Environmental Assessment

Runway 19 – Southern Departure realignment

Brisbane Airport

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Introduction

The purpose of this document is to provide the results of the Environmental Assessment completed in July 2014 for the proposed realignment of the southern departure from Runway 19 at Brisbane Airport.

Brisbane Airport is located approximately 12km north east of Brisbane. The airport has two non-intersecting runways. The main runway; Runway 01/19 is 3,560 metres long. The smaller runway; Runway 14/32 is 1,700 metres long.

Figure 1 shows a satellite image of Brisbane Airport.

Figure 1 Brisbane Airport

RWY 19 Southern Departure

The proposed change will move the existing flight path further west by 200 metres between the points where aircraft turn southeast and then turn again to continue south along the existing flight path.

Below is a diagram which illustrates the proposed change.

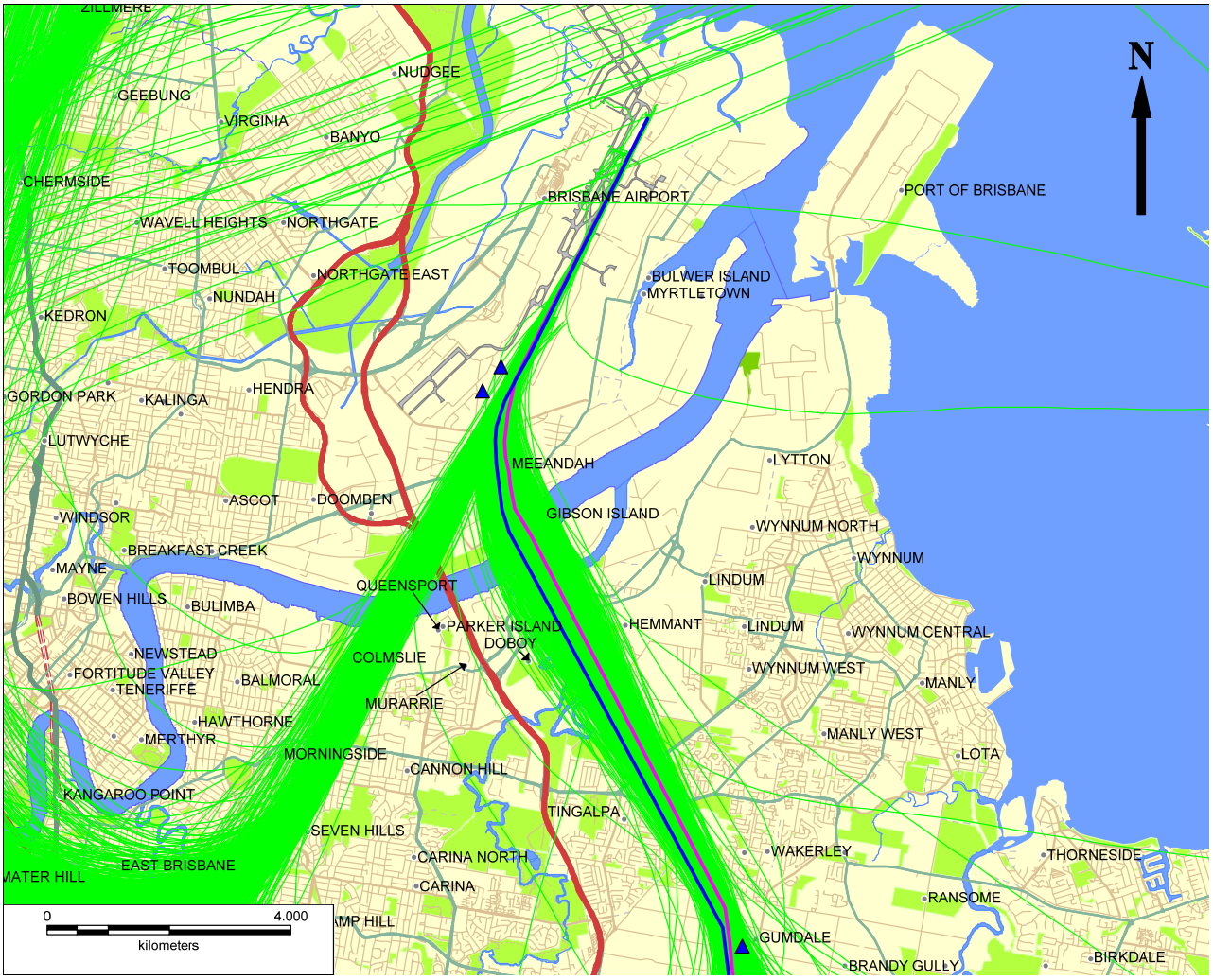


Figure 2 - Existing flight path (Pink) and proposed flight path (Blue)

