



Runway 14 Departure Trial

Gold Coast Airport

Environmental Post Implementation Review

Released June 2012

1. INTRODUCTION

The trial to widen the departure paths was carried out at the request of the Gold Coast Airport Noise Abatement Consultative Committee (ANACC). This came as a result of representations from the then executive committee of the Fingal Head Community Association to the ANACC.

Fingal Head is a community in New South Wales over-flown by jet departures from Runway 14 for destinations to the North through to South East of the Gold Coast. The trial was carried out from 24 May -16 December 2010.

1.1 Purpose

The purpose was to spread out the jet departure paths for flights to specific destinations (Malaysia, New Zealand, Japan, Townsville, Mount Isa and Cairns) in order to reduce the noise exposure to residents at Fingal Head whilst maintaining minimal impact to other residential areas.

The pre-trial departure procedure, in preferred order, from Runway 14 for the specific destinations above was:

- Turn left heading 070 degrees until at least 2 NM over water
- Runway heading 140 degrees until established over water

The trial departure procedure from Runway 14 was:

- Turn left between the headings of 020 and 090 degrees until at least 2 NM over water
- Runway heading 140 degrees until established over water

1.2 Trial Environmental Assessment

The expected environmental impacts of the trial were assessed prior to implementation in accordance with Airservices' procedures. The assessment identified potential environmental effects associated with an increase of overflights for some communities not regularly overflown.

However, the assessment concluded that the proposed trial was not likely to be significant in terms of environmental impact because:

- The ANACC, which had proposed the trial, had broad community representation and responds to and provides feedback to the various communities that are represented
- The variable flight paths would cause overflight of a larger area but with decreased frequency
- The proposal was initially limited to a four month trial period which, at the request of the ANACC, was subsequently extended by three months to 16 December 2010

A number of procedures/conditions were implemented as part of the trial:

1. The Airservices Noise Complaints and Information Service (formerly Noise Enquiry Unit) was to be advised of details of the trial in order to monitor noise complaints and provide appropriate information to any complainants.
2. The trial departure procedure should cease if any substantial complaints or other unexpected environmental impacts arose until the issues were resolved/mitigated.

1.3 Post Implementation Review Methodology

Data analysis was carried out by comparing flight tracks before and during the trial period (May to December 2010) compared to a similar period in 2009.

Analysis of noise impacts was undertaken using the Integrated Noise Model, an internationally recognised tool developed by the Federal Aviation Administration, the national aviation authority of the United States. Four Penetration Gates were strategically located to capture the movements of aircraft for periods identified. A Penetration Gate is a virtual Gate that enables the determination and analysis of the position and altitude of aircraft overflying the area through the Gate.

2. ANALYSIS

2.1 Trial Period

2.1.1 Jet Aircraft movements

The total number of jet departures to the North through to South East destinations during the trial was 1576, compared to 1440 in a similar period in 2009, an increase of nine per cent.

In the same period, jet departures from Runway 14 increased from 756 to 952, an increase of 26 per cent (Table 1). There was an increase in the use of Runway 14 for departures during the trial period. This was not a consequence of the trial but related to normal factors that determine runway use.

Jet departures to specified destinations	Pre-trial 25 May to 17 Dec 2009 (207 days)	During trial 24 May to 16 Dec 2010 (207 days)
Runway 14	756	952
Runway 32	684	624
Total	1440	1576

Table 1: Jet departures to the specified destinations

The tracks for the jet departures to the identified destinations before and during the trial period are shown in Figures 1 and 2.

