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## **Submission To Western Sydney International Airport**

### **Aircraft Noise Effects on Sleep Resulting in Health Implications**

The auditory system has a watchman function and constantly scans the environment for potential threats. Humans perceive, evaluate, and react to environmental sounds while asleep. As aircraft noise is intermittent noise, its effects on sleep are primarily determined by the number and acoustical properties (e.g., maximum SPL, spectral composition) of single noise events. However, whether or not noise will disturb sleep also depends on situational (e.g., sleep depth) and individual (e.g., noise sensitivity) moderators. Sensitivity to nocturnal noise exposure varies considerably between individuals.

The elderly, children, shift-workers, and those who are ill are considered at risk for noise-induced sleep disturbance. Repeated noise-induced arousals impair sleep quality through changes in sleep structure including delayed sleep onset and early awakenings, less deep (slow wave) and rapid eye movement (REM) sleep, and more time spent awake and in superficial sleep stages. Both deep and REM sleep have been shown to be important for sleep recuperation in general and memory consolidation specifically. Short-term effects of noise-induced sleep disturbance include impaired mood, subjectively and objectively increased daytime sleepiness, and impaired cognitive performance.

It is hypothesized that noise-induced sleep disturbance contributes to the increased risk of cardiovascular disease (CVD) if individuals are exposed to relevant noise levels over months and years. Recent epidemiologic studies indicate that nocturnal noise exposure may be more relevant for long-term health consequences than daytime noise exposure, probably because people are also at home more consistently during the night “*Aviation Noise Impacts: State of the Science Noise and Health*” <https://www.association-of-noise-consultants.co.uk/wp-content/uploads/2017/06/C3-Tools-for-Assessing-Night-Noise-Impact-wide.pdf> [www.ncbi.nlm.nih.gov/pmc/articles/PMC5437751/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5437751/)

## Noise Health effects

The physical and psychological health consequences of regular exposure to consistent elevated sound levels. Noise from traffic, in particular, is considered by the World Health Organization to be one of the worst environmental stressors for humans, second only to air pollution.

From 25 Decibels (dB) to 75 + in the middle of the night are a unit used to measure the intensity or loudness of sound extenuated by the natural geography making the sound reverberate. **This is a representation of what people in Wallacia Mulgoa and Silverdale will be experiencing.** Noise perception varies subjectively among individuals due to factors like personal sensitivity and context. Relying solely on decibels to convey noise pollution has flaws because it fails to capture the full range of human reactions and sensitivities to different noise volumes and the frequency of noise events. Additionally, the decibel scale is logarithmic. For example, an increase from 60 dB to 70 dB represents a **tenfold increase in intensity.**

This may have several flaws, such as varying atmospheric conditions and topography. Consequently, it often underestimated the actual noise impact experienced by communities surrounding airports. The World Health Organisation (WHO) recommends that, for transportation activities, the noise exposure should be measured in terms of the average 24 hour LAeq and recommends an external 55dB(A) as the value where people start to become annoyed with aircraft noise.

[https://crl.defence.gov.au/AircraftNoise/\\_Master/Docs/nfpms/Factsheet%20Measurement%20of%20aircraft%20noise.pdf](https://crl.defence.gov.au/AircraftNoise/_Master/Docs/nfpms/Factsheet%20Measurement%20of%20aircraft%20noise.pdf)

## Using averages to artificially lower the noise forecasts

The 2007 MDP/EIS uses “Mean Measured LA Maximum Noise Levels” (see Volumes D4 and D5). What does that mean? This data refers to the **average** of the highest noise levels measured over a specific period of time, as per the INM user’s guide:

*INM- Integrated Noise model is not designed for single-event noise prediction, but rather for estimating long-term average noise levels using average input data. Comparisons between measured data and INM calculations must be considered in this context*

[Integrated Noise Model \(INM\) Version 7.0 User’s Guide](#), Report No. FAA-AEE-07-04, US Department of Transportation, Federal Aviation Administration, Office of Environment and Energy, Washington DC, 2007, p. 13

The Community Aviation Alliance Australia (CAAA) [explains](#) that, “the true value of such contours in informing the community as to the full extent of **any adverse noise impact may be significantly understated**” (p. 45).

