

Palmerston North Airport Noise Management Plan

Prepared for Palmerston North Airport Limited

Prepared by Beca Limited

13 August 2020



Contents

1	Introduction	1
2	District Plan Airport Noise Performance Standards	2
3	Compliance Monitoring	4
3.1	Monitoring Programme	4
3.2	Reporting Procedure	5
4	Aircraft Noise Management	6
5	Complaints and Communications Procedure	7
5.1	Communications Procedure	7
5.2	Complaints Procedure	7
6	Review of Noise Management Plan	9

Appendices

Appendix A – Compliance Monitoring Locations




Appendix B – Passenger Service Aircraft Forecasting 1998

Appendix C – Noise Complaint Register and Form

Revision History

Revision N°	Prepared By	Description	Date
v.01	Alicia Todd	Draft for MDA Peer Review	29/03/19
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Document Acceptance

Action	Name	Signed	Date
Prepared by	Alicia Todd		28/11/19
Reviewed by	Michelle Smith		28/11/19
Approved by	Hywel Edwards		9/9/19
on behalf of	Beca Limited		

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1 Introduction

This Airport Noise Management Plan (NMP) has been prepared on behalf of Palmerston North Airport Limited (PNAL) in accordance with the requirements of the Palmerston North City Council (PNCC) District Plan Rule 13.4.6.2. This NMP has been prepared in consultation with Manawatu District Council (MDC) and PNCC. Technical input regarding the proposed compliance monitoring methodology has been provided by Marshall Day Acoustics.

The purpose and objectives of this NMP are:

- i. To set out the standards that apply to noise generated from airport activities*
- ii. To identify the monitoring and reporting process for aircraft operations noise emissions*
- iii. To articulate a clear process for complaints and communications to be received, recorded, resolved and monitored*
- iv. To manage the effects of aircraft operations noise on the surrounding community*
- v. To assist PNAL in ensuring compliance with Rule 13.4.6.1(i) in the PNCC District Plan*

This NMP addresses the following:

- Airport noise performance standards in the PNCC District Plan (**Chapter 2**);
- Compliance monitoring procedures for monitoring and reporting of aircraft operations noise to demonstrate compliance with Rule 13.4.6.1(i) (**Chapter 3**);
- Aircraft Noise Management, including noise management procedures (**Chapter 4**);
- Complaints and communications procedures (**Chapter 5**); and
- Summary of NMP review process (**Chapter 6**).

2 District Plan Airport Noise Performance Standards

Section 13.4.6 of the PNCC District Plan outlines permitted activity noise standards relating to ‘*Sound Emissions in the Airport Zone*’. The following table reproduces these standards.

Table 2-1: Airport Noise Performance Standards PNCC District Plan Section 13.4.6.1

Standard	Notes
<p>(i) PNAL shall ensure that noise emissions from aircraft operations shall not exceed 65LDN at the Airnoise Boundary when measured and assessed using the methods described in NZS 6805:1992.</p> <p><i>This excludes unscheduled flights required under the Civil Defence Act 1983, the diversion of planes to Palmerston North Airport due to airport closure, and the diversion of planes to Palmerston North Airport due to operational emergencies.</i></p>	<p>To comply with this provision on an on-going basis, PNAL will implement strategies contained in this NMP, specifically, the compliance monitoring strategy identified in Chapter 3.</p> <p>While there was previously a helicopter training area within the Airport precinct, this has since been removed.</p> <p>All aircraft operators will be required to comply with Civil Aviation Authority rules.</p>
<p>(ii) PNAL shall ensure that sound emissions from sources other than aircraft operations and aircraft engine testing shall not exceed:</p> <p>55 dBA L₁₀ between 7.00 am and 10.00pm 45 dBA L₁₀ and 75 dBA L_{max} between 10.00pm and 7.00am</p> <p>When measured at or within the boundary of any residential land use site.</p>	<p>This standard is now considered obsolete and has been replaced by R13.4.6.1(vii).</p>
<p>(iii) PNAL shall limit movements of military jet training aircraft to the hours of 8.00am to 9.00pm (NZST), or 10.00pm (NZDT).</p>	
<p>(iv) Engine Testing is subject to a range of noise controls depending on time of day and whether it is scheduled maintenance or essential unscheduled testing.</p>	<p>Refer to the PNCC District Plan for the full set of engine testing controls.</p>

