

Western Sydney International (Nancy-Bird Walton) Airport

Aircraft Noise

Western Sydney International (Nancy-Bird Walton) Airport (WSI) is a transformational infrastructure project that will deliver long-term employment opportunities, boost economic activity and provide extensive transport benefits for Western Sydney when it opens in late 2026.

The Australian Government will release a draft Environmental Impact Statement, including the preliminary flight paths, in the second half of 2023, which will examine the noise, social and environmental impacts of the proposed flight paths. The community will be able to provide feedback during the draft Environmental Impact Statement exhibition which will be considered in finalising the preliminary flight path design.

This fact sheet explains how aircraft noise is measured, and how this information will be presented in the draft Environmental Impact Statement.



Find out more

To get more information and join our mailing list please visit our Online Community Portal.

If you have any questions or comments, you can contact our community engagement team:



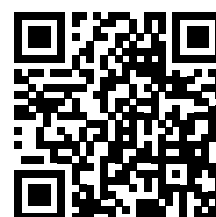
WSIflightpaths@infrastructure.gov.au



1800 038 160



[WSIflightpaths.gov.au](https://www.wsiflightpaths.gov.au)



Aircraft noise

The opening of WSI will result in changes to aircraft movements in the Sydney Basin through the introduction of new aircraft operations.

The most effective way of protecting communities from aircraft noise is appropriate land use planning to prevent new residential development in areas where aircraft noise will be highest. Planning controls that limit the amount of noise-sensitive development in the areas closest to WSI have been in place for nearly three decades.

There are a number of existing airports in the Sydney Basin (including Sydney (Kingsford Smith), Bankstown and Richmond) and many areas of Western Sydney already see or hear overflying aircraft to some degree.

The geographic extent and level of aircraft noise exposure is complex and dependent on final flight paths, type of aircraft, airport operating procedures, time of day, season, weather conditions, ambient noise levels, and other factors.

Understanding aircraft noise

The level of noise heard from an aircraft during take-off, landing and flight can vary. Aircraft noise is affected by a number of different factors, including:

- **Weather** – the noise experienced varies significantly depending on the wind speed and direction, the season and cloud cover. For example:
 - temperature and humidity affect an aircraft's ability to gain height
 - wind direction affects the direction a plane will fly because aircraft land and take off into the wind
 - cloud cover and temperature inversions will refract sound waves, making aircraft noise seem louder.
- **Height of an aircraft** – the higher an aircraft is, the less noise is generally heard on the ground.
- **Changes in engine thrust** – the thrust used affects the amount of wind resistance and noise experienced.
- **Type of aircraft** – different planes have different noise profiles dependent on their size, engine types and airframe characteristics.
- **Topography** – the elevation and shape of landforms affect the noise experienced. Higher elevations are closer to the aircraft overhead than at sea level. Noise from aircraft also bounces off valleys and mountains affecting the noise experienced.

People react differently to noise and this can be influenced by many different factors, including their surroundings, ambient noise level and other other noises happening in the background.

Measuring aircraft noise

In Australia, exposure to aircraft noise at major airports is measured using a number of tools that include:

- the Australian Noise Exposure Concept (ANEC)
- the Australian Noise Exposure Forecast (ANEF)
- the Number Above 'N' and the Single Event Maximum Noise Level (LAmax).

These tools are used to inform land use planning around an airport site and for assessing the impacts of aircraft noise.

Australian Noise Exposure Concept (ANEC) and Australian Noise Exposure Forecast (ANEF)

An ANEC for the airport was generated for the 2016 WSI Stage 1 Development Environmental Impact Statement (EIS), based on the runway direction and indicative 'proof-of-concept' flight paths for take-offs and landings.

An ANEC is a cumulative noise measure which:

- illustrates aircraft noise exposure based on operation scenarios
- shows expected exposure levels from an average day's anticipated aircraft movements, calculated over a 12-month period.