## Curfew

Noise health effects are the physical and psychological health consequences of regular exposure to consistent elevated sound levels. Noise from traffic, in particular, is considered by the World Health Organization to be one of the worst environmental stressors for humans, Therefore legislative noise protection (curfew) and movement caps similar to what was strongly supported and promoted by the current Prime Minister, Mr Albanese, at Kingsford Smith

Airport in the mid 1990's - (Mr Albanese was first elected on 2.3.1996 – 27 years ago)

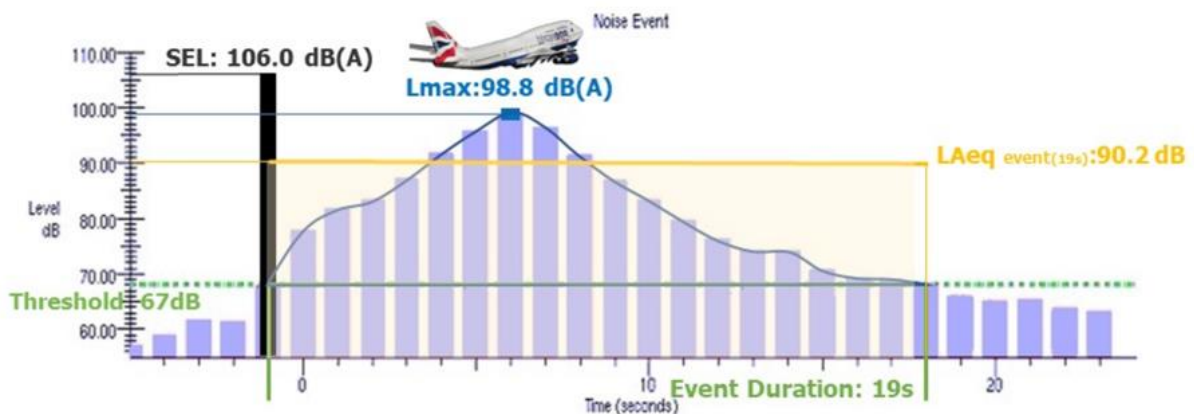
**SYDNEY AIRPORT CURFEW ACT 1995**

**SYDNEY AIRPORT DEMAND MANAGEMENT ACT 1997**

[https://www.westernsydneyairport.gov.au/sites/default/files/documents/2019\\_Fact\\_sheet-measuring-aircraft-noise.pdf](https://www.westernsydneyairport.gov.au/sites/default/files/documents/2019_Fact_sheet-measuring-aircraft-noise.pdf)

It is completely unacceptable that a curfew and limit on flight caps would not be standard practice and that anyone would be subjected to heavy concentration of flights during sleeping hours when those in the areas surrounding SYD are afforded a curfew and flight caps. There is no justification for this discrimination and the idea that these conditions would be deemed appropriate shows a complete disregard for residents in Western Sydney, South West Sydney, and the Blue Mountains.

## Lamax



$LA_{max}$  – the maximum sound level reached during a measurement period (normally 0.125 seconds for aircraft measurements), expressed in dB(A). However, it does not reflect the number of events and it does not reflect the amount of energy of each event. For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB  $LA_{max}$  -ANC Annual Conference 21st June 2017

<https://anima-project.eu/noise-platform/lamax-sel-and-leq-for-aviation-noise>

<https://www.association-of-noise-consultants.co.uk/wp-content/uploads/2017/06/C3-Tools-for-Assessing-Night-Noise-Impact-wide.pdf>

