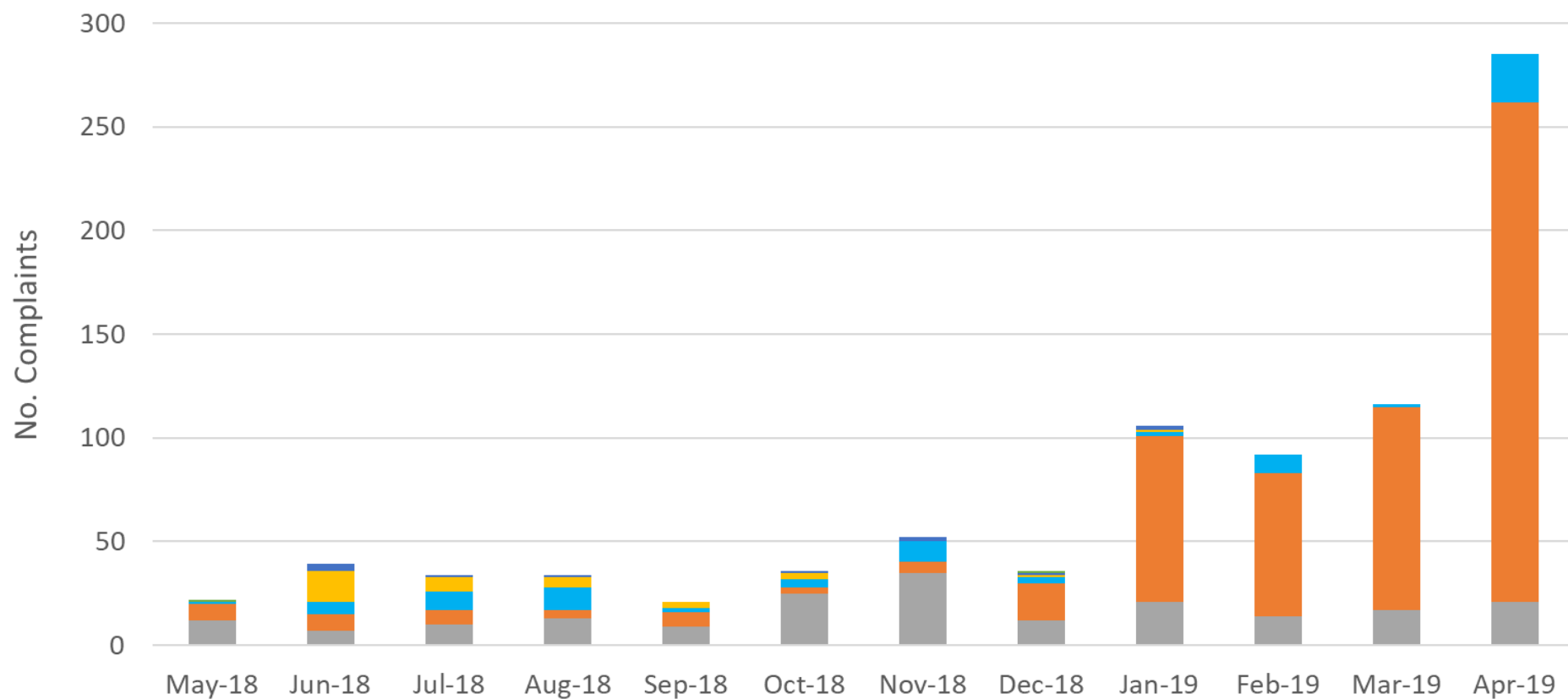


Figure 13: Number of Noise Complaints by Area



	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19
Not in Auckland	1	0	0	0	0	0	0	1	0	0	0	0
North Shore	0	3	1	1	0	1	2	1	2	0	0	0
West Auckland	0	15	7	5	3	3	0	1	1	0	0	0
East Auckland	1	6	9	11	2	4	10	3	2	9	1	23
South Auckland	8	8	7	4	7	3	5	18	80	69	98	241
Central Suburbs	12	7	10	13	9	25	35	12	21	14	17	21

