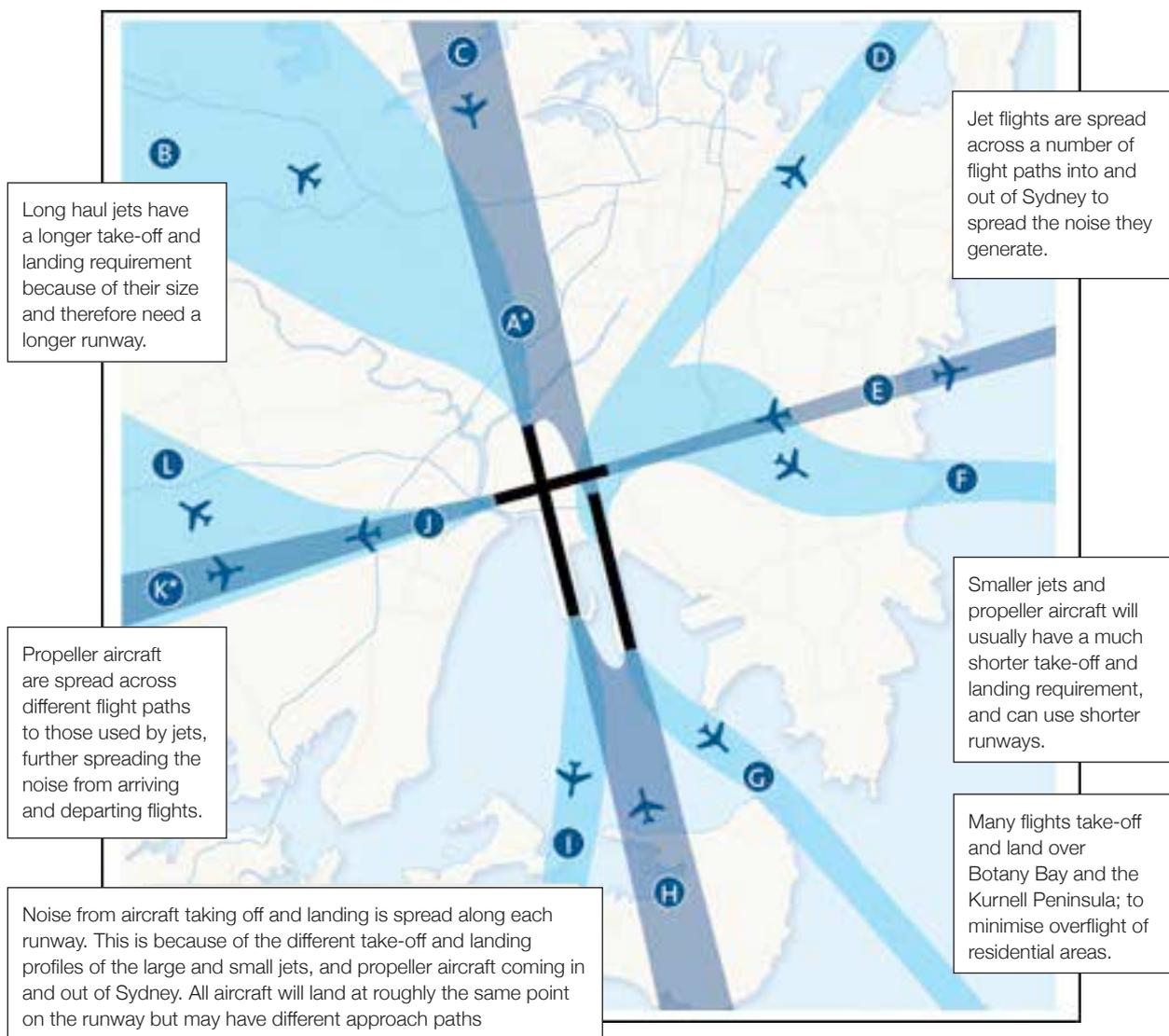# KEY FACTS ABOUT NOISE SHARING

What is the Long Term Operating Plan?