## Noise and Health

Marc Goethals, cardiologist at Onze-Lieve-Vrouw Hospital in Aalst, states “*Our body reacts autonomously to noise, day and night, because our body subconsciously associates noise with danger. As a result, our body goes into a state of defence, the so-called ‘fight-or-flight response’. This leads to an increase in blood pressure, a faster heartbeat and the release of stress hormones.*”

The World Health Organization has been warning for years about the enormous health damage experienced by people living near airports. Epidemiological research shows that we are also extra sensitive to noise at night. Cardiologist Marc Goethals explains: “*Repeated exposure to night noise disrupts essential functions of our sleep, even without us consciously waking up. This leads to reduced immunity against infections and cancer, slower physical recovery and it affects our memory functions and our mental health.*”

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5437751/>

Adverse Cardiovascular Effects of Traffic Noise with a Focus on Night-time Noise and the New WHO Noise Guidelines <https://www.annualreviews.org/doi/10.1146/annurev-publhealth-081519-062400>

## Brisbane Queensland How Complaints and submissions have been managed Example-

**Brisbane Airport** There’s been close to 25,000 complaints. Airservices Australia systematically stonewalls community members with legitimate complaints about aircraft noise, claims local community group Brisbane Flight Path Community Alliance (BFPCA), more than all other airports combined. Community complaints manuals obtained through Freedom of Information requests show how Airservices staff are instructed to provide pre-scripted answers designed to quash complaints and prevent them from progressing to investigation or referral to the Civil Aviation Safety Authority (CASA) or to the Department of Infrastructure, Transport, Regional Development and Communications. “ *Air services stonewalling Noise Complaints. FOI (Freedom Of Information documents)*”: <https://bfpca.org.au/ncis/>

*While the populations with the highest aircraft noise exposure often live within the 20 ANEF contour, experience shows the majority of noise complaints that are received come from residents living outside the 20 ANEF contour. Traditionally the residents of these areas have been given little information on aircraft noise through the ANEF system other than that the area is considered ‘acceptable’ for housing. Some people living outside the 20 ANEF contour have been given an expectation of receiving little or indeed no aircraft noise and as a consequence find the levels of noise actually experienced to be unacceptable.*

<https://bfpca.org.au/2-double-standards/>

<https://www.aviation24.be/airports/brussels-airport-bru/more-than-1-billion-euros-in-health-damage-due-to-aircraft-noise-around-brussels-airport-environmental-group-says/>

## Questions

1. Wallacia village is identified as one of the loudest 75 decibels Lamax zone of RRO runway of a **night time** due to the **redirection** of the planes from other heavy populated areas. In addition knowing that aircraft may fly at a lower altitude and direction depending on weather and operational conditions thereby also increasing further Decibels. *WSI 11-61*

*Table 11.11 p11.90 indicates Eligibility Criteria Noise treatment package Lamax all aircraft types.*

*Considering that the Lamax noise estimate is more likely to be underestimated in varied conditions.*

*Wallacia was also informed that over time we will be hammered as increase flights occur.*

*Wallacia will be receiving Night time noise from the RRO single event of 75 decibels being **within the Lamax zone** and **not acknowledged with any insulation**. All Residents surrounding the WSI living within a Lamax zone partially or fully need to be recognised for insulation.*

2. ESI stated Operations that are conducted at night or on weekends will be treated as **being more sensitive than those that occur during the daytime or on weekdays**. *p.3.8 ESI Guideline Technical paper Aircraft Noise.*  
*What Action plan have WSI put in place to deal with disturbing Night sensitivity interference in Wallacia?*
3. *Chapter 2. Minimising impacts of aircraft overflight noise to the greatest extent possible is a key issue in the development of the WSI preliminary airspace .*  
*What Action plan has WSI for Wallacia Village when in fact with intent **WSI redirected** aircraft over Wallacia Village to reduce the noise over other areas*
4. What is the WSI's threshold of Lamax noise decibels criteria to warrant insulation for noise abatement? **"The 2016 EIS presented an indicative airspace concept showing that night-time noise would have the potential to cause sleep disturbance and awakenings in some areas closest to WSI. Minimising this while ensuring the operational viability of WSI air traffic was a cornerstone of the preliminary airspace design process.**
5. **Noise levels from aircraft** at higher altitudes (above 10,000 (ft) is generally less than 60 dB(A) but increases modelling uncertainty when compared to that associated with the higher noise levels from aircraft operating at lower altitudes closer to the airport in climb and descent phases.  
**Wallacia Village altitudes is estimated 2500-5000 ft** *this is also compromised in inclement weather making assent more difficult. "Some aircraft may fly at a lower altitude depending on weather and operational conditions" (WSI Noise Tool).* According to the EIS, Chapter 11, Aircraft Noise, page 69 (11.7.3.3 Detailed Respite Charts), under Runway 23"