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

Figure 14: Noise Complaints by Time

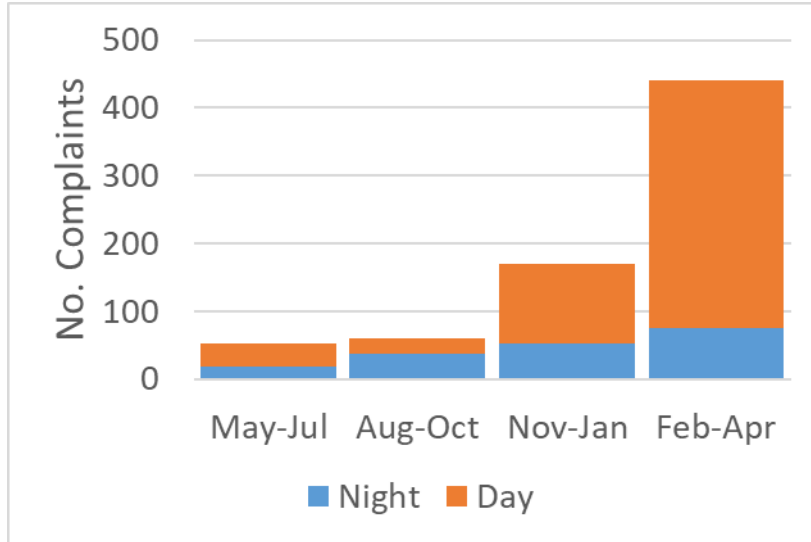


Figure 15: Noise Complaints by Runway

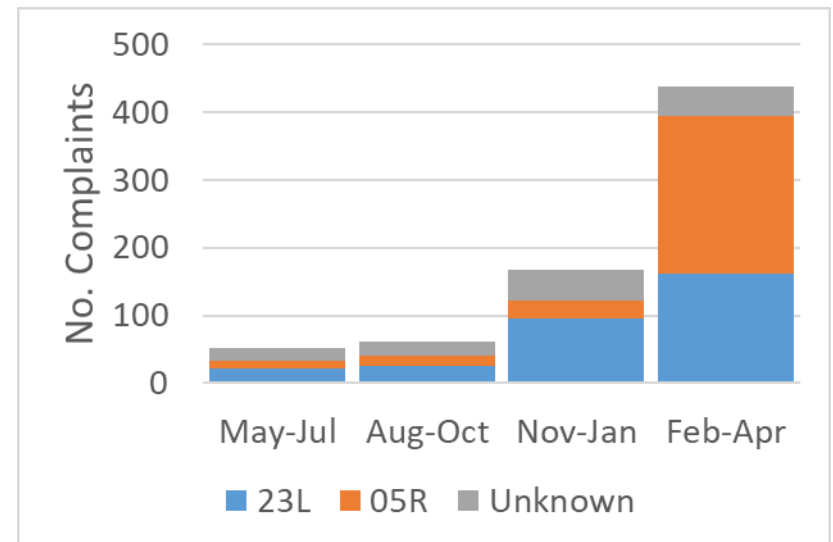


Figure 16: Noise Complaints by Aircraft

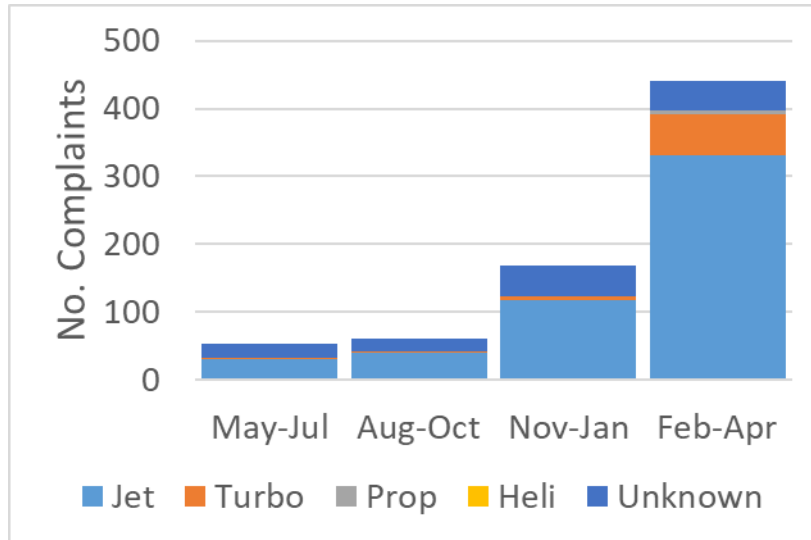