Assessment

Assumptions

The assessment was based on the following assumptions:

- Aircraft movement data for the 2013 calendar year – the most recent full calendar year.
- Proportion of aircraft operations using the existing and proposed procedure
- Jet aircraft only

Nominated Aircraft

The Environmental Assessment is specific to jets as this particular departure is reserved for use by jet aircraft only. The most popular aircraft utilising the southern departure in 2013 was the Boeing B738 representing nearly 50% of the total number of flights departing Runway 19. The total number of flights utilising this flight path averaged 53 flights per day, ranging from 1-137.

How was noise measured?

Noise is measured using A-weighted decibels dB(A) which is a representation of the loudness of sounds in the air as perceived by the human ear.

To measure the maximum sound level of a single noise event, (LAmax) is calculated. This indicates the highest noise level a person on the ground would hear from a single aircraft overflight (arrival or departure).

The noise metrics used provides information on the noise of individual over flights and the number of noise events to be considered for all areas situated under a flight path and the procedure associated with the proposed flight path realignment.

It is known that the potential impact of noise upon communities will vary dependent upon land use, with urban areas frequently reporting a higher acceptance of increased noise levels than rural areas-reflecting higher ambient noise levels associated with transport, traffic and other activities.

Airservices has noted that the following threshold values have been observed as reliable indicators of increased community awareness of aircraft noise changes in urban areas, and these have been applied in order to determine 'potential significance' as defined in Section 160 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth).

These threshold levels have been established by Airservices following consultation with community groups regarding the level at which aircraft noise and/or movement changes are generally noticed by members of the public, and may also be an indicator of community annoyance factors in response to aircraft noise changes.

LAmax: The change in LAmax noise levels with reference to how people may perceive the sound is outlined below; noting that each individual may experience sound, and perceive changes in noise levels differently. A useful rule of thumb is summarised below.

- LAmax noise level changes of up to 3dB(A) are not likely to be perceptible.
- LAmax noise level changes of between 3dB(A) and 5dB(A) may be perceptible.
- LAmax noise level increases of between 5dB(A) and 10dB(A) are likely to be perceptible.
- LAmax noise levels of greater than 10dB(A) may be perceived as twice as loud.

Noise Events (Nxx): The change in number of noise events thresholds are as outlined below:

For areas receiving a high level (10 or more noise events of 70dB(A) or louder/day) of existing over flights

- An increase by 25% in the number of noise events at or above 70dB(A) during the day (7am-10pm)
- An increase by 25% in the number of noise events at or above 60dB(A) during the day time (7am-10pm)
- An increase by 10% in the number of noise events at or above 60dB(A) during the night (10pm-7am)
- Any increase in the number of noise events at or above 70dB(A) during the night (10pm-7am)

For areas not receiving a high level (10 or more noise events of 70dB(A) or louder/day) of existing aircraft over flights

- An increase of 10 noise events at or above 70dB(A) during the day (7am-10pm)
- An increase of 50 noise events at or above 60dB(A) during the day (7am-10pm)
- An increase of 3 noise events at or above 60dB(A) during the night (10pm-7am)

General Principles

Noise Metric – LAmax

The LAmax is the maximum noise level from a single noise event which may be modelled or measured. LAmax results are reported in dB(A), rounded to the nearest whole decibel.