An ANEC was first developed as part of the original 1985 proposal for an airport on the Badgerys Creek site and has been used as the basis of land planning controls in Western Sydney since that time. An updated ANEC for the airport was generated for the 2016 WSI Stage 1 Development Environmental Impact Statement (EIS), based on the runway direction and indicative 'proof-of-concept' flight paths presented in the EIS.

The 2016 ANEC, on the map on the adjacent page shows coloured noise exposure zones, displayed in representative units of 20, 25, 30 and 35+. The higher the numbers, the higher the levels of noise exposure. These units are not decibel measurements, they are representative units generated from a noise model which factors in aircraft types and performance, points of origin and destination, noise level and pitch, and the number and time of movements.

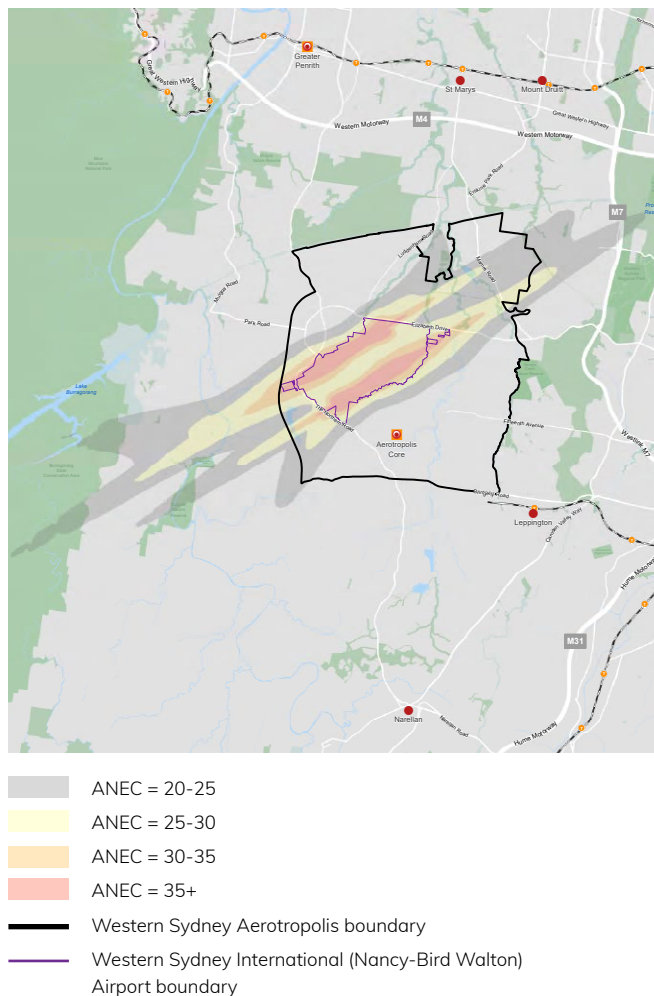


Figure 1. Combined ANEC for the runway 05 and runway 23 operating modes for long-term airport operations.
Source: Western Sydney Aerotropolis Plan 2020

A new ANEC for WSI will be developed as part of the flight path design process and will inform the draft EIS for the flight paths, to be released in the second half of 2023.

An ANEF chart is a more refined ANEC, generated based on the final approved flight path design. ANEF noise zones are formally endorsed for technical accuracy by Airservices Australia – the government air navigation service provider. ANEFs are published for all federally leased airports in Australia, and the ANEF for WSI will be available when details of the final flight paths and airport operations are confirmed.

An ANEC/ANEF chart shows a forecast of aircraft noise levels based on approved flight paths. Landowners with properties outside of the ANEC/ANEF zones may still notice aircraft flying overhead and experience aircraft noise—this is particularly the case in areas just outside the contours.

Number Above ('N') and Single Event Maximum Noise Level (L_{Max})

Experience at existing airports in Australia has shown that, while aircraft noise contours based on cumulative noise exposure measures such as the ANEC/ANEF are useful for land use planning purposes near airports, they are not necessarily an indicator of individual experience of aircraft noise.

