

Mr Peter Fitzgerald
Chair Sydney Airport Community Forum
C/- Aviation Environment
Department of Infrastructure and Transport
GPO Box 594
Canberra ACT 2601

Via email – sacf@infrastructure.gov.au

Dear Mr Fitzgerald

I refer to a letter that you received from [REDACTED] dated 12 May 2013 seeking information about the operation of the Sydney Airport Long Term Operating Plan (LTOP). On 28 May 2013, [REDACTED]'s letter was forwarded to Airservices for comment by the Sydney Airport Community Forum. I apologise for the delay in providing this response.

[REDACTED] has submitted a series of questions about the operation of LTOP since it was introduced in 1996-97, particularly with regard to the target for aircraft movements to the north of the airport and Airservices perceived lack of compliance with LTOP principles. As information about these issues is relevant to several questions, I have grouped their response as follows.

LTOP Operation and Targets (Questions 1, 4-6, 8-9)

Safety is at the centre of Airservices approach to managing the movement of aircraft in and out of Sydney. In conjunction, we manage runway use as far as possible to share noise in accordance with LTOP and within the constraints of traffic demand and weather. Weather, in particular wind direction and strength and rain, is a major factor in deciding which runways can be used for take-off and landing.

Apart from weather, the mix and capabilities of the different aircraft using the airport need to be considered for the safe operation of flights. The parallel north/south runways have a much higher traffic capacity than the single east/west runway. While it is possible to use the east/west runway for arrivals and departures during periods of low traffic demand, the north/south runways need to be used in busy periods allowing similar aircraft to be grouped together for each runway.

Many of the noise sharing aims of the Long Term Operating Plan are being met. The south and east targets are usually met, but the north and west targets have never been met. Once demand for use of the airport reaches approximately 55 flights per hour, it is no longer possible to use the east/west runway. The only way to get flights through the airport during these peak times is to operate the two (north/south) runways in parallel. These factors also affect which combination of runways Airservices can use on any given day, or hour of the day i.e. we cannot use the lower volume noise sharing modes of runway operation during peak periods.

The noise sharing targets for Sydney Airport were developed in 1996 based on a series of computer models. These models looked at the capacity of each runway and an analysis of historical weather data. The modelling showed that:

- It is difficult to accurately forecast future levels of runway use with a high degree of certainty (particularly given changes in the weather, and the changing mix of aircraft that use Sydney Airport).
- The forecast growth in aircraft movements is projected to limit the ability of air traffic controllers to use noise sharing modes for aircraft arrivals and departures.
- Information on levels of runway use must be considered in combination with flight path maps or some form of noise contours to assess the actual distribution of aircraft noise, compared to the targeted distribution of aircraft noise. This is important because arriving and departing aircraft do not necessarily maintain the runway heading when they are clear of the airport. Different aircraft take different turns as they exit Sydney Airport, with slower aircraft taking a wider turn and faster aircraft a more straight flight path. Having aircraft peel off at different points once they have left Sydney Airport is important to maintaining a safe distance between arriving and departing aircraft, as well as allowing their safe operation in different wind and weather conditions.

Airservices implementation and ongoing operation of LTOP has been closely monitored over the years by SACF and the LTOP Implementation Monitoring Committee (IMC) which is comprised of Airservices, industry and community representatives. Airservices maintains that LTOP has been implemented to the fullest extent currently possible and noise sharing and respite principles are followed on a day-to-day basis as stated i.e. as traffic demand and weather conditions permit. A 2005 independent analysis of LTOP performance by Airways International found that the implementation has been 'reasonable considering the complexity of LTOP in all its aspects'. This report is available on the SACF website at www.sacf.infrastructure.gov.au/airport/LTOP/files/Assessment_of_LTOP_Performance.pdf.

The Australian Government is currently not considering any changes to LTOP, nor to the location or operation of flight paths at Sydney.

Aircraft moments 2005 to 2007 (Question 2)

The average number of aircraft movements per month over the north during the period was 6,469 or 27.9% of all movements.