TRACK MOVEMENTS – PRE-TRIAL

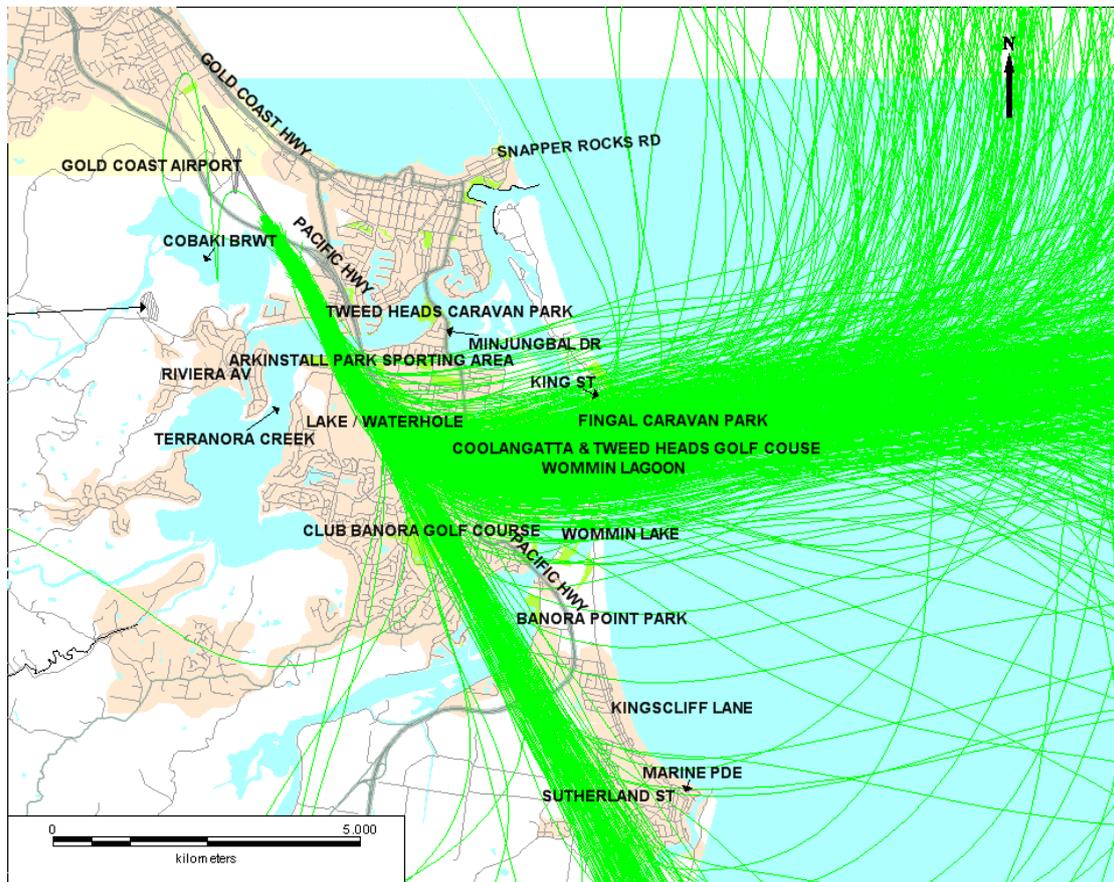


Figure 1: Jet departures from Runway 14 for the period 25 May to 17 December 2009 (pre-trial)