Standard	Notes
<p>(v) PNAL shall ensure that any habitable rooms used by a noise sensitive activity¹ and any office activity within a building within the Airport Environs Precinct shall be protected from noise by ensuring the external sound insulation achieves the following standard: $DnT,w + Ctr > 35 \text{ dB}$</p>	
<p>(vi) Where bedrooms and sleeping areas with openable windows are proposed, a positive supplementary source of fresh air is required at the time of fit-out. This must achieve a minimum of 7.5 litres per second per person.</p> <p>Office activities shall be provided with mechanical ventilation such that they comply with the Building Code (G4) while achieving the required sound insulation level.</p>	
<p>(vii) Where the Airport Zone, Residential Zone and Rural Zone interface the following noise rules shall apply in the Airport Zone: 7.00am – 7.00pm: 55dBA LAeq(15min) 7.00pm – 10.00pm: 50dB LAeq(15min) 10.00pm – 7.00am: 45dB LAeq(15min) Night-time Lmax: 75dBA Lmax</p>	<p>Aircraft operations and engine testing are excluded from these standards, in keeping with R13.4.6.1(ii) that this rule replaces. This rule applies at the zone interfaces, even if this interface falls within the airnoise contour.</p> <p><i>Note: This rule replaces the limits set out in R13.4.6.1(ii). Rule R13.4.6.1(vii) will be the only standard relevant to this NMP.</i></p>

¹ Means any: residential activity, accommodation motel, motel conference centre, community house, dwelling and dwelling unit, early childhood facility, multi-unit residential development, residential car, or retirement village (PNCC District Plan, 2018).

3 Compliance Monitoring

The PNCC District Plan requires that the PNAL NMP address mechanisms for establishing and maintaining compliance with R13.4.6.1(i). This rule requires the following:

“The Palmerston North Airport Company shall ensure that noise emissions from aircraft operations shall not exceed 65LDN at the Airnoise boundary as shown on Map 10.6.6.1 when measured and assessed using the methods described in NZS 6805:1992 Airport Noise Management and Land Use Planning.

The following is an exception to the rule:

- (a) The operation of unscheduled flights required to meet the needs of a national or civil defence emergency declared under the Civil Defence Act 1983*
- (b) Closure of major airports due to weather and the use of Palmerston North Airport by diverted aircraft*
- (c) The use of Palmerston North Airport by diverted aircraft due to operational emergencies at other airports*

This monitoring programme is to be carried out by a suitably qualified and experienced person and all measurements shall be in accordance with NZS 6805:1992 Airport Noise Management and Land Use Planning.

The following section addresses these requirements.

3.1 Monitoring Programme

PNAL will undertake compliance monitoring at the Airnoise Boundary (ANB) through a “count and calculate” method. The rolling 3-month L_{dn} noise level at representative noise sensitive locations on the ANB will be calculated each month using the actual aircraft movement records and established noise levels for individual aircraft operations at the compliance monitoring locations. The four compliance monitoring locations are shown on the attached plan (refer **Appendix A**).

The noise levels for individual aircraft operations will be established through a combination of noise modelling and in-field measurements. The L_{AE} (SEL) for each prevalent aircraft type at Palmerston North Airport under four different operations will be required – Arrival 07, Arrival 25, Departure 07, Departure 25. Prevalent aircraft include scheduled passenger services, regular freight services and other regular operations. For aircraft types that fly infrequently at Palmerston North Airport, noise levels shall be assigned to that aircraft type based on a knowledge of its characteristics such as engine make, type and size and propeller characteristics and any available and relevant noise measurement data. For example, all single piston engine general aviation aircraft may use generic noise data for this aircraft type.

The count and calculate monitoring spreadsheet will be updated with actual aircraft movement data every month by PNAL. The spreadsheet will provide a report showing the calculated rolling 3-month L_{dn} at the four compliance monitoring locations.