Figure 17: Noise Complaints by Operation

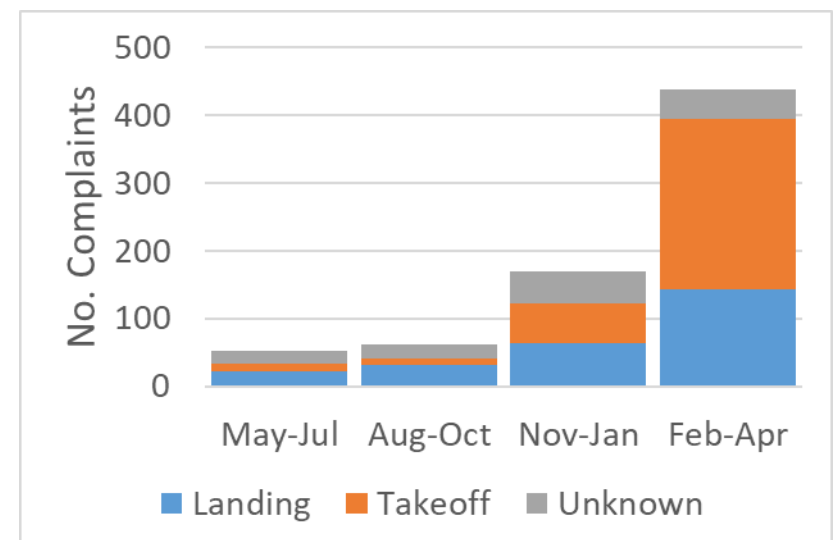


Figure 18: Specific Noise Complaints by Destination

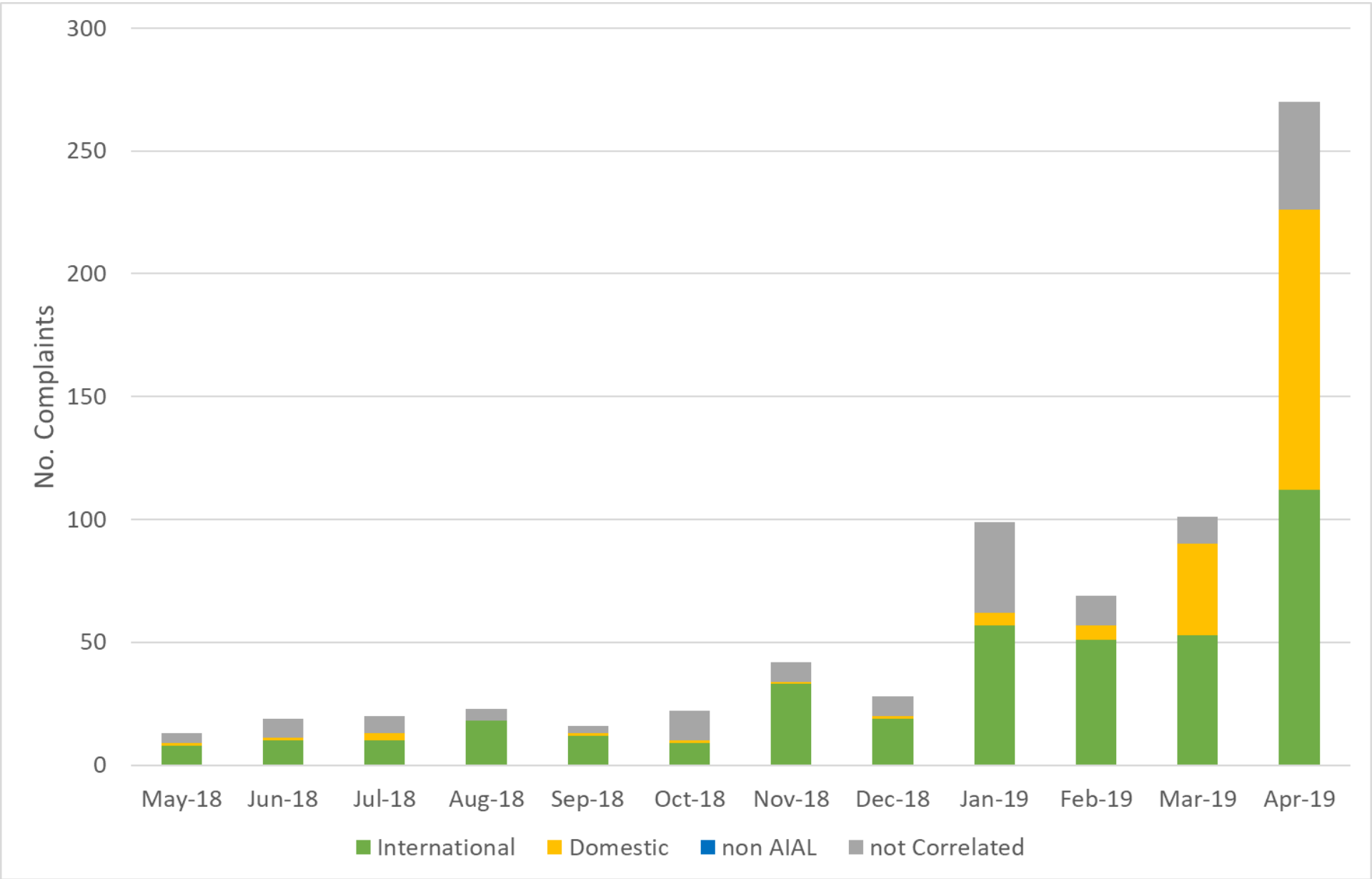


Figure 19: Specific Noise Complaints vs Usage of Runway 05R

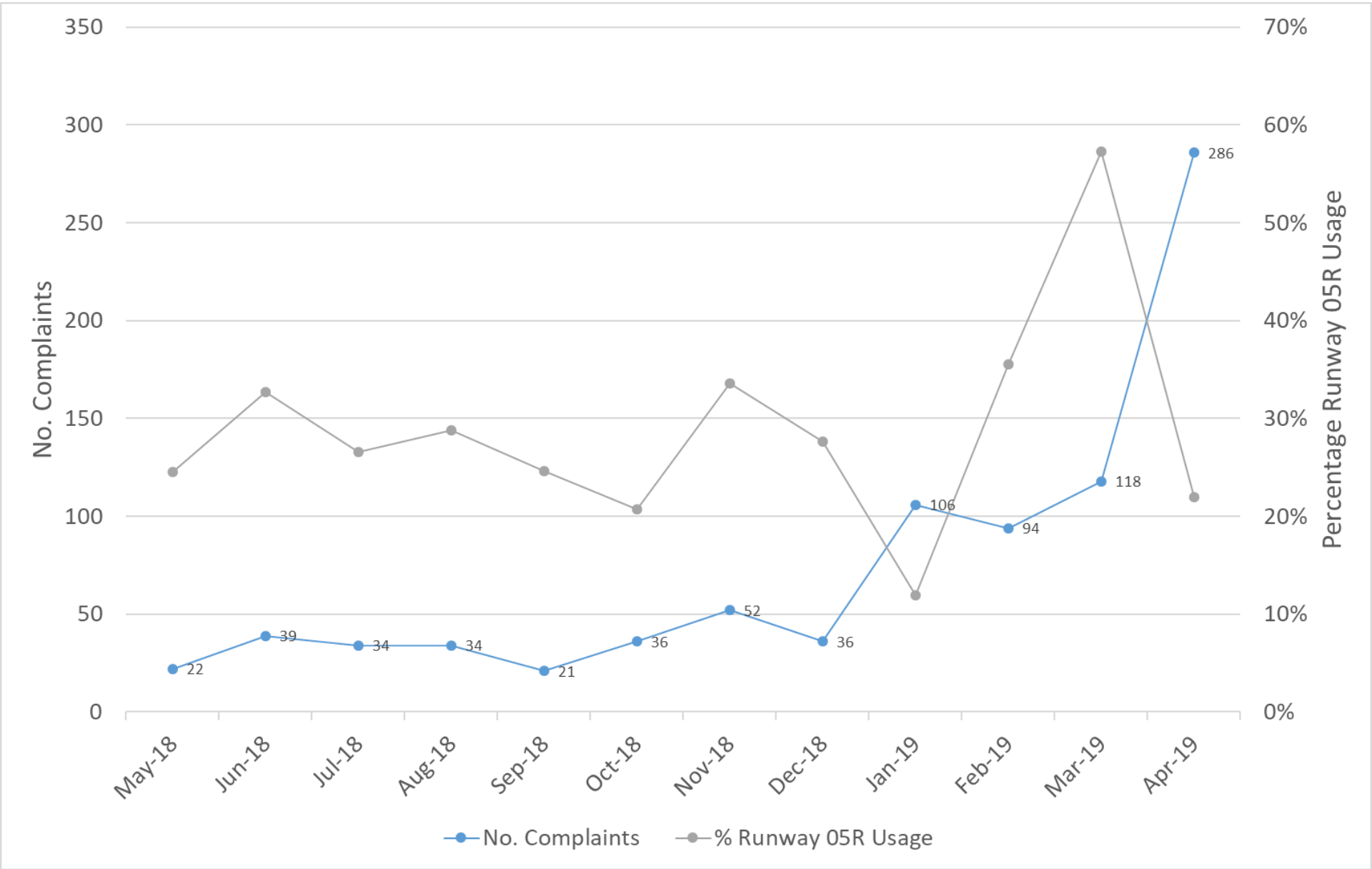