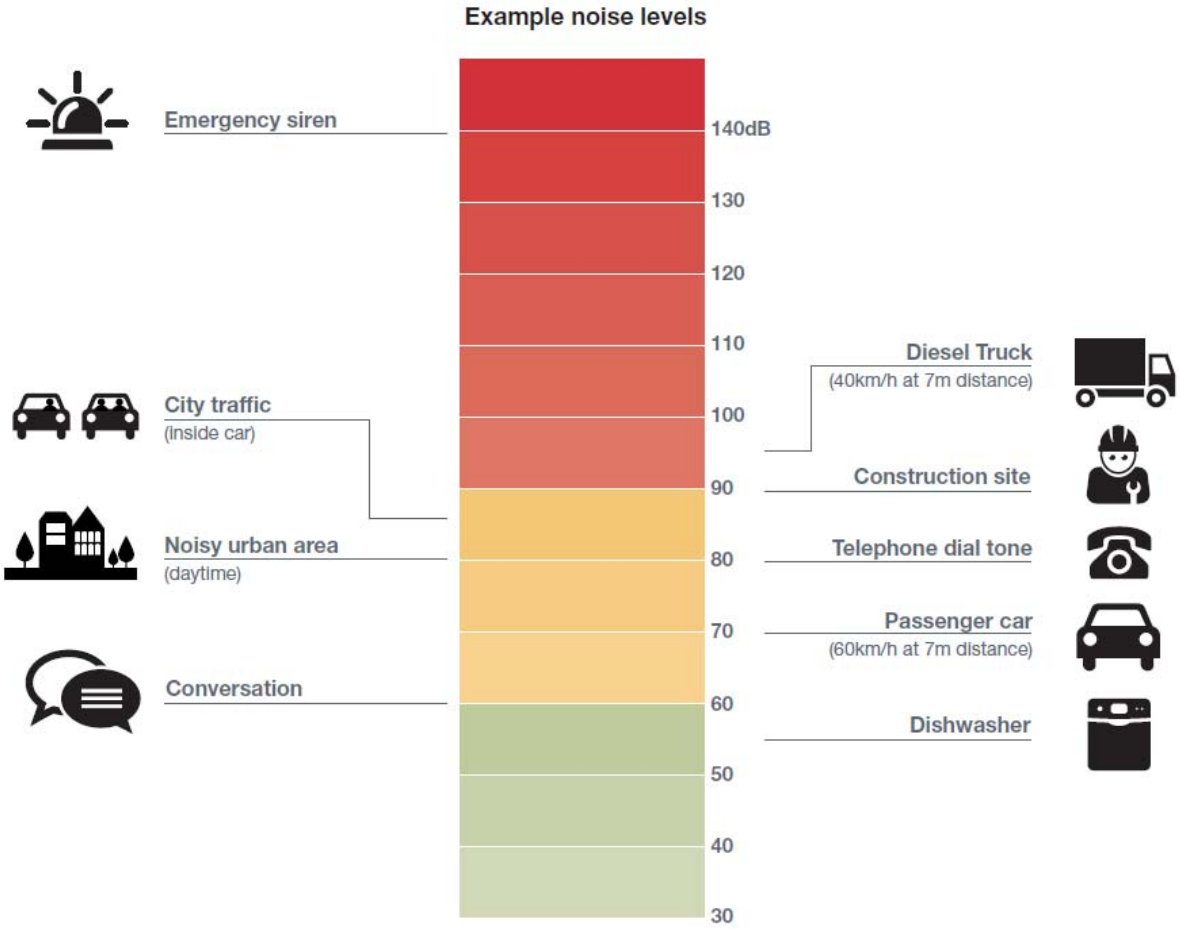
LAmax is also reported graphically in 60dB(A) and 70dB(A) noise contours, representing the geographical area within which the maximum noise of a single over flight event is likely to be at or above these threshold levels.

Noise Metric – N60

The N60 metric is the calculated number of noise events with a modelled maximum noise level of 60dB(A) or louder.

Noise Metric – N70

The N70 metric is the calculated number of noise events with a modelled maximum noise level of 70dB(A) or louder.



Above are some comparisons of sound levels most of us would experience on a regular basis.

Analysis

Below shows the LAmax noise levels in dB(A) at particular reference locations for the **Boeing B737-800** under the current and proposed flight paths.

Location	Proposed Track	Current Track	Difference
Pinkenba Post Office	74	75	-1
Limoso Luxury Transport	81	83	-2
Property Investment Services Henmant	76	77	-1
Henmant Village	73	75	-2
Cnr Bogong St & Oberon blvd, Henmant	74	75	-1
Phillips & Sons Engineering	74	74	0
Cnr Wynum Rd and Tingalpa Rd	73	73	0

LAmax noise levels at reference locations

This table shows that there is a noise decrease of 1dB(A) at the Pinkenba Post Office, Property Investment Services Henmant and the corner of Bogong St and Oberon Blv, Henmant. These noise decreases are not likely to be perceptible. There are noise decreases of 2dB(A) anticipated at Limoso Luxury Transport and

Henmant Village under the proposed flight path realignment. These decreases are not likely to be perceptible.