Air traffic management changes made since November 2007 (Question 3)

There have been no changes made to flight patterns and/or altitude requirements since November 2007 that impact [REDACTED]'s residence.

Advances in aircraft landing technology (Question 7)

A growing number of modern aircraft are now fitted with navigation systems that use satellite assisted guidance. Specialised flight management systems in the cockpit can use GPS information to fly these aircraft with high accuracy and only a small variation in the actual tracks flown from one aircraft to another.

These systems are known in aviation circles as Required Navigation Performance (RNP) – meaning the aircraft can perform in accordance with a strict set of navigation parameters. For simplicity we refer to this as ‘Smart Tracking’.

Smart Tracking flight paths can be designed to curve around obstacles (high terrain or buildings), follow existing high noise corridors (highways) or to avoid noise sensitive areas in favour of overflying industrial land or other non-residential areas. In some instances this can provide for better aircraft noise management.

For several years Smart Tracking has been under trial at 17 Australian airports and since 2011 has been permanently implemented for all suitably equipped aircraft operating at Brisbane, Melbourne, Canberra, Cairns and Adelaide. While some trial flights occurred at Sydney some years ago, Sydney Airport continues to be serviced by ground-based navigation and landing systems.

Introducing Smart Tracking at a major airport like Sydney is highly complex and would require a level of fitment that currently does not exist (at present only a small percentage of aircraft operating in Australia are equipped for Smart Tracking). It would also likely require a complete redesign of the Sydney flight path structure in order to maximise the benefits of the technology. This work is not currently under consideration.

Departures over Hunters Hill (Question 10)

As [REDACTED] notes, a small number of aircraft each year depart over the same areas to the north of the airport in line with the main north/south runway that are used for arrivals. This is regrettable but unavoidable.

The departure flight path from this runway makes a left turn shortly after take-off and then splits into two flight paths: one continues to the west and the other to the west and north. Aircraft heading to destinations to the east of Sydney (e.g. New Zealand, Asia, USA) follow the latter flight path and then make a right turn towards the coast after gaining altitude. This allows them to travel over the top of the flight path for aircraft arriving from the north to land at the southern end of the north/south runways as depicted in Figure 1 below. Note that when aircraft are departing to the north they are landing from the south.

However, some long haul international aircraft travelling to the east on Sydney are not capable of gaining sufficient altitude to cross over top of the northerly arrival flight path. Instead, on take-off they are required to briefly maintain their northerly heading before turning to the coast at a much lower altitude in order to fly underneath the arrival flight path as depicted in Figure 2 below.