Figure 20: Noise Complaints by Hour vs Aircraft Operations by Hour

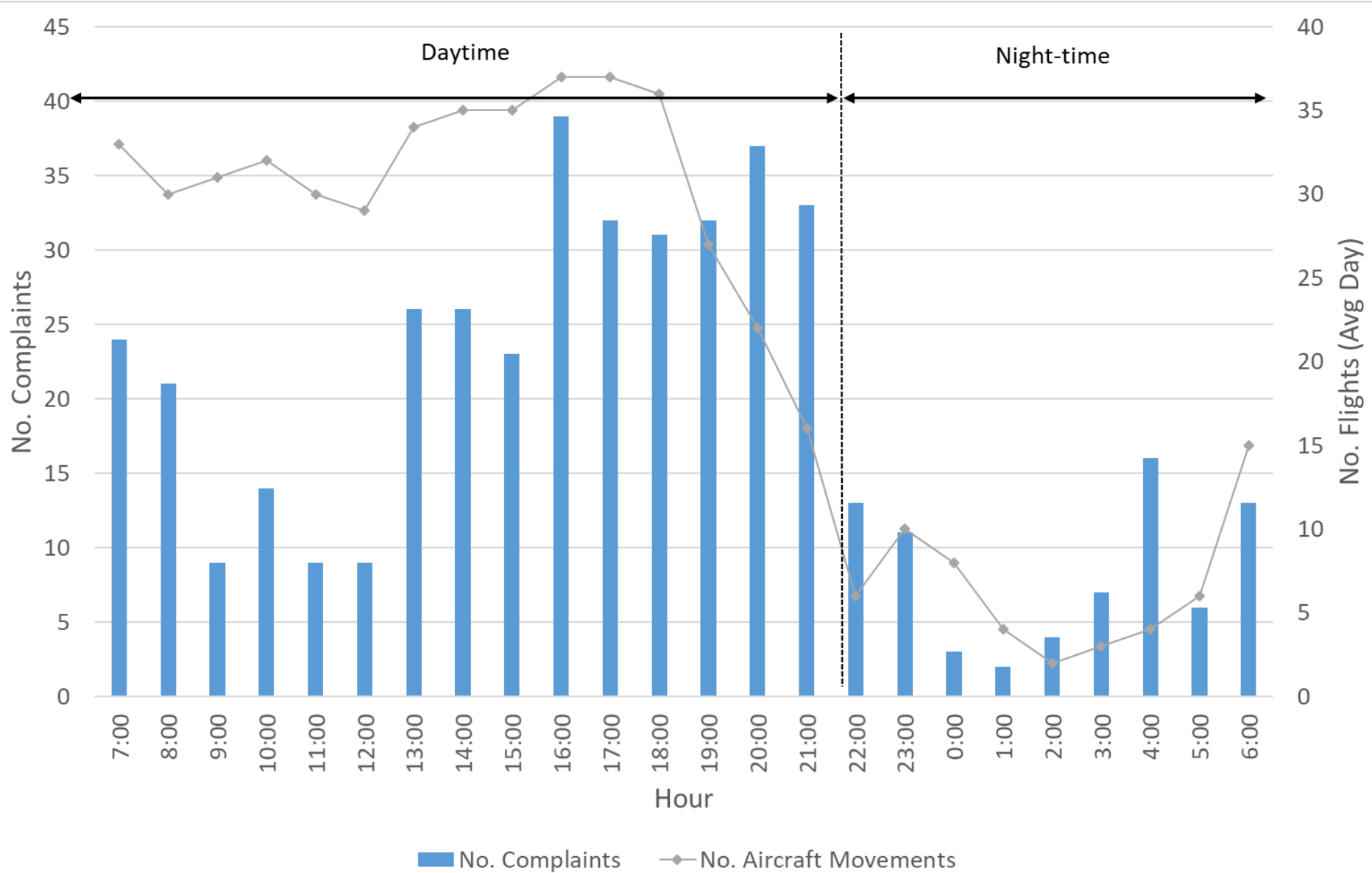


Figure 21: Noise Complaints by Type

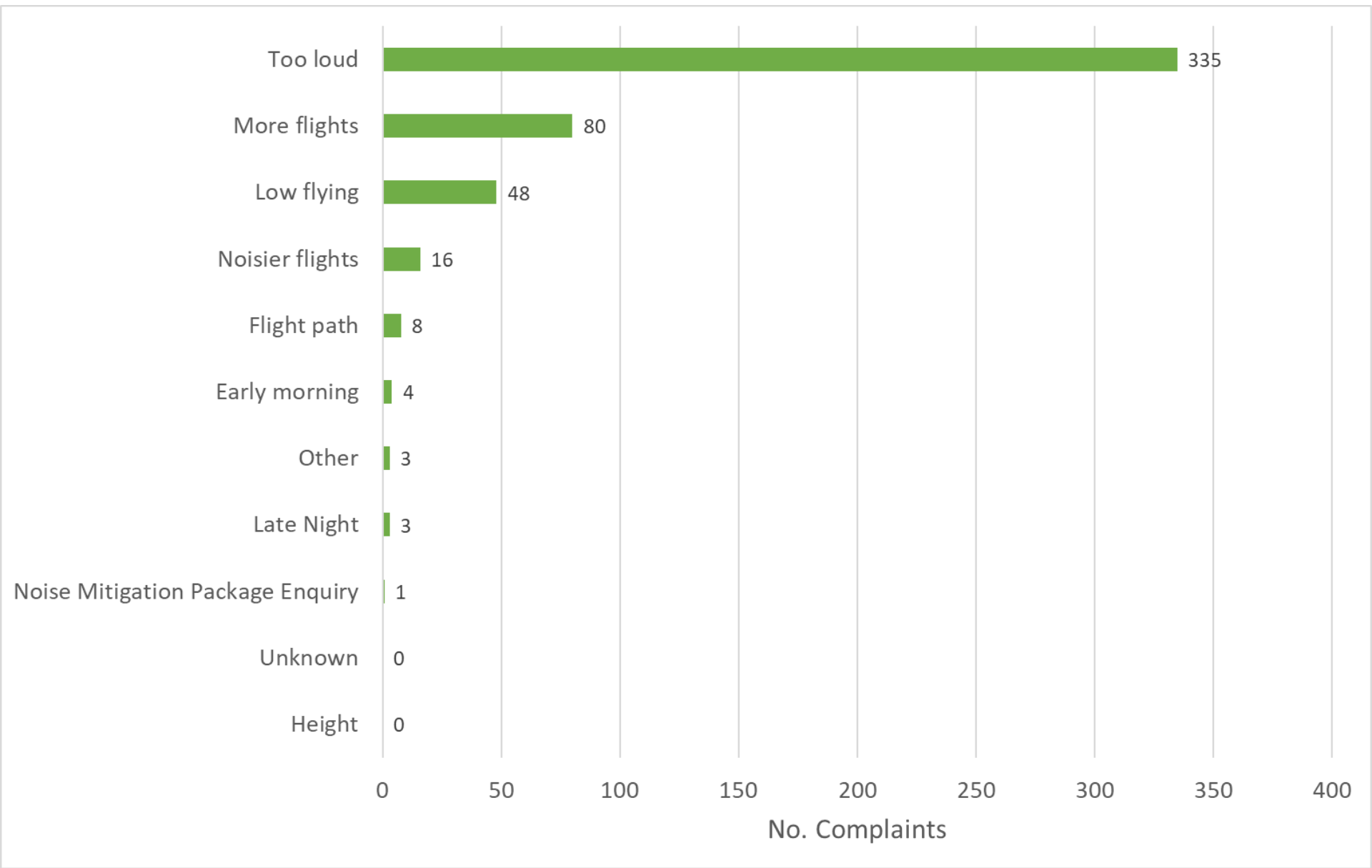


Figure 22: Specific Aircraft Identified in Noise Complaints

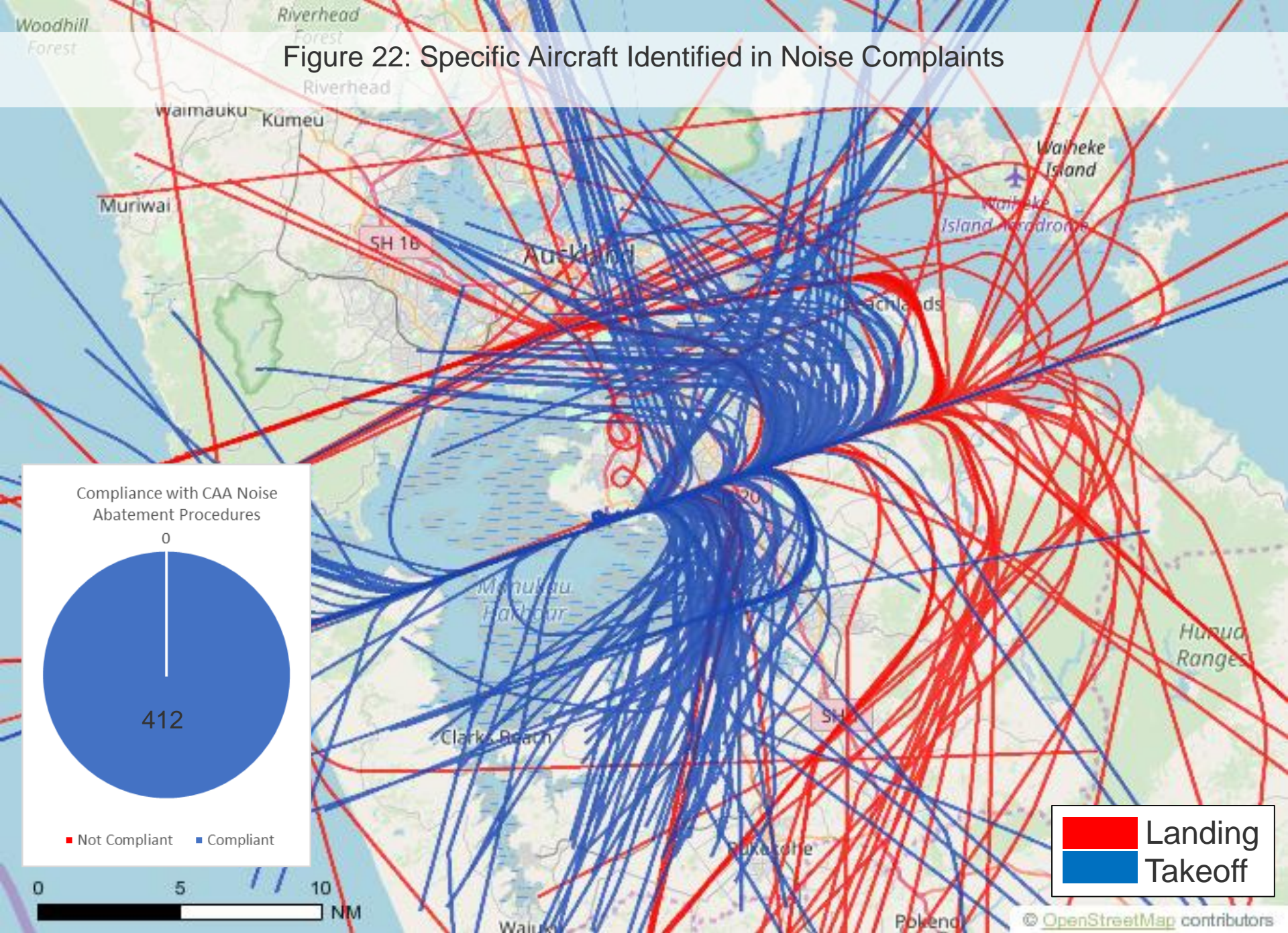
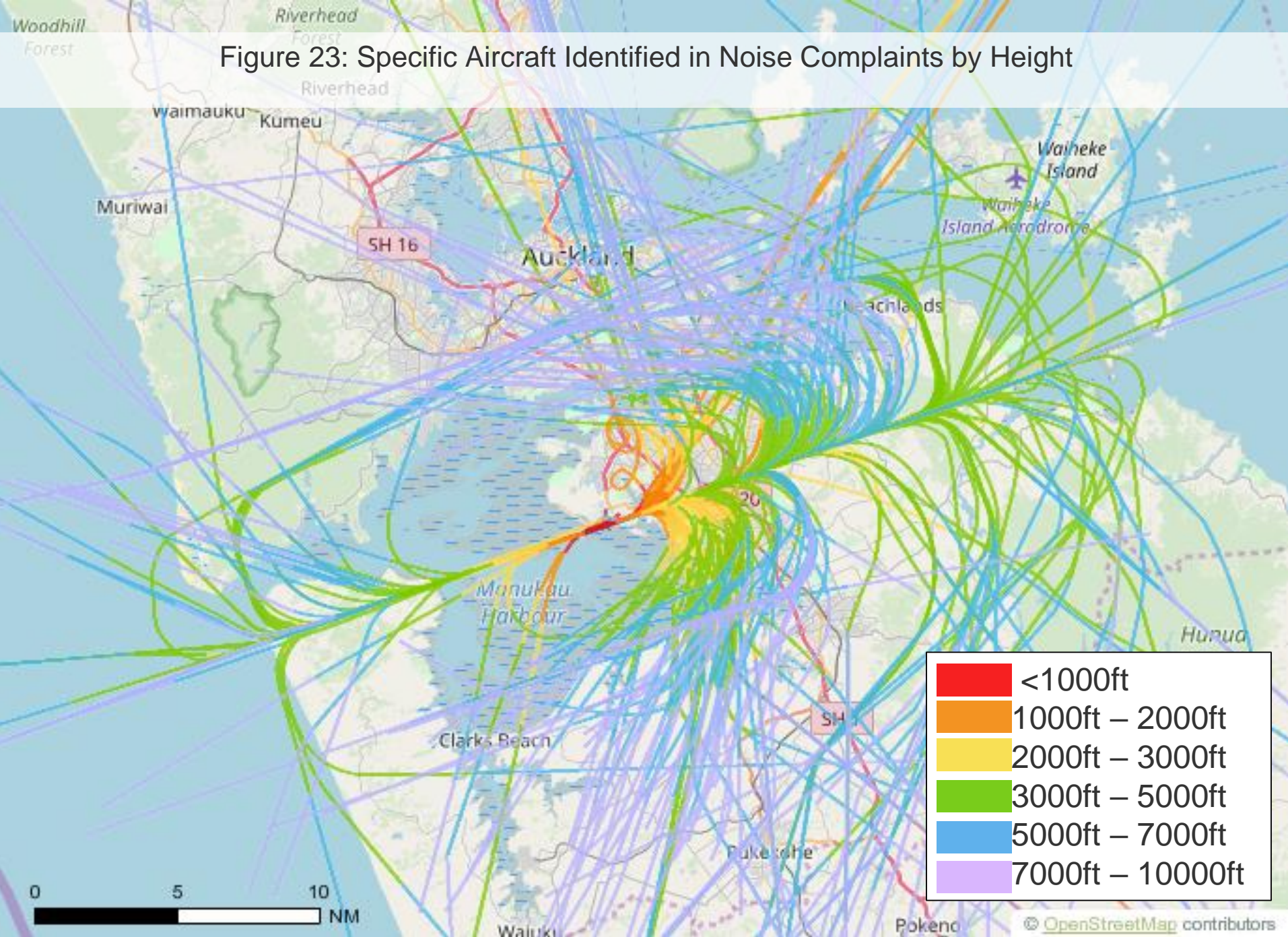