The LTOP is a program to manage aircraft noise from Sydney Airport. Its aims are to make sure aircraft flights are sent over water and non-residential land, as much as possible. Where this is not possible, the LTOP aims to spread the noise across communities in Sydney and provide periods of respite from aircraft noise. LTOP provides 10 different ways of using the Airport's three runways and associated flight paths known as Runway Modes of Operation.

Jet flights are spread across a number of flight paths into and out of Sydney to spread the noise they generate.

Long haul jets have a longer take-off and landing requirement because of their size and therefore need a longer runway.

Smaller jets and propeller aircraft will usually have a much shorter take-off and landing requirement, and can use shorter runways.

Propeller aircraft are spread across different flight paths to those used by jets, further spreading the noise from arriving and departing flights.

Many flights take-off and land over Botany Bay and the Kurnell Peninsula; to minimise overflight of residential areas.

Noise from aircraft taking off and landing is spread along each runway. This is because of the different take-off and landing profiles of the large and small jets, and propeller aircraft coming in and out of Sydney. All aircraft will land at roughly the same point on the runway but may have different approach paths

These are general depictions of the busiest flight paths at Sydney Airport for aircraft operating at altitudes lower than 5000 feet above sea level. Aircraft also frequently overfly the white areas on this chart.

Importance of Sydney Airport

On average, 850 flights either arrive or depart Sydney Airport each day; adding up to over 310,000 flights a year (2012).

Airservices Australia is constantly balancing the need to share the aircraft noise from Sydney Airport, with the need to keep flights moving in and out of Sydney safely. This is important as it has an impact on how soon families can be reunited, Australian businesses can continue to trade with our neighbours, and our national and international visitors can experience the best of what Sydney and New South Wales has to offer.

As well as being an important gateway for trade and tourism, Sydney Airport contributes billions of dollars annually into Sydney households and the NSW community: It handles 45 per cent of international passengers and $36 billion in air freight. The Airport's contribution to direct employment – full time and part time – is 75,580 jobs, plus indirect employment of 130,550[1]. It makes a direct contribution of $8 billion in NSW Gross State Product. With flow-on impacts taken into account, the airport's economic contribution increases to $16.5 billion.

How is noise shared across the different communities living in Sydney?

Aircraft noise is shared between different areas of Sydney following the Sydney Airport Long Term Operating Plan (LTOP). The LTOP is designed to place as many flights as possible over water (55 per cent to the south) and the remaining flights to be shared in the other three directions. The LTOP has the following targets for aircraft movements:

- 17% of movements to the North of the Airport
- 13% of movements to the East of the Airport
- 15% of movements to the West of the Airport
- 55% of movements to the South of the Airport

How does Airservices Australia decide which runways to use to spread aircraft noise across Sydney?

Safety is at the centre of Airservices approach to managing the movement of aircraft in and out of Sydney. However Airservices manages runway usage as far as possible to share noise, 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-offs and landing. While aircraft operate under the direction of Air Traffic Control, the pilot remains responsible for the safety of the aircraft at all times and as such may request the use of a specific runway for take-off or landing.

For a safe take-off and landing an aircraft needs to fly into the wind or with very little tailwind.

So, if the wind is blowing to the north, aircraft usually take-off and land to the south; when the wind is blowing to the south, aircraft usually take-off and land to the north.

The same rule applies to flights taking off and landing to the east and west.

Rain is an important factor because safety rules require that aircraft are unable to take-off or land with any tailwind on a wet runway.

Why can't all flights in and out of Sydney Airport be evenly spread across the north/south, and east/west runways?

Apart from the weather, the mix and capabilities of the different aircraft that take-off and land at Sydney need to be considered for the safe operation of flights in and out of Sydney.

The parallel north/south runways have a much higher traffic capacity than the single east/west runway. Whilst it is possible to use the east/west runway for arrivals or 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 either runway.

