



**Environmental Assessment**

**Runway 14 – Smart Tracking Approach  
Gold Coast Airport**

---

## Table of Contents

<b>Introduction</b>	<b>3</b>
Runway 14 Smart Tracking approach	3
<b>Assessment</b>	<b>3</b>
Assumptions	3
Nominated aircraft	3
How is noise measured?	4
<b>Findings</b>	<b>6</b>
Number of aircraft	6
Aircraft noise	6
Aircraft emissions	6
Natural environment	6
Cultural and heritage values	6
<b>Conclusion</b>	<b>7</b>
<b>Attachment</b>	<b>8</b>

---

## Introduction

Aviation is critical to the broader Australian economy and essentially links our people with each other and the rest of the world. In recent years, satellite assistance has proved to be a quantum leap in aircraft navigation capability and new aircraft are increasingly being designed to be more capable. Satellite assisted navigation is recognised internationally for its safety benefits which are achieved through navigation with high precision. For simplicity, Airservices refers to the most advanced technology currently available as ‘Smart Tracking’.

Airservices is implementing Smart Tracking across our airports to enable all approved operators to utilise the benefits that the procedures provide: making air travel safer, cleaner and more dependable. Smart Tracking aircraft has been successfully trialled by some aircraft landing on Runway 14 at Gold Coast Airport since 2008. To achieve the best aircraft safety, noise and emissions outcomes for the Gold Coast, Airservices is working towards making Smart Tracking technology permanently available for all suitably equipped aircraft landing at this airport.

The existing trial track is entirely within a longstanding flight path corridor for aircraft arriving from the south-east to land from the north on Runway 14. This track maximises flight over the ocean, crossing the coast at Currumbin Creek which is just a short distance from the airport. Community feedback about this trial has been very positive due to the intended design of the procedure which minimises tracking over land.

The proposed new track can be used by all suitably equipped aircraft (whether arriving from the south or north) that will land on Runway 14. The new track closely replicates the existing trial track. However, it has a slightly wider turn radius before also crossing the coast at Currumbin Creek as illustrated in the map in Attachment 1.

## Assessment

### Assumptions

The assessment was based on the following assumptions:

- Aircraft movement data for period June 2013 - May 2014
- Jet aircraft movements only considered

### Nominated Aircraft

As shown in Tables 1 and 2 below, there were 13,312 jet arrivals to Runway 14 in 2013-2014. The Airbus A320 was the most commonly used jet aircraft type arriving to this runway. On average, there were 36 jet arrivals to Runway 14 per day. The number of flights ranged from nil to 68.

**Table 1 - Gold Coast Airport Runway 14 arrivals in 2013-14**

<b>Total Movements</b>	<b>Average/Month</b>	<b>Average/Day</b>	<b>Busiest Day</b>
13,312	1,109	36	68

---

**Table 2 - Runway 14 most common aircraft type**

<b>Aircraft Type</b>	<b>Total Movements</b>	<b>% of Total</b>
Airbus A320	5998	45
Boeing B738	4322	32
Airbus A321	857	6
Embraer E190	806	6
Airbus A332	420	3

How is noise measured?

Noise is measured using A-weighted decibels (dBA) 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, (L<sub>Amax</sub>) 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 in this assessment provide 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.

The change in L<sub>max</sub> 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:

- L<sub>max</sub> noise level changes of up to 3 dBA are not likely to be perceptible
- L<sub>max</sub> noise level changes of between 3 dBA and 5 dBA may be perceptible
- L<sub>max</sub> noise level increases of between 5 dBA and 10 dBA are likely to be perceptible
- L<sub>max</sub> noise levels of greater than 10 dBA may be perceived as twice as loud