The count and calculate monitoring spreadsheet will be prepared by an independent acoustician and details of the modelling and measurements used to establish the noise levels for individual aircraft operations at the compliance monitoring locations will be recorded for future reference.

The monitoring spreadsheet will be updated at such times as any substantial change in aircraft type for scheduled operations occurs. The monitoring spreadsheet will be audited every five years by an independent acoustician who will recommend changes as required to ensure it is a reliable noise monitoring tool. Details of any changes will be recorded.

If the calculated noise level at any of the compliance assessment locations is greater than 64.0 dB L_{dn} then PNAL will agree an approach with PNCC on how to verify compliance and manage aircraft operations noise to comply with the 65 dB L_{dn} limit.

3.2 Reporting Procedure

The results from the count and calculated noise monitoring shall be made available on the PNAL website, as well as being provided to PNCC and MDC for review. This will enable immediate access for all interested persons, maintaining transparency in compliance of R13.4.6.1(i).

4 Aircraft Noise Management

All flight operations are to comply with Civil Aviation Authority (CAA) rules, specified in CAA Rules Part 91 (General Operating and Flight Rules). Specifically, Subpart J, which specifies rules relating to Operating Noise Limits.

PNAL will assist in promoting voluntary compliance with noise limits by operators, with the objective that emission of noise from aircraft operating in close proximity to the airport and urban environment of Palmerston North city is kept as low as possible, consistent with safety.

The key noise mitigation mechanism that PNAL will encourage relates to promoting considerate flying practices consistent with safe aviation practice. The following general noise mitigation procedures will be promoted for all aircraft using Palmerston North Airport:

- Circuits left-hand for main runway 07 and right-hand for runway 25;
- Between the hours of 10.00pm and 7.00am local time jet and turbo-prop powered aircraft shall on departure from runway 25 not commence a left-turn within 4 nautical miles of the airport; and on departure from runway 07 not commence a right turn by visual reference below an altitude of 1,500ft;
- Between the hours of 10.00pm and 7.00am local time aircraft shall not operate at an altitude of less than 3,000ft over the Palmerston North urban area between the extended runway centreline and the Manawatu River except during approach and take-off from the runway.

5 Complaints and Communications Procedure

The PNCC District Plan requires that PNAL identify and establish procedures and systems to:

- Facilitate communication between residents around Palmerston North Airport, airport users, PNAL and PNCC
- Identify key people for communications purposes and methods of contact
- Provide a dispute management system to receive, record, deal with and monitor complaints

The following section addresses these requirements.

5.1 Communications Procedure

PNAL will convene an 'Airport Noise Liaison Committee' to manage local airport noise issues. This Committee will contain representatives from the following interest groups:

- PNCC
- MDC
- PNAL

The primary functions and activities of this Committee will be:

- Promotion of communication and understanding between all parties;
- Receipt and review of complaints reports;
- Advising on complaints handling procedures to avoid the escalation of disputes and ensure their efficient management; and
- To establish and use mediation as the method of resolving complaints so as to avoid escalation of problems.

Meetings of this Committee shall be convened on an as required basis. Meetings will be held at Palmerston North Airport.

The Palmerston North Airport website (<https://pnairport.co.nz/>) will be used to provide the wider public with information relating to the airport such as this NMP and the results of field monitoring.

5.1.1 Key Personnel Identification

PNAL provides general contact information, such as email contact, postal address, and phone number, on the airport website. Separate to this, key airport personnel are listed on the airport's website, including a list of all airport directors and management staff. A summary of each individual's role in the organisation is also provided.

While direct staff contact information is not provided on the website, members of the public are able to direct any queries relating to airport functions and services towards the email address info@pnairport.co.nz.

5.2 Complaints Procedure

The purpose of the complaints procedure below is to provide the community with a mechanism to report specific instances of annoyance believed to be caused by aircraft noise emissions. PNAL is responsible for the maintenance of, and reporting from, the noise complaints system.

