

# PERTH AIRPORT AIRCRAFT NOISE VALIDATION STUDY

In July 2015, an environmental assessment was completed of a proposed flight path to modify night-time (10 pm to 5 am) departures from the southern end of Perth Airport's main runway (Runway 21) that was intended to give respite to suburbs to the southwest of the airport.

The assessment used noise modelling with a number of theoretical inputs to determine the likely noise outcomes.

The assessment's conclusion was that the proposed flight path would not deliver an overall noise improvement to the Perth community. Airservices, therefore decided not to progress the proposal.

Following feedback from numerous stakeholders, it was determined to undertake a short validation study to compare modelled and actual aircraft noise data.

Eight noise monitors were located along the flight path at the same (or very close to the same) points as were modelled for the environmental assessment: **Langford** (St Jude's Catholic School), **Thornlie** (Church of Jesus Christ of Latter Day Saints), **Canning Vale North** (Canning Vale College), **Canning Vale South** (Ranford Primary School), **Cockburn Central** (near Gateway Community Church), **Munster** (near Challenger Institute of Technology), **Beeliam** (South Coogee Primary School) and **Beaconsfield** (Christ the King School).

Flights for the validation study occurred as follows:

- 15 February to 6 March – validation flights occurred 10 pm to 5 am
- 7 March to 20 March – all flights followed existing flight paths
- 21 March to 10 April – validation flights occurred 10 pm to 5 am.

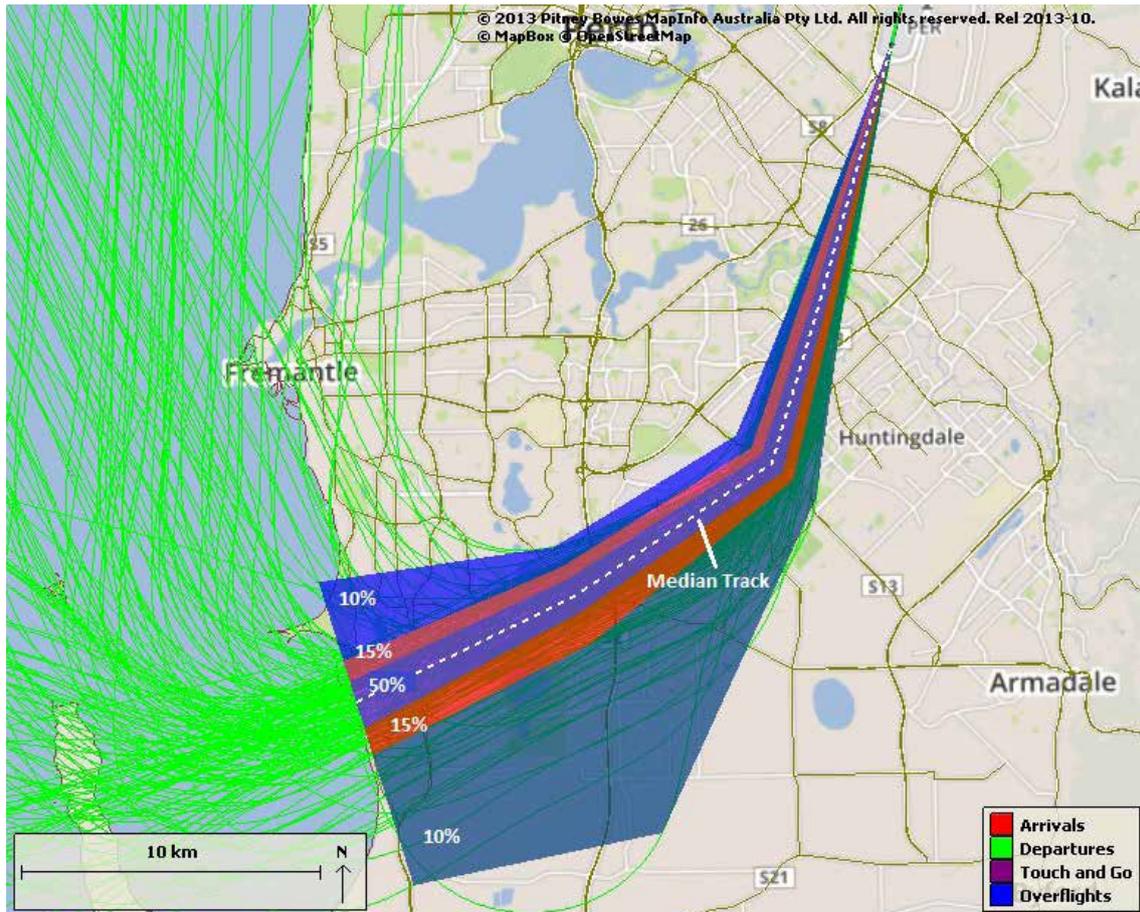
## KEY FINDINGS

- Five aircraft types participated in the validation study: A320-200, A330-300, B777-300/ER, A340-300 and A380-800.

- Modelling in the environmental assessment presented the worst case scenario where all the flights were concentrated on a single flight path. The validation study showed that 80 per cent of departures formed an approximate five kilometre-wide flight path corridor at the time they reached the coast (see illustration over page).
- The A340 aircraft did not climb as well as the modelling forecast, especially at those monitoring locations further along the flight path (beyond the turn to the west) from the airport.
- There was little difference between the modelling and measured noise levels for all aircraft types at the noise monitors located closest to the airport (Langford and Thornlie). This was expected as the altitudes flown were similar to the modelling.
- From Canning Vale onwards, the difference between the averages of the measured L<sub>Amax</sub> was within one standard deviation of the modelled value except for the A340 aircraft, which was flying at a lower altitude than forecast and therefore had a noticeably greater noise impact at ground level than anticipated.
- The population counts measured in the validation study for the most frequently-used aircraft type (Airbus A330-300) showed an improvement over the modelling with less people exposed to the L<sub>Amax</sub> 60 footprint but a worsening with more people exposed to the L<sub>Amax</sub> 70 footprint.

Table 1 over the page shows a sample comparison of the noise modelling against noise levels measured at each noise monitor—the aircraft types are the A330-300 which flew the most frequently in the validation study comprising 31 percent of flights, and the A340-300 which was the loudest aircraft recorded at all the monitors (comprising 15 percent of flights).

**Figure 1:** Track spread for all departures during the validation study



**Table 1:** Modelled and measured (average) noise levels (dBA)

Monitor	A330-300		A340-300	
	Modelled	Measured	Modelled	Measured
Langford	73.4	74.3	76.1	78.0
Thornlie	69.6	70.6	69.4	71.6
Canning Vale North	69.9	71.1	71.3	75.3
Canning Vale South	68.5	70.1	71.0	74.9
Cockburn	64.2	65.3	66.1	70.9
Beeliar	61.4	60.5	63.2	66.4
Munster	61.1	60.9	63.5	67.7

## CONCLUSION

The validation study shows on average there were 4.2 aircraft departures at a time that is likely to cause sleep disturbance. This exceeds Airservices assessment criterion (of three flights) for this proposal and therefore confirms the original conclusion that the initiative did not provide an overall noise improvement.

Airservices had previously indicated that if the validation confirmed the environmental modelling, this initiative would not be pursued further. We consider this flight path change initiative to now be closed.