Figure 23: Specific Aircraft Identified in Noise Complaints by Height





Noise Monitoring

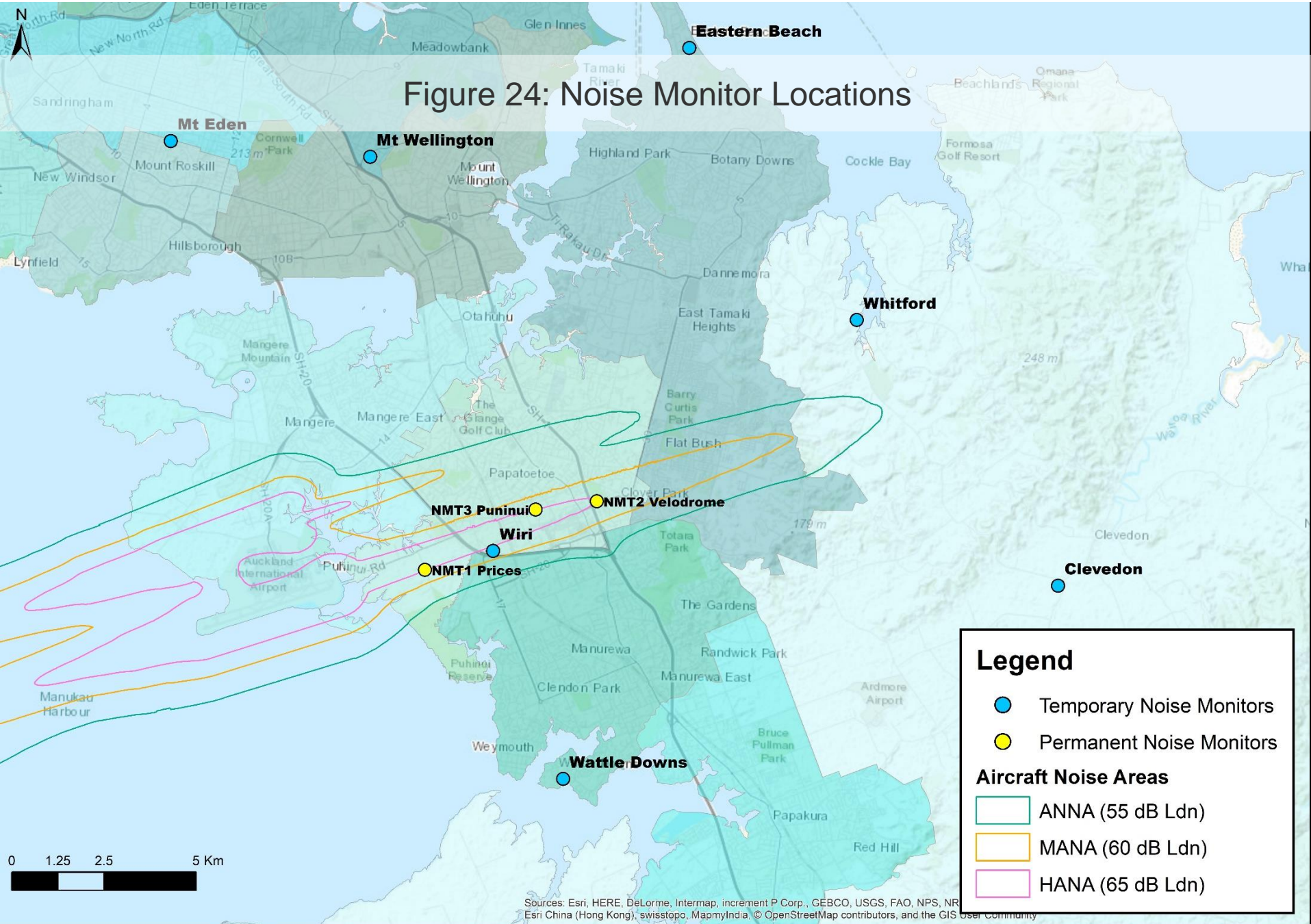


Figure 25: Measured 365 Day Rolling Noise Exposure (L_{dn}) – Permanent Monitors

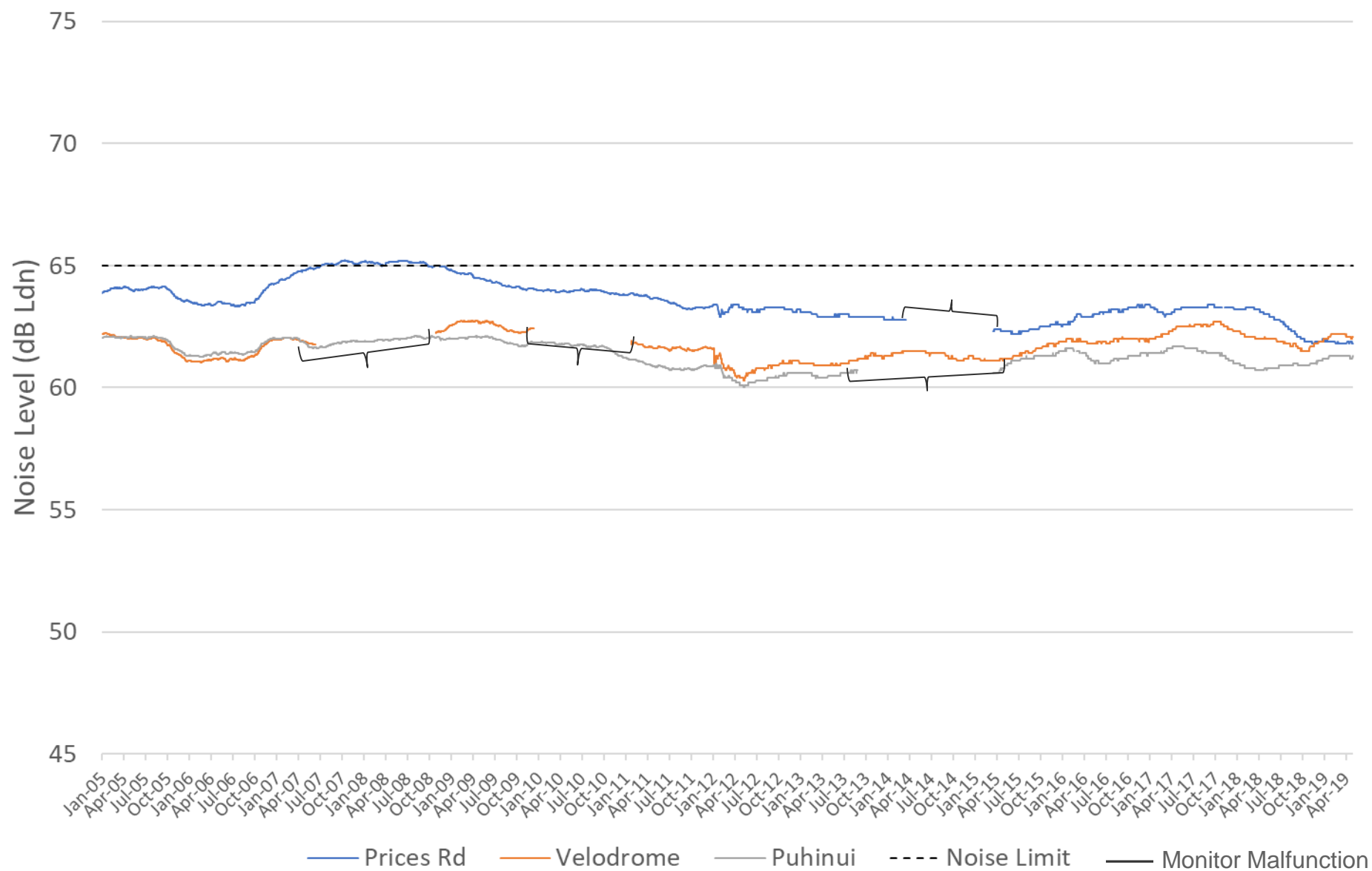


Figure 26: Number of Aircraft Noise Events Above 70 L_{Amax} in Each Noise Band
Permanent Monitors (L_{Amax} – Maximum Noise Level)

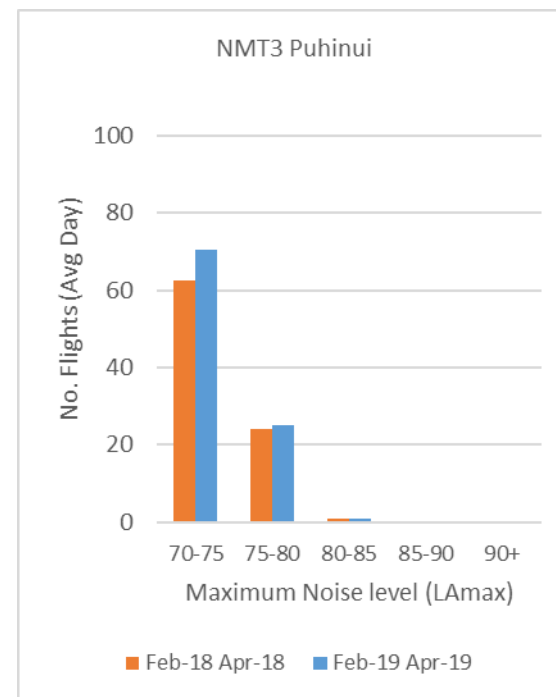
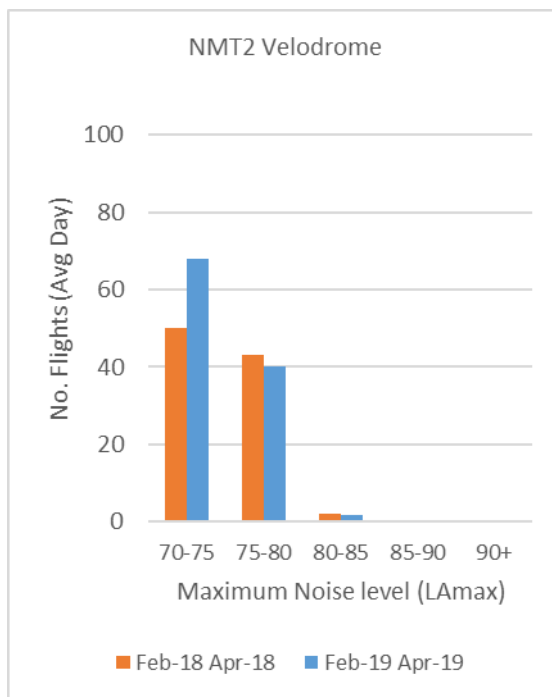
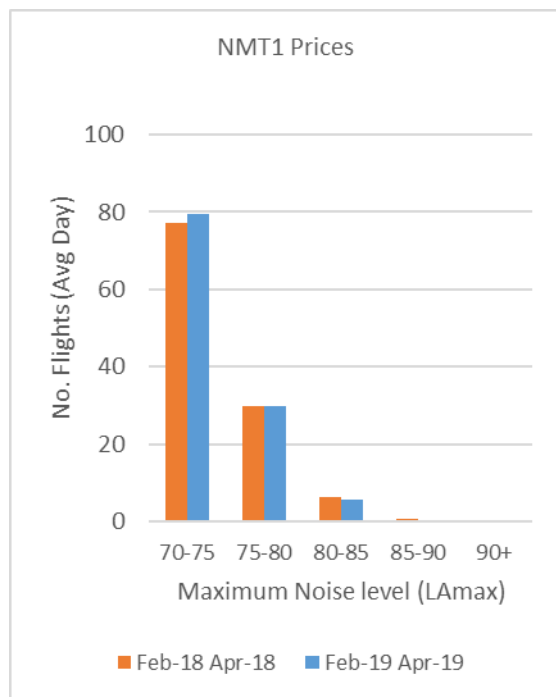


Table 4: Correlation of Aircraft Operations with Captured Noise Events
Permanent Monitors

	NMT1 Prices	NMT2 Velodrome	NMT3 Puhinui
No. Aircraft Operations	20,846	13,014	14,344
No. Noise Events Captured	17,441	10,465	13,158
Correlation	84%	80%	92%

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	1491	40	62
Mt Wellington	17-Apr-15	1475	40	65
Whitford	10-Jun-15	1407	41	60
Eastern Beach	11-Jun-15	1420	42	61
Wiri	4-May-17	729	60	75
Wattle Downs	23-Dec-17	494	48	67
Clevedon	10-Mar-18	418	30	59