TRACK MOVEMENTS – TRIAL

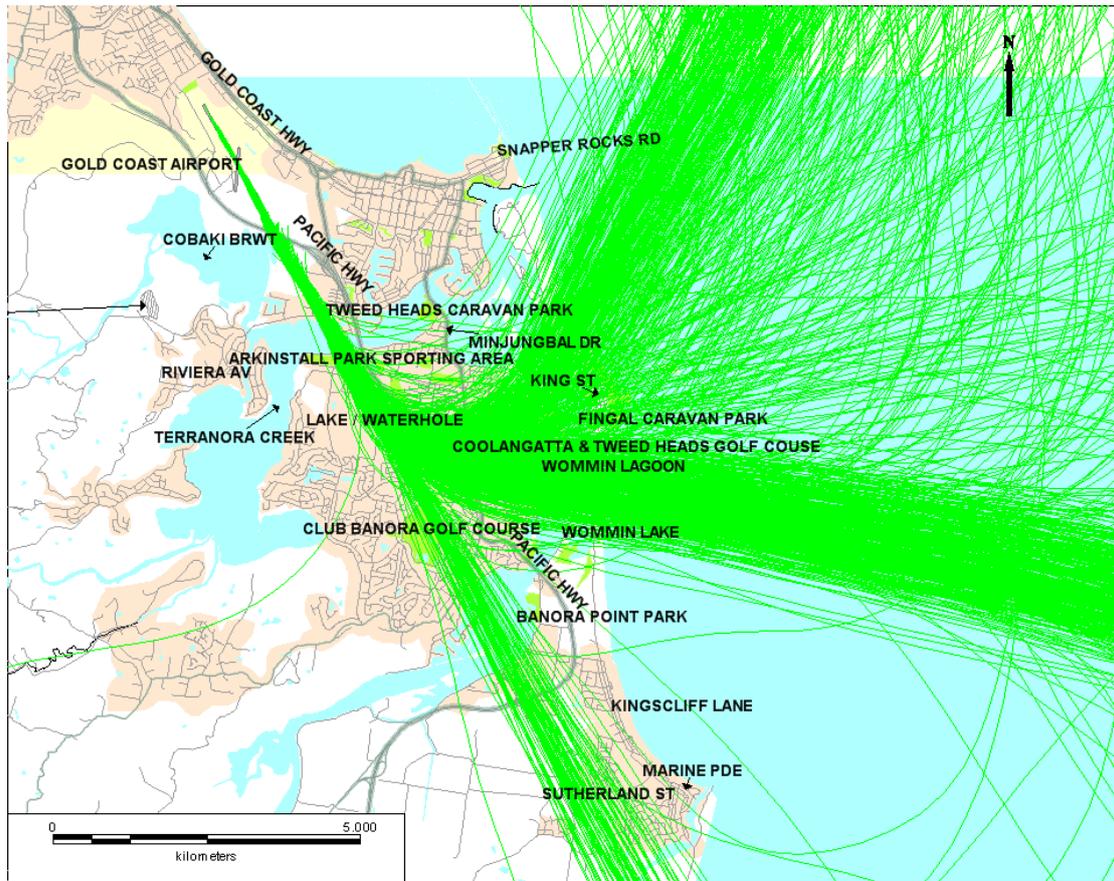


Figure 2: Jet departures from Runway 14 for the period 24 May to 16 December 2010 (during trial)

2.1.2 Penetration Gate Analysis

Four Penetration Gates were used to analyse tracks before and during the trial.

- Club Banora Golf Course
- North Banora Point
- Fingal Head 2
- Tweed Heads South Swimming Pool

Figure 4 shows the positions of the Gates. Altitude data (rounded off to the nearest 500 feet) was collected for all the tracks that went through the Gates.

The Gates were positioned to represent specific areas and may not capture all movements during the trial period.

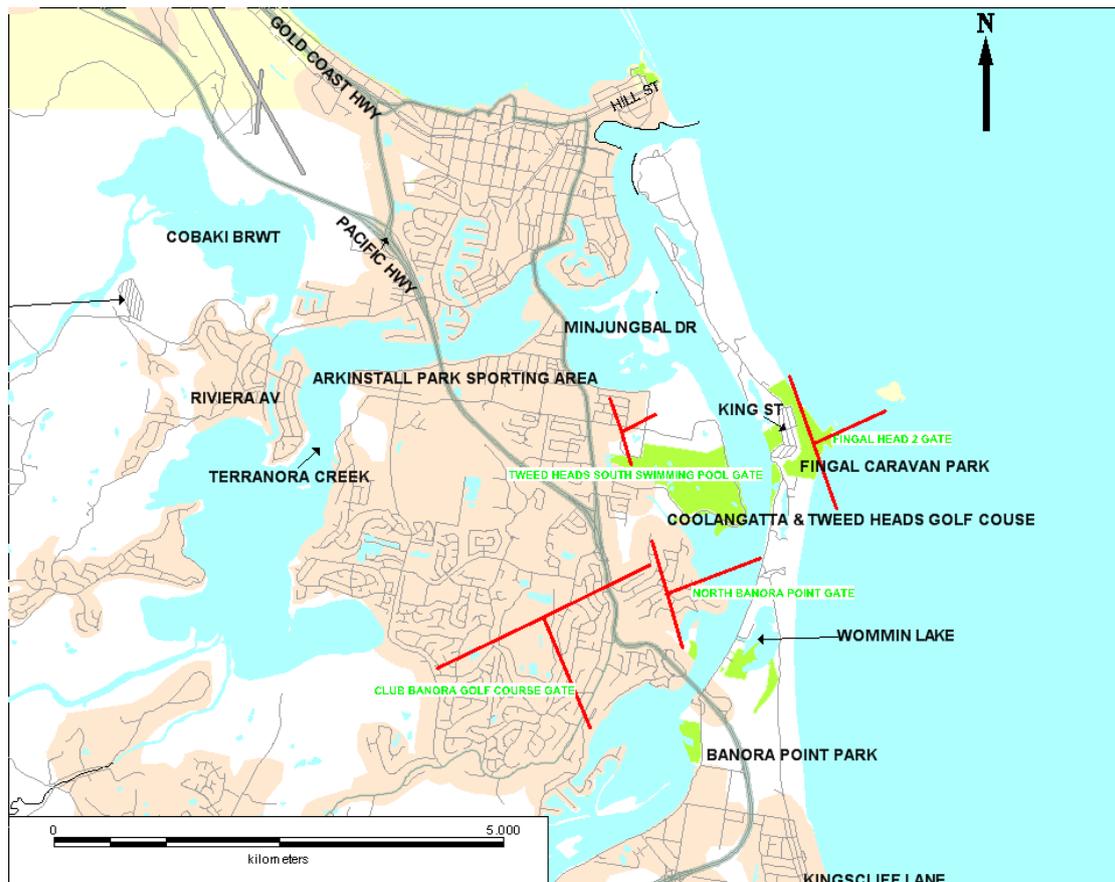


Fig 4: The positions of Gates used for analysing change in tracks before and during trial