5.2.1 Receipt of Complaints

Complaints may be made to +64 6 351 4415, where complainants can leave the following details:

- Name
- Contact details
- Date/time
- Location of complaint
- Nature of complaint (i.e. jets flying overhead, helicopter circuits)

Phone complaints will be received by PNAL staff appropriately trained in complaints management procedures and have a general background in airport, aircraft operations and noise issues. This contact phone is accessible from 5:00am until 30 minutes after the last arriving or departing flight daily, seven days per week.

Alternatively, persons wishing to lodge a complaint may do so in writing, addressed to the following:

*Customer Services Executive
Palmerston North Airport Ltd
P O Box 4384
Palmerston North*

Or to the email address info@pnairport.co.nz.

5.2.2 Recording and Resolution of Complaints

PNAL will investigate all complaints and provide a preliminary response to people within five working days, and a final written response within 20 working days. PNAL staff managing the complaint will also record any information that they have available as to the cause of the noise incident, such as weather conditions. Any remedial actions taken will also be advised to the complainant.

Any unresolved or on-going complaints will be referred to the Airport Noise Liaison Committee for discussion.

Any threatening or abusive complaints will likely not be acknowledged and may be referred to the New Zealand Police.

PNAL will put in place arrangements with local aircraft operators and the Air Traffic Services providers and RNZAF for investigating complaints (provision of flight details and, where possible, the nature and cause of the noise incident).

Complaints lodged with MDC or PNCC directly will generally be resolved by the respective council within two working days or referred to PNAL within two working days of receipt for PNAL to action as noted above.

5.2.3 Monitoring of Complaints

PNAL will maintain a Complaints Register of all recorded noise-related complaints. Copies of this register will be provided to PNCC and MDC at 12-monthly intervals. The register will include information relating to the nature of the complaint, weather conditions at the time of the complaint, actions arising, and a broad comment on any specific trends emerging from the data. PNAL will make comment on any appropriate noise mitigation measures that may be required as a result of these trends.

6 Review of Noise Management Plan

The PNCC District Plan requires that this NMP be reviewed by PNCC and PNAL, with input from the community and MDC, at three-yearly intervals.

A

Appendix A – Compliance Monitoring Locations



Palmerston North Airport Proposed Air Noise Boundary Compliance Monitoring Locations





B

Appendix B – Passenger Service Aircraft Forecasting 1998



SCENARIO B2 (Optimistic)

Annual Growth Projections

Passengers (PAX) α = 3.00%

REGULAR PASSENGER SERVICE AIRCRAFT FORECAST

Aircraft Type	Seats	Actual 1992 ¹		Actual 1996 ¹		Noise Study 2004 ⁶		New Forecast 2007 ³		New Forecast 2047 ³	
		MOVEMENT	SEATS	MOVEMENT	SEATS	MOVEMENT	SEATS	MOVEMENT	SEATS	MOVEMENT	SEATS
Comsep	2	14,058	28,116	2,600	5,200	14,058	28,116	3,000	6,000	5,000	10,000
BE58p	2	2,548	5,096	4,200	8,400	2,548	5,096	5,000	10,000	7,500	15,000
CNA441	6	28	168	20	120	28	168	40	240	50	300
FA3	18	3,772	67,896	500	9,000	2,555	45,990	650	11,700	1,500	27,000
E110	16	3,070	49,120	5,200	83,200	0	0	6,800	108,800	13,000	208,000
SF34	33	40	1,320	4,974	164,142	2,920	96,360	5,000	165,000	6,000	198,000
DH8	48	2,510	120,480	2,958	141,984	4,380	210,240	4,000	192,000	12,000	576,000
HS748	42	934	39,228	0	0	0	0	0	0	0	0
F27	44	61	2,684	0	0	0	0	0	0	0	0
ATR72	66			2,200	145,200			5,000	330,000	12,000	792,000
G11B	18	2	36	0	0	2	36	0	0	0	0
Lear35	14	24	336	8	112	72	1,008	12	168	20	280
B737/300	141		0	585	79,685		0	1,200	169,200	5,000	705,000
B737/200	113	2,815	318,095	68	7,684	365	41,245	300	33,900	0	0
BAe146	93	36	3,348	23	2,139	1,095	101,835	400	37,200	2,000	186,000
B767	240	0	0	0	0	0	0	50	12,000	1,000	240,000
Totals ⁽⁴⁾		29,898	635,923	23,316	646,846	28,023	530,094	31,452	1,076,208	65,070	2,957,580
Movements/Day ⁽⁴⁾		82		64		77		86		178	