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

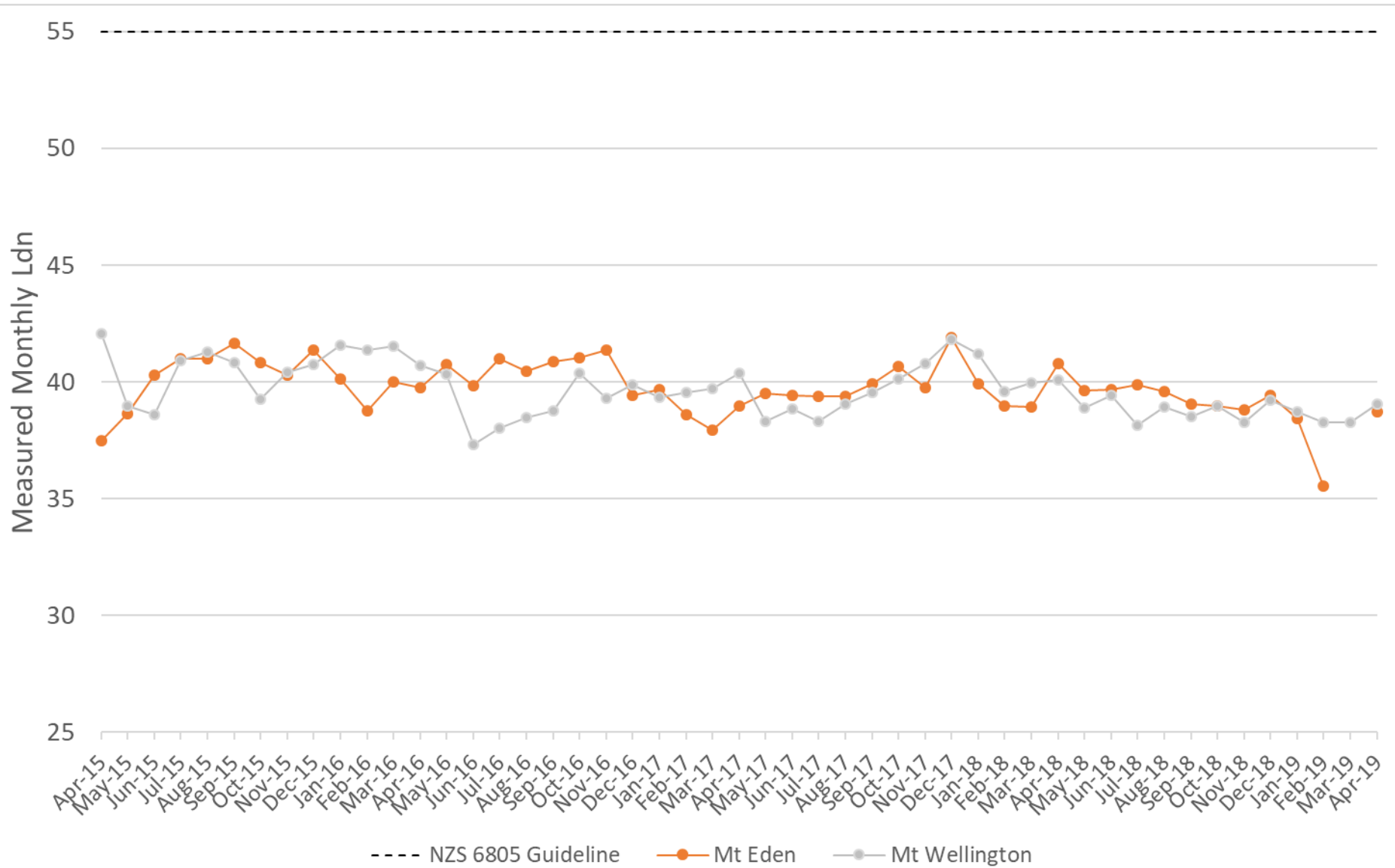


Figure 28: Measured Monthly Noise Exposure (L_{dn}) – Eastern Suburbs Temporary Monitors

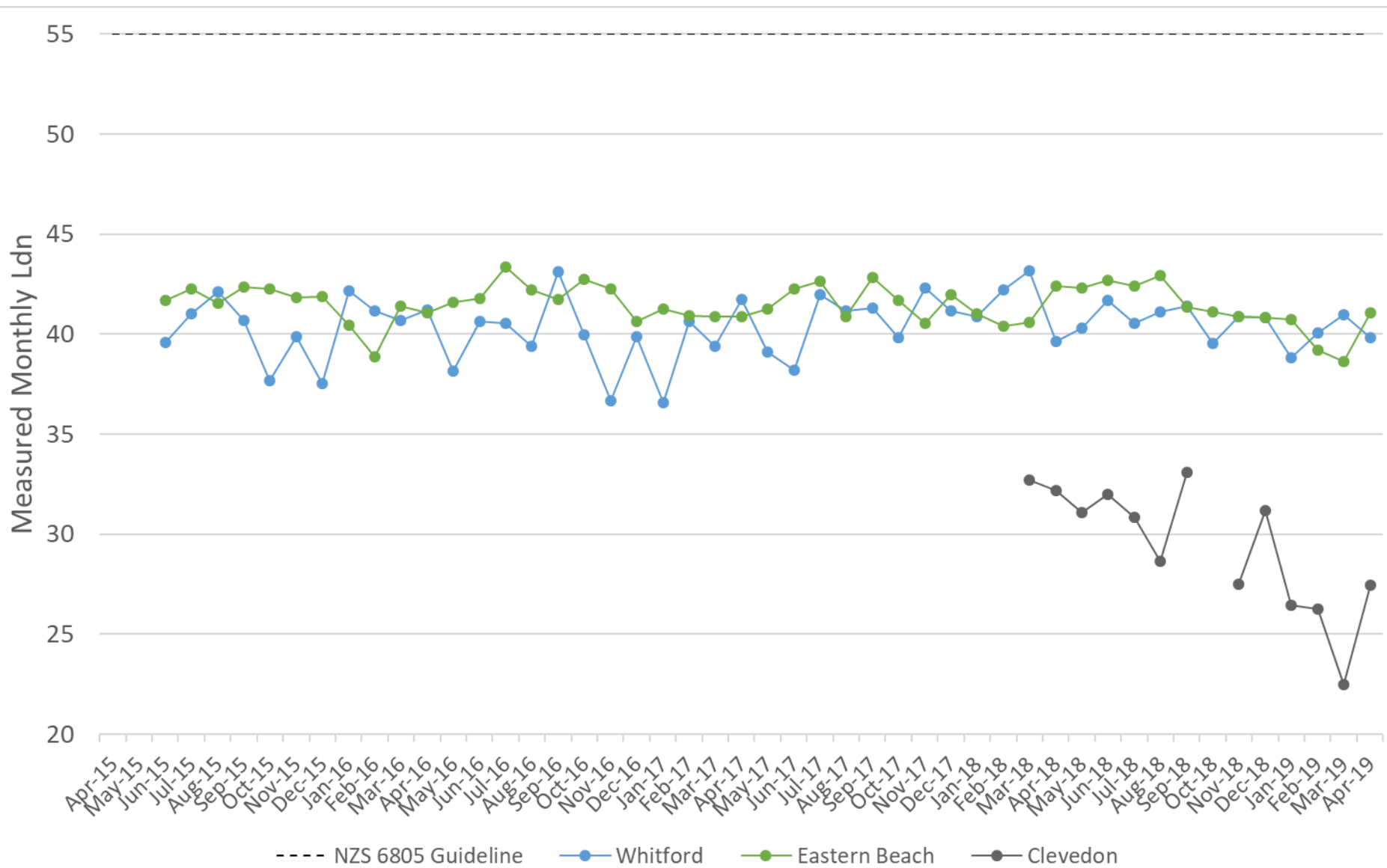


Figure 29: Measured Monthly Noise Exposure (L_{dn}) – Southern Suburbs Temporary Monitors

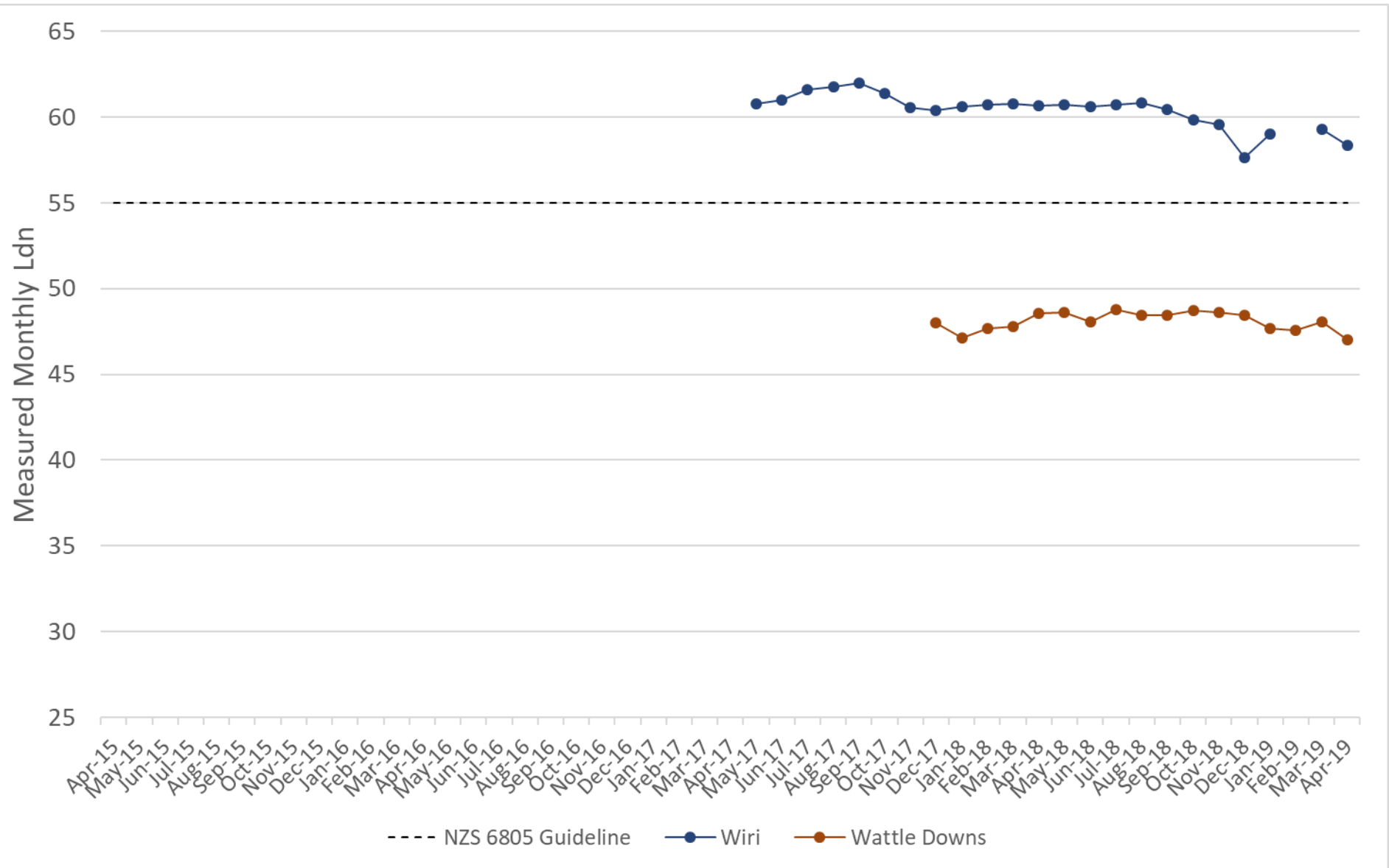


Figure 30: Number of Aircraft Noise Events Above 70 L_{Amax} in Each Noise Band
Central Suburbs Monitors (L_{Amax} – Maximum Noise Level)