Figure 1 – Jet arrival flight paths to Sydney Airport

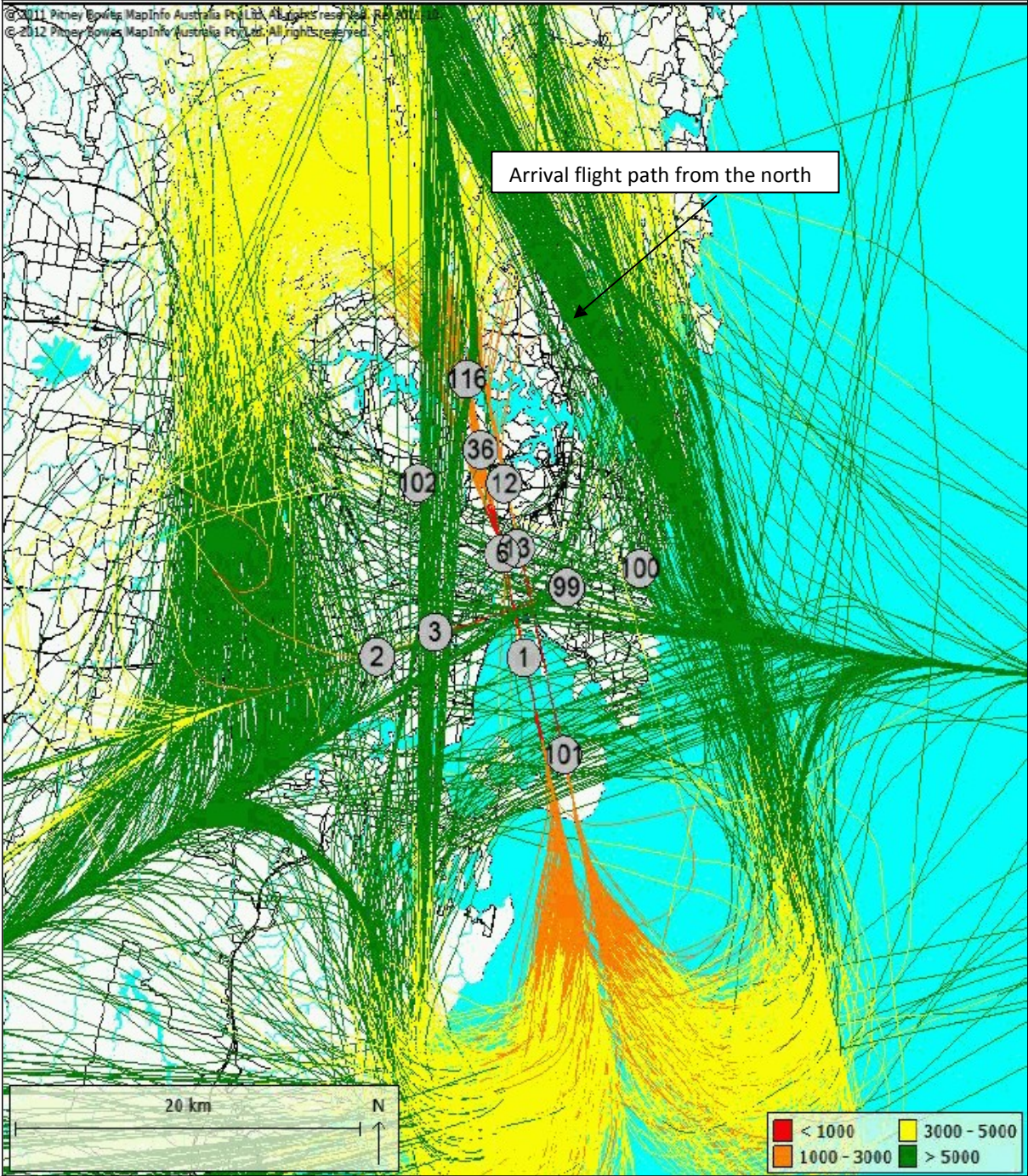
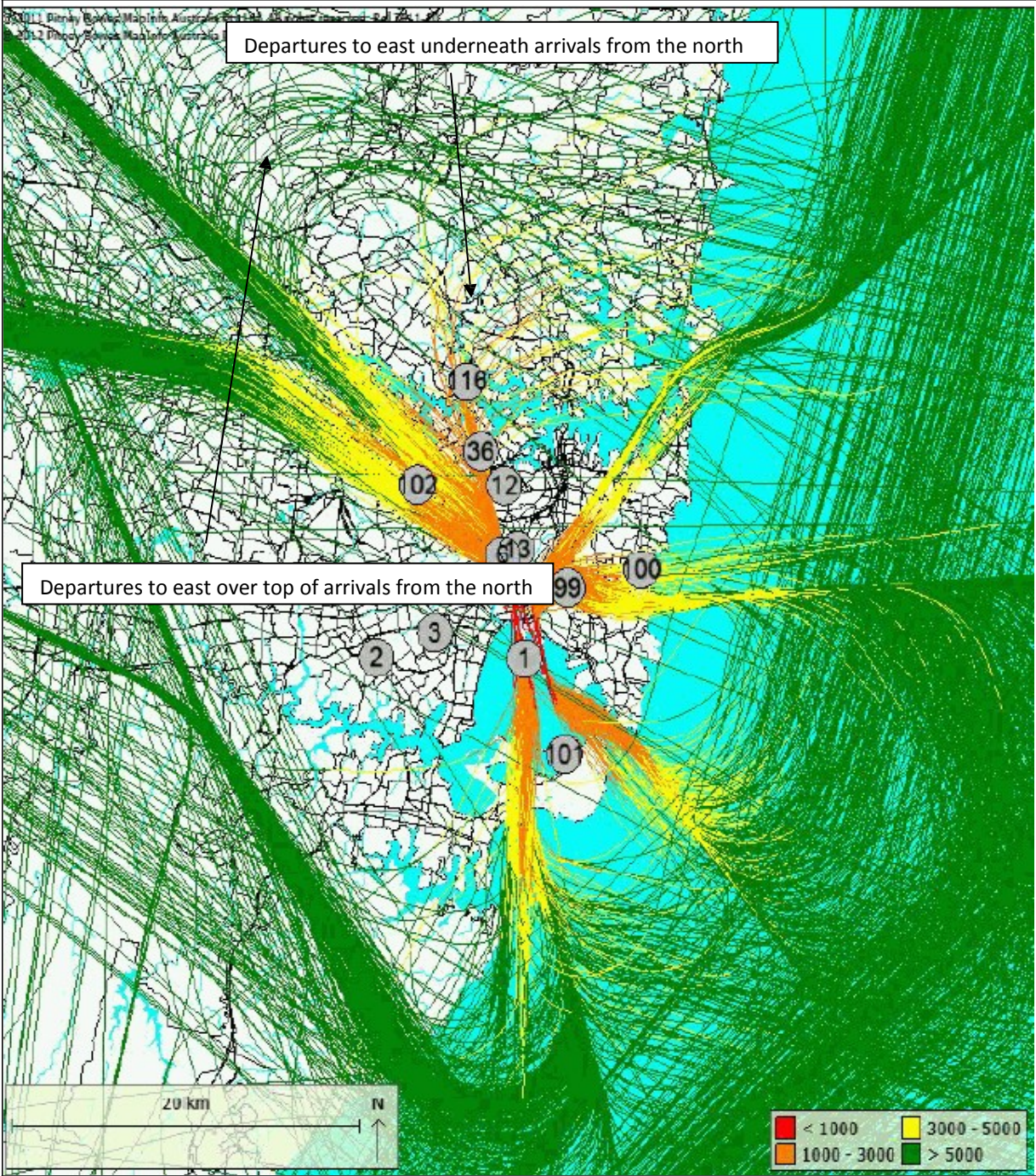