In order to assist in understanding the impacts of aircraft noise, additional measures are generated to illustrate aircraft noise exposure at certain locations. Two of the most commonly used in Australia are the Number Above ('N') and Single Event L_{Max}.

The 'N' measure is based on the intensity and frequency of individual aircraft noise events experienced on an average day, and is intended to convey information in a way that communities may understand better than ANEF charts.

This measure is presented in decibels and indicates how many aircraft noise events are predicted to exceed a particular decibel level each day. For example, the N60 or N70 measures show the number of events at or above 60 or 70 decibels that would be experienced on an average day.

In addition, the L_{Max} measure shows the maximum noise levels forecast at a location, during a series of flyovers by specific aircraft.

Flight path design and environmental assessment

When released in the second half of 2023, the draft EIS for WSI's flight paths will use a combination of the ANEC, Number Above and L_{Max} measures to describe the level of noise exposure forecast based on for the preliminary flight paths.

The flight paths will be subject to environmental assessment and community consultation through the EIS process. Based on the airspace design principles for WSI, the preliminary flight paths will be designed to minimise aircraft overflight of residential areas to the greatest extent and minimise noise impacts on communities and noise-sensitive areas.

Noise insulation and property acquisitions

The Australian Government is currently developing a noise insulation and property acquisition policy in relation to aircraft overflight noise for buildings outside the airport site. A draft policy will be released in the second half of 2023, when the draft EIS for WSI flight paths is released.

Information in your language



Translating and Interpreting Service (TIS National)

If you require the services of an interpreter, please contact the Translating and Interpreting Service on **131 450** and ask them to call the WSI Flight Paths team on **1800 038 160**.

Nếu quý vị cần thông dịch viên, vui lòng gọi cho Dịch vụ Thông Phiên dịch (Translating and Interpreting Service) qua số **131 450** và yêu cầu họ gọi cho đội ngũ phụ trách Đường bay Sân bay Quốc tế Western Sydney (Western Sydney International Airport Flight Paths) qua số **1800 038 160**.

如果您需要口译服务, 请致电 **131 450** 联系笔译与口译服务署 (Translating and Interpreting Service), 并请他们拨打 **1800 038 160** 联系西悉尼国际机场飞行路径团队 (Western Sydney International Airport Flight Paths)

यदि आपको दुभाषिए की सेवाओं की ज़रूरत है, तो कृपया **131 450** पर अनुवाद और दुभाषिया सेवा (Translating and Interpreting Service) से संपर्क करें और उनसे **1800 038 160** पर पश्चिमी सिडनी अंतरराष्ट्रीय हवाई अड्डा उड़ान पथ (Western Sydney International Airport Flight Paths) टीम को कॉल करने का अनुरोध करें।

إذا كنت بحاجة لخدمات الترجمة الشفوية، فيرجى الاتصال بخدمة الترجمة الكتابية والشفوية (Translating and Interpreting Service) على الرقم **١٣١ ٤٥٠** وأطلب منهم الاتصال بالفريق المعني بمسارات الطيران في مطار سيدني الغربية الدولي (Western Sydney International Airport Flight Paths) على الرقم **١٨٠٠ ٠٣٨ ١٦٠**

Kung kailangan mo ng mga serbisyo ng isang tagasaling pasalita (interpreter), mangyaring makipag-ugnayan sa Serbisyo ng Pagsasaling Pasulat at Pasalita (Translating and Interpreting Service) sa **131 450** at hilingin sa kanila na tawagan ang pangkat ng Mga Landas ng Paglipad sa Paliparang Internasyonal ng Western Sydney (Western Sydney International Airport Flight Paths) sa **1800 038 160**.

View information in languages other than English

Please scan this QR code to view information in languages other than English.

Vui lòng quét mã QR này để xem thông tin bằng các ngôn ngữ khác ngoài tiếng Anh.

请扫描二维码查看中文信息。

अंग्रेज़ी के अलावा अन्य भाषाओं में जानकारी देखने के लिए कृपया यह QR कोड स्कैन करें।

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