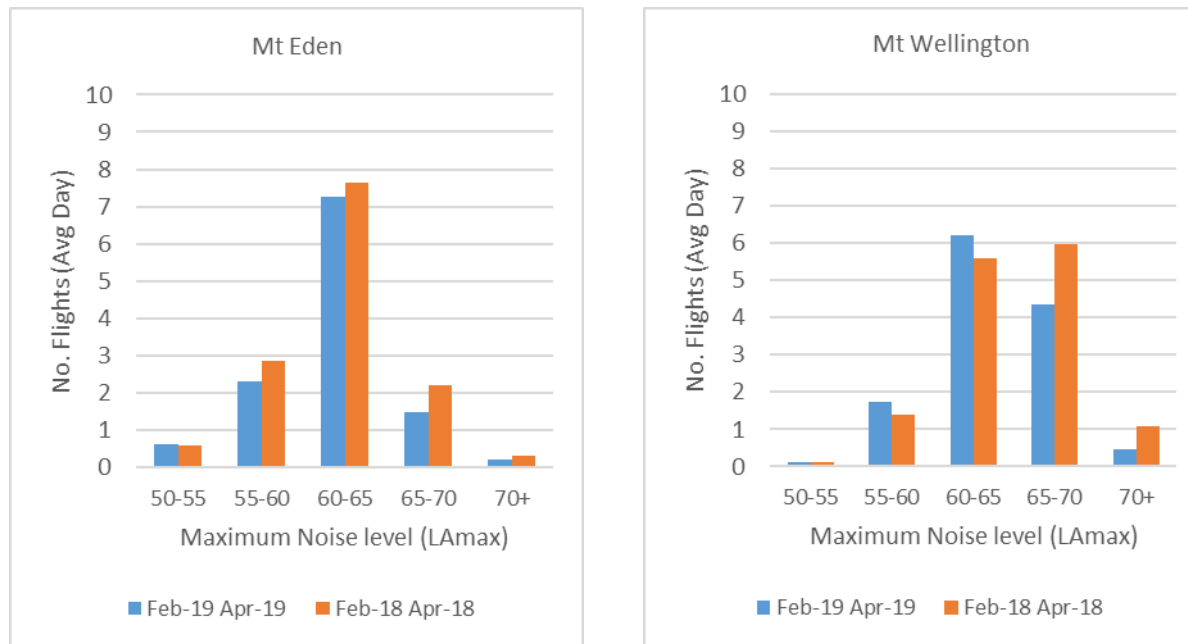


Figure 31: Number of Aircraft Noise Events Above 70 L_{Amax} in Each Noise Band
 Eastern Suburbs Monitors (L_{Amax} – Maximum Noise Level)

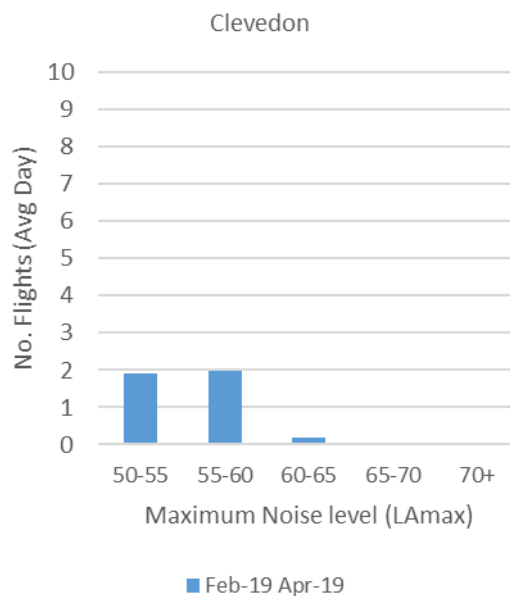
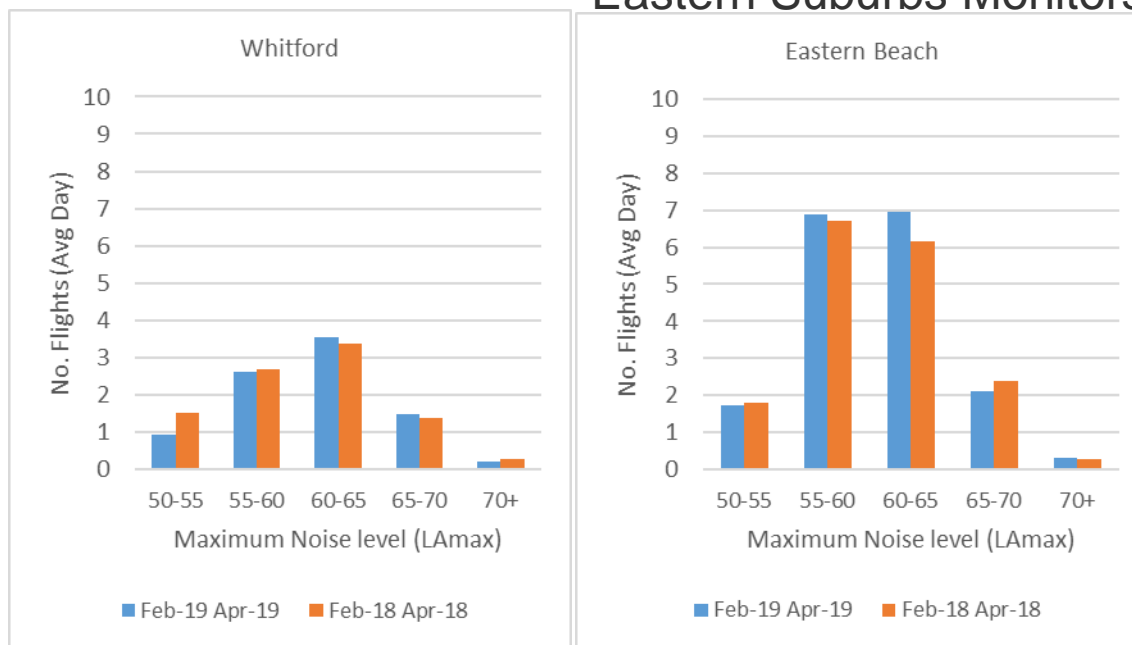
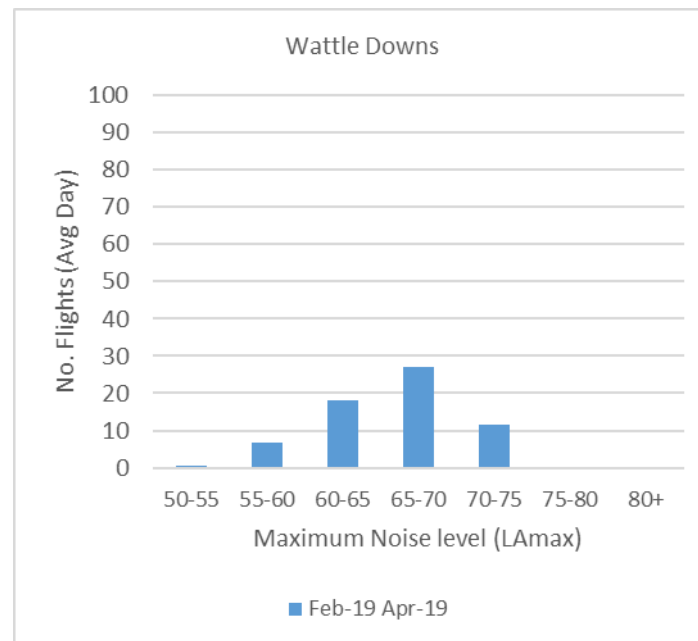
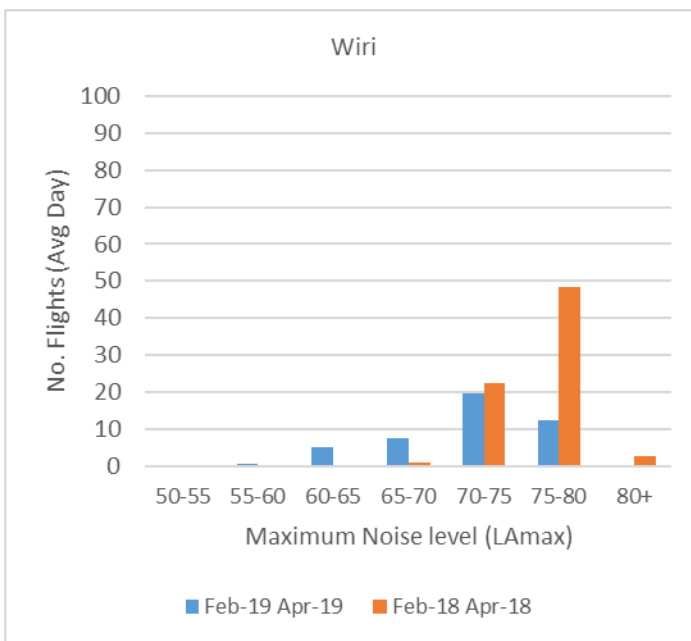