2.1.2.1 Gate Fingal Head 2

Fingal Head 2 was placed in such a way as to capture jet departures that track over the central residential area of Fingal Head. During the 2009 period, 330 tracks went through the Gate. This equated to an average of 1.59 flights per day. However, despite an increase of 26 per cent in jet departures from Runway 14, only 153 tracks went through the Gate during the trial period in 2010, a decrease of 54 per cent. This equated to an average of less than one flight a per day (0.73).

There were no changes in altitude for the jet departures before and during the trial (Table 3). However, there was a shift of the tracks to the north, with 53 per cent of the tracks going through the northern half of the Gate during the trial compared with 19 per cent before the trial. During the trial, 47 per cent went through the southern half of the Gate. Thus, distribution was more evenly spread during the trial.

Gate Fingal Head 2	Altitude (ft)		
	minimum	median	maximum
Pre-trial 25 May-17 Dec 2009	2000	3000	5000
During trial 24 May- 16 Dec 2010	2000	3000	5000

Table 3: Gate Fingal Head 2 altitude levels for the period May-December 2009 & 2010

2.1.2.2 Gate Club Banora Golf Course

Club Banora Golf Course Gate was placed in such a way as to capture jet departures heading 140 degrees before and during the trial. During the 2009 period, 243 jet departure tracks went through the Gate (equated to an average of 1.17 flights per day). However, despite an increase in jet

departures from Runway 14, only 222 tracks went through the Gate during the trial period, a decrease of 9 per cent. This equated to an average of 1.07 flights per day.

There was a slight increase in the minimum and maximum altitude at the Club Banora Golf Course Gate during the trial period (Table 4). However, there was no substantial shift in the lateral spread of the tracks.

Gate Club Banora Golf Course	Altitude (ft)		
	minimum	median	maximum
Pre-trial 25 May-17 Dec 2009	1500	2500	4000
During trial 24 May- 16 Dec 2010	2000	2500	4500

Table 4: Gate Club Banora Golf Course altitude levels for the period May-December 2009 & 2010

2.1.2.3 Gate North Banora Point

This Gate was placed in such a way as to capture any new tracks as a result of spreading out of the departure paths. During the 2009 period 235 tracks went through the Gate (equated to 1.14 flights per day), increasing to 284 during the trial (equated to 1.37 flights per day). This increase of 21 per cent is consistent with the general increase in jet departures from Runway 14.

There was an increase in the maximum altitude for the jet departures during the trial (Table 5). However, there was no substantial shift in the lateral spread of the tracks.

	Altitude (ft)		
	minimum	median	maximum
Gate North Banora Point			
Pre-trial 25 May-17 Dec 2009	2000	2500	4000
During trial 24 May- 16 Dec 2010	2000	2500	5000

Table 5: Gate North Banora Point altitude levels for the period May-December 2009 & 2010

2.1.2.4 Gate Tweed Heads South Swimming Pool

This Gate was placed in such a way as to capture any new tracks as a result of spreading out of the jet departure paths during the trial. For the 2009 period, 26 tracks (equated to an average of 0.12 per day) went through the Gate increasing to 116 (equated to an average of 0.56 per day). This increase of 90 flights (346 per cent) represents a notable change in the number of flights over the Tweed Heads South area.

There was a slight increase in the median altitude during the trial (Table 6). However, there was no substantial change in the lateral spread of the tracks.

	Altitude (ft)		
	minimum	median	maximum
Gate Tweed Heads South Swimming Pool			
Pre-trial 25 May-17 Dec 2009	1500	2500	3500
During trial 24 May- 16 Dec 2010	1500	3000	3500

Table 6: Gate Tweed Heads South swimming Pool altitude levels for the period May-December 2009 & 2010

3. NOISE ANALYSIS

3.1 Noise Contours

Data from the Integrated Noise Model was used to determine indicative maximum noise levels from jet departures at the four Gates used in the analysis. The noise levels shown in Table 7 (below) are based on the lowest minimum and highest maximum altitudes identified both for the pre trial and during trial periods in order to show the expected range of noise levels. The noise modelling indicates that the noise levels from jet departures at the locations analysed are above the 70 dB(A) level generally considered to be intrusive.