Number of Events – Day (7am-10pm Local Time)

The table below compares the number of noise events at or above 70dB(A) at each of the selected reference locations under the existing and proposed flight path during an average day time period (7am-10pm local time).

Location	N70 Existing procedure	N70 Proposed procedure	Difference
Pinkenba Post Office	40-49	21-30	Reduction up to 30 events
Limoso Luxury Transport	50+	50+	0
Property Investment Services Henmant	50+	50+	0
Henmant Village	50+	50+	0
Cnr Bogong St & Oberon blvd, Henmant	50+	50+	0
Phillips & Sons Engineering	50+	50+	0
Cnr Wynum Rd and Tingalpa Rd	40-49	40-49	0

N70 noise events comparison - average day

This table shows that the Pinkenba Post Office area can expect a reduction in the number of noise events at or above 70dB(A) from the 40-49 noise event bracket to the 21-20 noise event bracket under implementation of the proposed flight path realignment. This represents a reduction of up to 28 noise events during an average day time period (7am-10pm local time).

The table below compares the number of noise events at or above 60dB(A) at each of the selected reference locations under the existing and proposed flight path during an average day time period (7am-10pm local time).

Location	N60 Existing procedure	N60 Proposed procedure	Difference
Pinkenba Post Office	50+	50+	0
Limoso Luxury Transport	50+	50+	0
Property Investment Services Henmant	50+	50+	0
Henmant Village	50+	50+	0
Cnr Bogong St & Oberon blvd, Henmant	50+	50+	0
Phillips & Sons Engineering	50+	50+	0
Cnr Wynum Rd and Tingalpa Rd	50+	50+	0

N60 noise events at reference locations

The table above shows that there is no change anticipated in the number of noise events equal to or louder than 60dB(A) during the day time (7am-10pm local time) period at any of the reference locations studied under implementation of the proposed flight path realignment.

Number of events – night (10pm-7am Local Time)

As Brisbane Airport operates over night, noise events during the more sensitive night time period of 10pm-7am local time have been modelled. The table below compares the number of noise events at or above 60dB(A) under the existing southern departure and the proposed flight path realignment.

Location	N60 Existing procedure	N60 Proposed procedure	Difference
Pinkenba Post Office	1-10	1-10	0
Limoso Luxury Transport	1-10	1-10	0
Property Investment Services Henmant	1-10	1-10	0
Henmant Village	1-10	1-10	0
Cnr Bogong St & Oberon blvd, Henmant	1-10	1-10	0
Phillips & Sons Engineering	1-10	1-10	0
Cnr Wynum Rd and Tingalpa Rd	1-10	1-10	0

Number of noise events - average night time

This table above there is no anticipated change in the number of noise events at or above 60d(A) anticipated at any of the studied reference locations under implementation of the proposed flight path realignment.

Noise modelling determined the potential for a reduction in LAmax noise levels of up to 2dB(A) as a direct result of implementing the proposed flight path realignment. This noise reduction by itself is not likely to be perceptible, however when considered within the context of the N70 day time analysis which indicates that there may be a reduction in up to 28 noise events of 70dB(A) or greater during an average day time period (7am-10pm local time), this reduction in noise events may be noticeable.

No reference locations studied indicated an increase in noise anticipated as a direct result of implementing the proposed procedure.

Findings

Natural Environment Analysis

The proposed flight path realignment is not expected to result in any change to impact, or any additional impact on matters of national environmental significance as a direct result of implementing the proposed flight path realignment.

Cultural and heritage values analysis

The proposed flight path realignment is not expected to result in any change to over flight of, or any additional over flight on matters on areas of indigenous cultural significance as a direct result of implementing the proposed flight path realignment.

Conclusion

The proposed departure flight path realignment will provide a potential benefit to the Pinkenba community by reducing aircraft noise. However it is important to note that the decrease in maximum noise of each individual overflight is by up to 2dB(A), which is not likely to be noticeable; while the total number of noise events at or above 70dB(A) is anticipated to be reduced. This reduction may be noticeable.

The proposed flight path realignment is not likely to have a significant impact within the meaning of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).