

Memo

To: Aircraft Noise Community Consultative Group

From: Kylie Higgs

Date: 10 March 2025

Subject: Missed Approach Procedure Change Verification Study

1.0 Purpose

The purpose of this memo is to

- to present the Divergent Missed Approach System (DMAPS) verification study that was commissioned to validate the modelled data provided at the March 2024 Aircraft Noise Community Consultative Group (ANCCG)

2.0 Background

Auckland International Airport Limited (AIAL) advised the ANCCG at the 11 December 2023¹ meeting of proposed turboprop north flightpath changes to accommodate the new missed approach flight path. These changes occurred on the 29 November 2024 and included

- movement of the Runway 05L turboprop departure from tracking over Papatoetoe – Pakuranga to a proposed new track of Mangere East – Mt Wellington/Stonefield's.
- movement of the Runway 23L turboprop departure from tracking over the Manukau Harbour – Armour Bay to a new proposed track of Manukau Harbour – South Titirangi.

To ensure that these changes did not impact the communities of Mt Wellington, Stonefield's and South Titirangi a initial study² was commissioned with Marshall Day Acoustics (MDA) to quantify the change in noise and assess future compliance. MDA undertook this study using a two-stage analytical approach, being analysis of actual noise measurements from current flightpaths, and modelling of the proposed flightpaths. MDA concluded that the proposed flightpaths would have no significant impact on the community or impact overall compliance with the Auckland Unitary Plan (AUP).

Based on the results of this study AIAL were comfortable to move forward with implementation, however because the data was based on modelling it was agreed that AIAL would commission a verification study to validate these results with actual data. AIAL commissioned MDA to complete the verification study and it was agreed that AIAL would present the study results at the 10 March 2025 ANCCG.

3.0 The Verification Study

To conduct the verification study (Appendix 1) MDA installed a noise monitor in Stonefield's to measure Runway 05 departures and a noise monitor in Titirangi to measure Runway 23 departures (Figure 1). MDA selected locations of the noise monitors based on the following criteria

- as close as possible to the new flightpaths and
- in an area with minimal existing noise sources nearby.

¹ https://corporate.aucklandairport.co.nz/-/media/Files/Corporate/Airport-Noise/ANCCG-2023/December/7_Memo---Missed-Approach-Procedure-Change.ashx

² https://corporate.aucklandairport.co.nz/-/media/Files/Corporate/Airport-Noise/ANCCG-2023/December/7_Missed-Approach-Procedure-MDA-report.ashx



The monitors were installed to capture a minimum of 30 complete days of data prior to and post the flightpath change on 29 November 2024. The 30-day periods were:

- Pre-flightpath change: 29 October 2024 to 27 November 2024
- Post-flightpath change: 18 December 2024 to 16 January 2025



Figure 1: Noise monitor locations

4.0 The Results

The verification study validated the data in the initial study and the conclusions confirm that the flightpath changes would have no significant impact on the overall community or impact overall compliance with the Auckland Unitary Plan (AUP).

Monitor Results

The following tables summarise the noise levels of turboprop aircraft (along the northern SID's) captured by the monitors before and after DMAPS began. These turboprop aircraft are Cessna 208B Grand Caravan and Dash-8, also known as Q300.

		Number of flights measured	Average sound exposure noise level L_{AE} (SEL) (decibels)	Range of measured L_{AE} (SEL)(decibels)
Stonefields	Pre-DMAPS	11	74	67 to 76
	Post-DMAPS	22	75	72 to 77
Titirangi	Pre-DMAPS	50	74	64 to 77
	Post-DMAPS	159	75	65 to 79

Table 1: Noise levels measured at noise monitors (Cessna 208B Grand Caravan)



		Number of flights measured	Average sound exposure noise level L _{AE} (SEL) (decibels)	Range of measured L _{AE} (SEL)(decibels)
Stonefields	Pre-DMAPS	23	70	67 to 74
	Post-DMAPS	6	73	70 to 75
Titirangi	Pre-DMAPS	79	69	65 to 73
	Post-DMAPS	58	71	66 to 76

Table 2: Noise levels measured at noise monitors (Dash-8)

Comparison Data

Table 1 below compares the modelled data collected from the initial study noise levels with the actual data collect from the verification study. This is for the louder and more frequently used aircraft – Cessna 208B Grand Caravan. For Pre-flightpath change there is a large discrepancy (12 decibels) between the modelled data and actual data which was likely due to the deviating flight paths. For post-flightpath change the modelled data is almost identical to the actual data (1 decibel difference).

		Predicted L _{AE} (SEL) decibels	Measured L _{AE} (SEL) (decibels)	Difference between predicted and measured noise level (decibels)
Stonefields	Pre-DMAPS	62	74	+12
	Post-DMAPS	74	75	+1
Titirangi	Pre-DMAPS	62	74	+12
	Post-DMAPS	74	75	+1

Table 3: Noise levels measured at noise monitors

5.0 Next Steps

Based on the results of this study AIAL is comfortable with its decision to approve the changes to the turboprop north flightpaths.

AIAL will contact the Ōrākei and Waitākere Ranges Local Board to

- communicate the results of the verification study
- understand how they want this information disseminated to the communities that were affected by this change.



Appendix A: Marshall Day Acoustics Auckland Airport Verification Study – 25 January 2025

Please refer to separate attachment: Auckland Airport DMAPS study – Stage 2