Long haul aircraft, which will be heavily loaded with fuel, cargo and passengers are required to use the longer (north/south) runway to operate safely.

Air traffic controllers need to leave more space between aircraft in the air and on the ground in poor weather conditions, to maintain the safe operation of different aircraft arriving and departing Sydney. So a range of weather conditions and weather quality (visibility and cloud cover, as well as wind direction and speed) determine which runways are the safest to use.

Complexity with ground operations can at times mean use of the East-West runway will impair both the safety and efficiency of aircraft operating on the ground around the terminals and taxiways.

The capacity of the airport when using only one runway (east-west) is significantly reduced in comparison to using two runways (north-south), so there will always be a bias towards north-south.

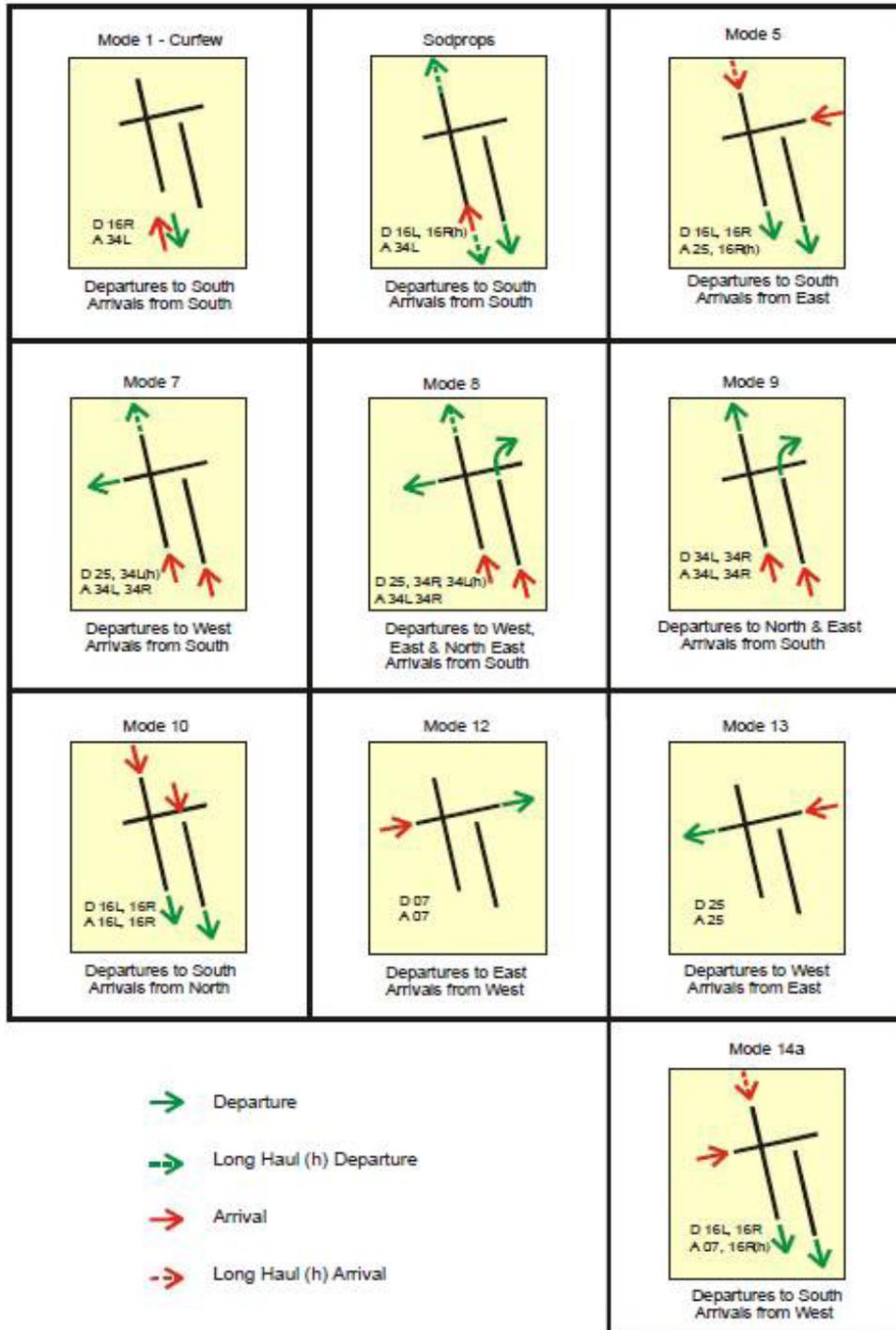1.   Source: Sydney Airport Economic Impact Report at http://www.sydneyairport.com.au/corporate/about-us/economic-impact-report.aspx