Figure 32: Number of Aircraft Noise Events Above 70 L_{Amax} in Each Noise Band
Southern Suburbs Monitors (L_{Amax} – Maximum Noise Level)





Engine Testing

Figure 33: Engine Testing Monitoring Locations

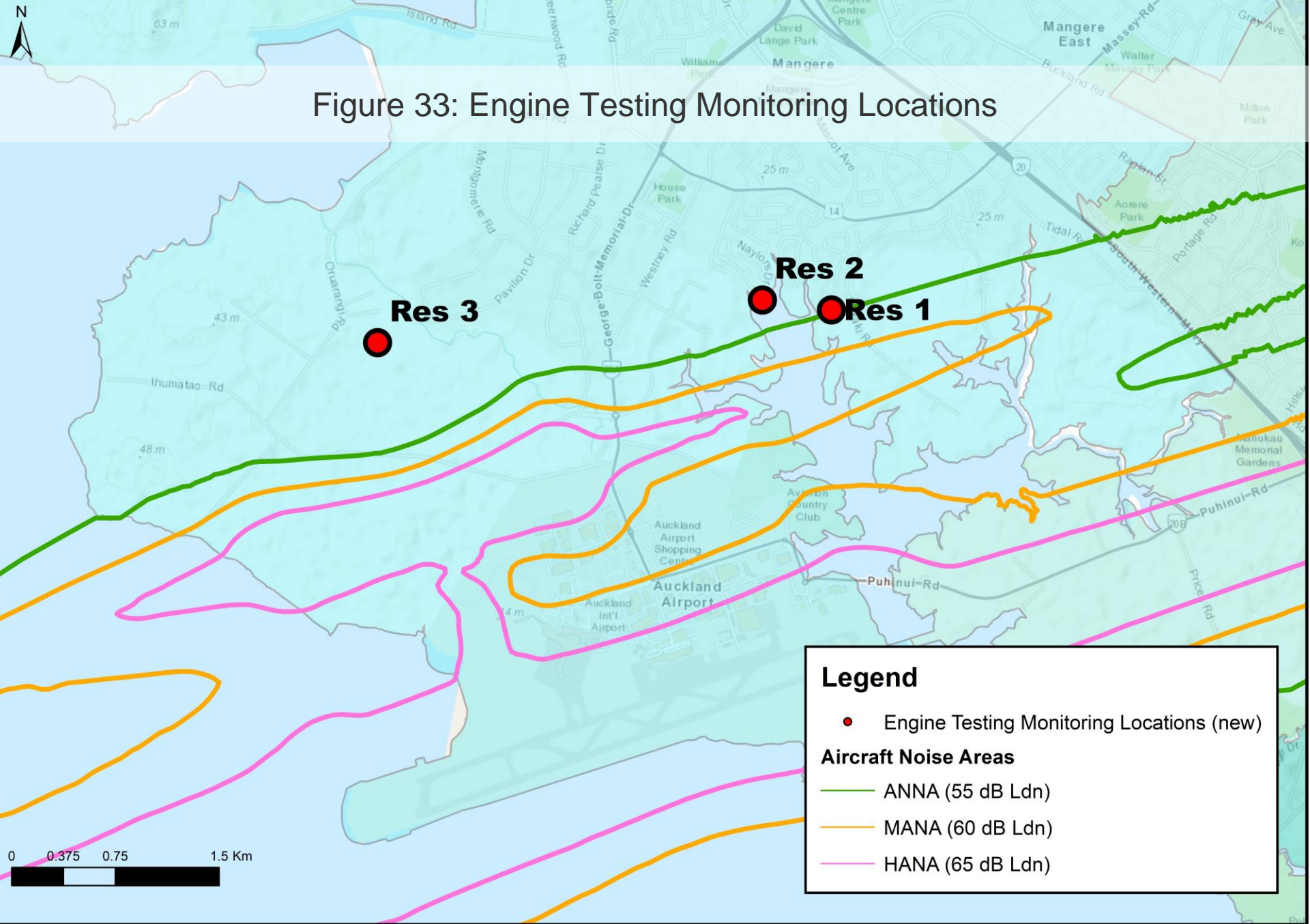
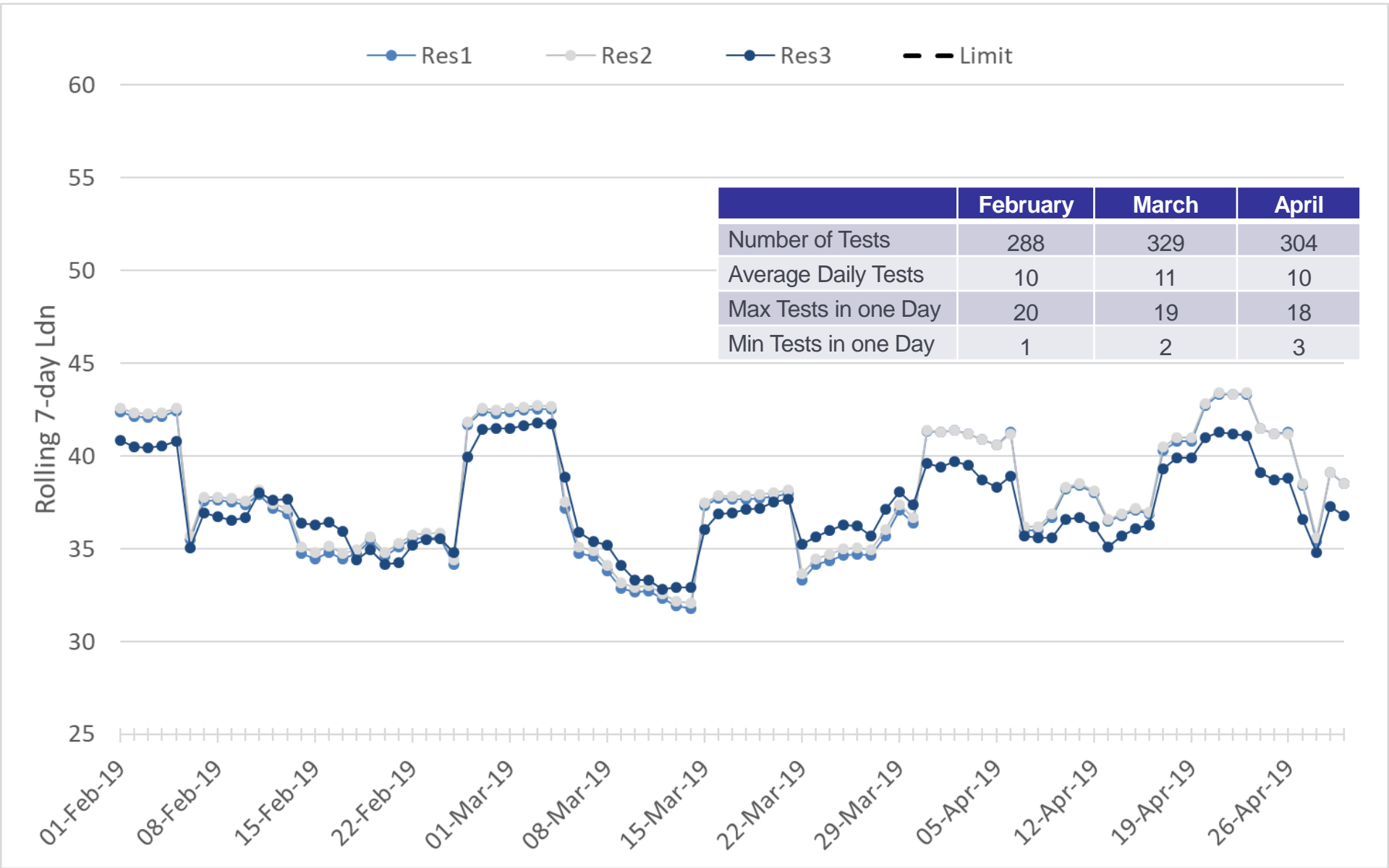
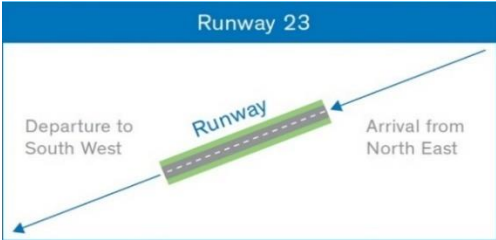
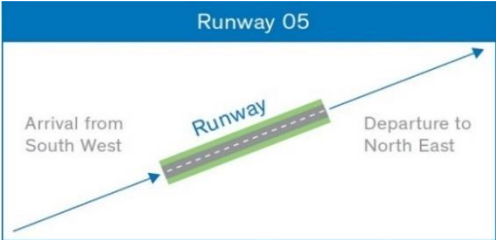


Figure 34: Engine Testing Summary



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>Occurs in Easterly Wind Conditions</div> </div>
	<div> <div>  <p>Runway 23</p> <p>Departure to South West</p> <p>Runway</p> <p>Arrival from North East</p> </div> <div>  <p>Runway 05</p> <p>Arrival from South West</p> <p>Runway</p> <p>Departure to North East</p> </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				