Gate	Minimum Altitude	Indicative maximum noise level (dB LAmax)	Maximum Altitude	Indicative maximum noise level (dB LAmax)
Fingal Head 2 (Pre trial)	2,000ft	79	5,000ft	70
Fingal Head 2 (During trial)	2,000ft	79	5,000ft	70
Tweed Heads South Swimming Pool (Pre trial)	1,500ft	82	3,500ft	73
Tweed Heads South Swimming Pool (During trial)	1,500ft	82	3,500ft	73
North Banora Point (Pre trial)	2,000ft	79	4,000ft	72
North Banora Point (During trial)	2,000ft	79	5,000ft	70
Club Banora Golf Course (Pre trial)	1,500ft	82	4,000ft	72
Club Banora Golf Course (During trial)	2,000ft	79	4,500ft	71

Table 7: Noise Analysis. Altitude data rounded to the nearest 500 feet.

While there was no change to the maximum noise levels in the Fingal Head area from individual jet aircraft departures, there was a reduction in the

number of overflights of the residential area at the central point of Fingal Head.

However, there was an increase in the number of overflights of some areas of Banora Point and Tweed Heads South which would have resulted in an increase in aircraft noise exposure in those areas.

4. NATURAL ENVIRONMENT

The potential impact on Matters of National Environmental Significance and threatened species was considered as part of this Post Implementation Review.

Bird strikes are an important aspect of aircraft operations. There have been no bird strikes reported beyond the confines of Gold Coast Airport in the period 2007-2009. During 2010 there were three bird strikes and one bat strike by aircraft within the confines of Gold Coast Airport reported by the Australian Transport Safety Bureau (ATSB). There is no reported information on bird strikes during the trial period of bird strikes outside the confines of Gold Coast Airport.

While there was the expected increase in the lateral spread of aircraft tracks to the north and south of Fingal Head, the altitude of departing jet aircraft was 2,000 feet or above and would therefore not be expected to cause disturbance to threatened or migratory bird species.

5. OUTCOMES

Purpose of trial: to widen the jet departure paths for flights to specific destinations (Malaysia, New Zealand, Japan, Townsville, Mount Isa and Cairns) in order to reduce the noise exposure to residents at Fingal Head whilst maintaining minimal impact to other residential areas.

The trial provided an opportunity to successfully reduce aircraft movements over the central area of Fingal Head. The number of flights directly over this area was reduced by 54 per cent. This reduction was despite an increase in overall aircraft movements.

As a consequence of spreading the departure paths, some communities to the north of the Coolangatta and Tweed Heads Golf Course, Tweed Heads South, and east of Club Banora Golf Course received more exposure to aircraft movements and therefore aircraft noise. The general growth in aircraft traffic during 2010 also contributed to this.

No significant impact on the natural environment was expected to have resulted from the departure heading trial.

Noise complaint data was monitored during the trial period. During the calendar year 2009, there were 31 complainants registered for Gold Coast Airport. In 2010, there were 71 complainants registered for Gold Coast Airport. There has been a significant increase in noise complaints following the cessation of the trial. In the nine months to September 2011, there were complaints from 119 complainants. This timeframe is used as it is the data monitored to complete the technical PIR work, the draft of which was released to the community in October 2011.

6. CONCLUSION

The trial achieved its intended purpose of reducing movements over the central area of Fingal Head, suggesting there is merit in Airservices examining if this procedure should be considered for permanent implementation.

Airservices consulted with communities through the Aircraft Noise Abatement Consultative Committee (ANACC) and the Community Aviation Consultation Group (CACG) to determine community support for the permanent implementation of the 020 to 090 departure headings.

Following the release of the draft PIR for community feedback at the 26 October 2011 meeting of the CACG (an open forum for the community), Airservices received five written submissions. There was no community support for the trial procedure to be implemented permanently.

The draft PIR was also discussed at the ANACC meeting of 8 March 2012. There was no community support from the ANACC representatives for the trial procedure to be implemented permanently. The ANACC Chair requested ANACC members to provide written feedback to confirm their position. At the 8 June 2012 ANACC meeting the Chair declared this issue closed.

As such, Airservices will not implement this procedure permanently at this time and the pre-trial departure procedure, as outlined below in preferred order, remain in effect:

- Turn left heading 070 until at least 2 NM over water
- Runway heading (140) until established over water

Airservices will however continue to seek opportunities for better noise outcomes for Gold Coast communities affected by aircraft noise. Airservices currently has a review of the Noise Abatement Procedures for Gold Coast Airport underway.