Movements over the North =16L(arr) + 16R(arr) + 34L(dep)

Movements over the South =16L(dep) + 16R(dep) + 34L(arr) + 34R(arr)

Movements over the East =07(dep) + 25(arr) + 34R(dep)

Movements over the West =07(arr) + 25(dep)

Runway Modes of Operation

Mode 1 - Curfew D 16R A 34L Departures to South Arrivals from South	**Sodprops** D 16L, 16R(h) A 34L Departures to South Arrivals from South	**Mode 5** D 16L, 16R A 25, 16R(h) Departures to South Arrivals from East
Mode 7 D 25, 34L(h) A 34L, 34R Departures to West Arrivals from South	**Mode 8** D 25, 34R 34L(h) A 34L 34R Departures to West, East & North East Arrivals from South	**Mode 9** D 34L, 34R A 34L, 34R Departures to North & East Arrivals from South
Mode 10 D 16L, 16R A 16L, 16R Departures to South Arrivals from North	**Mode 12** D 07 A 07 Departures to East Arrivals from West	**Mode 13** D 25 A 25 Departures to West Arrivals from East
		Mode 14a D 16L, 16R A 07, 16R(h) Departures to South Arrivals from West

→ Departure

⇢ Long Haul (h) Departure

→ Arrival

⇢ Long Haul (h) Arrival

How well are the LTOP noise sharing targets being met?

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 (i.e. flights per hour) reaches approximately 55, 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. Airservices cannot use the lower volume noise sharing modes of runway operation during peak periods.

However, what Airservices does to spread aircraft noise is to split the two north-westerly flight paths (tracks) from Sydney Airport so noise from jet departures to the north are actually spread across the northern and western suburbs of Sydney. Splitting these tracks and incorporating turns based on the height of different aircraft, rather than their distance from the airport minimises the noise of flight paths over the northwest.

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.

A 2005 independent analysis of LTOP performance by Airways International commissioned by Airservices Australia found that the implementation has been 'reasonable considering the complexity of LTOP in all its aspects'

Where can I get more information?

There are a range of sources you can go to for more information on the Long Term Operating Plan at Sydney Airport.

- Fact sheets available from Airservices: www.airservicesaustralia.com/aircraftnoise/factsheets

- Sydney Operations Reports: www.airservicesaustralia.com/publications/reports-and-statistics/sydney-airport-operational-statistics

- Airways International Report on LTOP Performance www.sacf.infrastructure.gov.au/LTOP/index.aspx

- ANO Assessment of Aircraft Noise Information (Sydney) – Airservices Australia March 2012 www.ano.gov.au/reportsstats/reports/assessment_aircraft_noise_sydney.pdf

- SACL Master Plan www.sydneyairport.com.au/corporate/master-plan.aspx

- Noise Complaints and Information Service (NCIS)
    - 1800 802 584 (free call), an interpreter service is also available on 131 450
    - Our online form at: https://complaints.bksv.com/asa
    - Mail to Noise complaints and Information Service, PO BOX 211 Mascot NSW 1460

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