Passengers Carried ⁽⁵⁾	305,245	328,462	416,086 ²	454,668 ²	1,483,145 ²
Load Factor ⁽⁷⁾	48.0%	50.8%	78.5%	42.2%	50.1%

Notes : 1. - 1992 & 1997 data for Pax from records as are movements
2 & 3. - Data based on input growths using (1+i)ⁿ base (base is 1996 actual)
4. - Movements are 'arrival' plus 'departure'.
5. - Passengers Carried are total (both Arrival plus Departure)
6. - Data as Forecast in 1993 Noise Study by Palmerston North Airport Ltd (Tables 3.1 and 3.2)
7. - Load Factor is average over 'arrivals' plus 'departures'

OTHER AIRCRAFT FORECAST

Aircraft Type	Actual 1992 ¹			Actual 1996 ¹			Noise Study 2004 ⁶			New Forecast 2007			New Forecast 2047		
	Arrival	Departure	Circuits	Arrival	Departure	Circuits	Arrival	Departure	Circuits	Arrival	Departure	Circuits	Arrival	Departure	Circuits
B737				4	0	4				8	0	8	20	0	20
CVR58-	327			510	505	5	0			600	600	0	800	800	5
FA3	238			921	914	7	296			1,000	1,000	0	1,500	1,500	7
F27	105			203	203	0	461			360	360	0	500	500	0
CNA441	21						26								
E110				61	28	104				100	100	0	200	200	104
DH8						24				200	200	0	300	300	24
GA															
COMSEP	1,614		532	7,202	1084	13,775	1,614		532	10,000	5,000	15,000	18,000	18,000	18,000
BEC58P	1,256		449	848	451	899	1,266		449	1,000	400	1,000	1,500	1,500	899
HS14	2						2								
F28							6								
MILITARY															
A4	35						35								
Aeromachi	74			519	372	489	267			600	400	600	600	600	600
Strikemaster	193						0								
B727	5			7	7	7	5			50	50	0	100	100	0
C130	1						1								
Airtrainer										900	900	0	1,200	1,200	
HELICOPTER															
Single piston	161		38				161		38						
Single Turbo	405		6	997	1079	177	405		18	1,000	1,000	200	2,000	2,000	200
Twin Turbo	5		2				5		2						
Totals	4,455		1,029	11,272	4,643	15,491	4,550		1,039	15,818	10,010	16,808	26,720	26,700	19,859
Movements/Day	12		3	31	13	42	12		3	43	27	46	73	73	54

Total Aircraft Movements	10,968 ⁽⁸⁾	46,897	11,178 ⁽⁸⁾	59,444	93,138
Grand Total Annual Movements =	40,866	70,213	39,201	90,896	158,208

Note : Total aircraft movements are arrivals plus departures plus circuits
8. Departures are assumed to equal arrivals

Scenario Notes

This Scenario is based on annual movement projections by PNAL as below:

Horiz on	General Scheduled International				
	Aviation	Domestic	al	Freight	Total
10 Year	74,800	23,000	1,500	500	99,800
20 Year	110,700	28,100	2,900	1,000	142,700
50 Year	120,000	35,000	4,000	1,500	160,500

C

Appendix C – Noise Complaint Register and Form



Appendix C: Noise Complaint Register

[illegible]

Appendix C: Noise Complaint Form

COMPLAINANT		Complaint No:
Name		Company
Address:		Phones HM _____ Bus _____ MOB _____ Time _____
Nature of Complaint		Time
Where		
Aircraft Type if known) registration, colour, distinguishing characteristics		
Investigation / By Whom		
Date and Actions		
Response to Complainant:		
Recommendations (if any)		
Signed (by the person investigating to track accountability)		Date _____