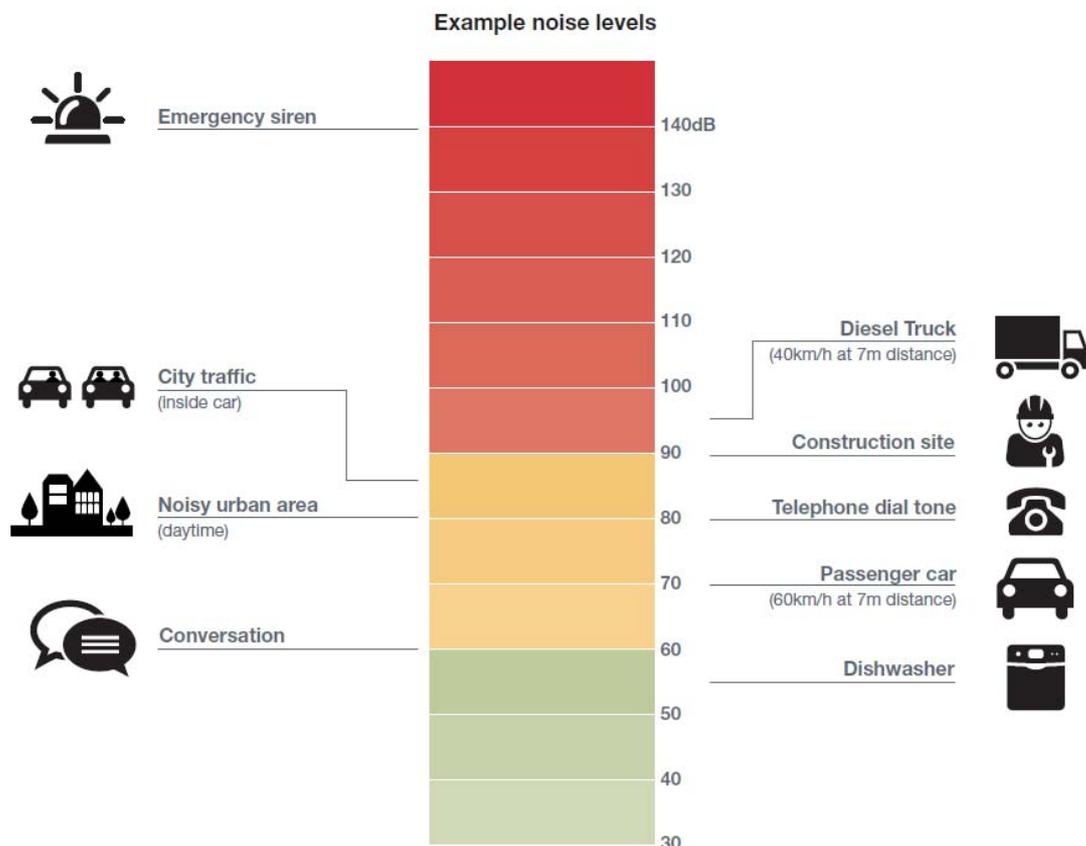
For areas receiving a high level (10 or more noise events of 70 dBA or louder per day) of existing over flights:

- An increase by 25% in the number of noise events at or above 70 dBA from 7am-10pm
- An increase by 25% in the number of noise events at or above 60 dBA from 7am-10pm
- An increase by 10% in the number of noise events at or above 60 dBA from 10pm-7am
- Any increase in the number of noise events at or above 70 dBA from 10pm-7am

For areas not receiving a high level (10 or more noise events of 70 dBA or louder per day) of existing aircraft over flights:

- An increase of 10 noise events at or above 70 dBA from 7am-10pm
- An increase of 50 noise events at or above 60 dBA from 7am-10pm
- An increase of 3 noise events at or above 60 dBA from 10pm-7am

Some comparisons of sound levels most of us would experience on a regular basis are shown below.



---

## **Findings**

### Number of aircraft

There would be no change resulting from this proposal in the number of aircraft landing on Runway 14.

### Aircraft noise

An analysis of departures has been undertaken; modelling was done for the A320 aircraft type as it is currently the aircraft type most frequently using this departure procedure. Reference locations were selected for analysis in north, central and south Palm Beach.

Despite the proposed new track being a small distance closer to the coast (about 300 hundred metres closer to Palm Beach) aircraft using it will continue to be within an existing flight path corridor. As such, there will be no difference to existing aircraft in the noise level from a single flight for Palm Beach and Currumbin residents.

However, as more aircraft begin to use Smart Tracking, and with continued airport growth, it is expected there will be an increasing number of noise events over 60 dBA and 70 dBA for those communities. This increase may become noticeable in the central and southern parts of Palm Beach where the number of noise events over 70 dBA may increase from 10-20 on an average day to 20-30 a day. This level of increase exceeds the threshold criteria and potential community response will be monitored.

### Aircraft emissions

For aircraft arriving from the south-east, the Smart Tracking approach is shorter in distance by about 15 nautical miles (28 km) to Runway 14 than either of the existing alternate approaches or the proposed Instrument Landing System. Airlines have advised this represents a difference in aircraft fuel consumption of 200kg per flight. Analysis shows this could immediately represent a saving in fuel and emissions of about 300 tonnes a year and 950 tonnes of CO<sub>2</sub> respectively as a result of implementing Smart Tracking.

### Natural environment

No matters of potential significance have been identified in the desk top review of matters of Natural Environmental Significance.

### Cultural and heritage values

No matters of potential significance have been identified in the desk top review of matters of cultural and heritage value.

---

## **Conclusion**

The proposed Runway 14 RNP approach flight path may have the potential to cause an increase in the total number of noise events, and the audible volume of noise events in the Palm Beach area. It is not likely that the proposed change has the potential to cause a significant environmental impact within the meaning of the *Environmental Protection and Biodiversity Conservation Act (1999)* Cth.

## Attachment 1



**Current Smart Tracking path (blue), proposed Smart Tracking path (orange). Flight path used by aircraft in deteriorating weather, which are not equipped for smart tracking (green).**