Figure 2 – Jet departure flight paths from Sydney Airport



Altitude requirements for arrivals (Question 11)

The International Civil Aviation Organisation (ICAO) world-wide standard approach procedure for landing aircraft prescribes a 3 degree glide path. This is the standard adopted by Australia.

One of the intended components of LTOP was a flight path structure referred to as 'high and wide'. As the name suggests, aircraft would approach the airport from a higher altitude and either further out to sea or from further outside the Sydney basin than they currently do for each of the runway modes of operation associated with the LTOP. The aim of these approaches was to reduce aircraft noise to the Sydney community.

Following extensive analysis by the LTOP Implementation Monitoring Committee, a number of safety and capacity issues associated with the introduction of high and wide flight paths were confirmed including:

- An increased concentration of flight paths and aircraft noise particularly to the north and west of Sydney.
- Inhibition of efficient runway changes due to the runway specific nature of the high and wide paths, and reduced ability to utilise LTOP noise sharing modes.
- An increase in the number of track miles compared to current tracks.
- No ability for track stretching which is important to manage the varying speed of different aircraft types.
- Constraining aircraft to a single route with limited ability to sequence aircraft with other aircraft on the adjacent final approach path.
- Reduction in the maximum acceptance rate for parallel operations i.e. reduced capacity at peak times which would therefore extend peak periods.
- Restricted ability of departing aircraft to climb to their cruising altitude because of crossing points between arrival and departure tracks.
- Increased aircraft separation confliction compared to current procedures (almost a three fold increase for the southern runways and more than a seven times increase for the northern runways).

Further information about implementing LTOP and high and wide flight paths is available on Airservices website at <http://www.airservicesaustralia.com/aircraftnoise/airport-information/sydney>.

I trust this information is of assistance.

Yours sincerely



Elissa Keenan
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10 July 2013