Residential and rural-residential areas to the immediate north-east and south-west of WSI would be subject to a significant and unavoidable level of noise exposure. These areas will be close to the arrival flight paths and initial departure turns.

6. The Government WSI have indicated to give respite noise relief in one population but has redirected the night time movement to Wallacia ,Silverdale, Mulgoa and Blue Mountains **with no Respite noise relief**. Knowing from research that noise pollution particularly Night movements has many implications both mental and Physical indicators . Who defines one population is more important than other and what provisions are given to the people who will be affected by Night time noise

*# And knowing this, that WSI and the Government are aware that the noise is a problem yet not offered any noise cancelation. For the community that will be affected this is unyielding using tactics as you have created the problem, controlling the reaction but not offering any Solution to those that will be affected*

### ***“The Aircraft Overflight Noise Tool “Ron Brent” – Aircraft Noise Ombudsman***

*displays noise contours that reflect the noise modelling and assessment undertaken for the EIS. However, noise from aircraft movements based on the new preliminary WSI flight paths may be experienced beyond the noise contours shown. p10 WSI Noise Assessment*

*It is important to note that the N contour estimates how many aircraft events will exceed the relevant noise level. For example, a location in the N70 contour, forecast to receive 10-19 aircraft overflights events in a day, could receive 19 aircraft overflights well in excess of 70 decibels. It may also receive any number of aircraft overflights that are less than 70 decibels, or receive less than 10 aircraft overflights that exceed 70 decibels.p.8 WSI Noise Assessment*

*If there are to be homes in these areas, I would want to see clear statements about the aircraft noise. It is not helpful to point out that the houses are not under a flight path or outside a particular noise level contour if the truth is that the houses are right on the edge of a noise contour, and that they are near enough to a flight path that planes will fly overhead. Even if the aircraft do not fly directly **overhead the noise will be no less than when the planes fly over the parkland the other side of the back fence.** Ron Brent – Aircraft Noise Ombudsman*

[https://ano.gov.au/wp-content/uploads/2022/03/The\\_Truth\\_About\\_Aircraft\\_Noise.pdf](https://ano.gov.au/wp-content/uploads/2022/03/The_Truth_About_Aircraft_Noise.pdf)

## **Airservices Australia Brisbane systematically stonewalls community members with legitimate complaints about aircraft noise, claims local community group Brisbane Flight Path Community Alliance (BFPCA)**

*Comments from a person being Stonewalled from.* Facebook. Brisbane

*The level of noise exposure to many thousands of residents living within 30km of Brisbane Airport has known and potentially serious consequences to physical and mental health. That is the single issue that should decide the need for curfews and caps in Brisbane, while a proper Long Term Operating Plan is developed to dramatically reduce residential overfly.*

*That's the only thing that politicians need to know. And they reply back and say, "Yes, but look how many jobs we are creating, and tourist dollars we are bringing in and how we must fulfil Australians' demand for travel." So I'm afraid we can't limit operations. It's not practicable. Especially since you are demanding something as ridiculous as the need for good sleep in preference to GDP growth (as an "out of touch elite"). Unfortunately, curfews have been proven practicable at many major airports world wide.*

*But even that is not the issue. Can someone be medically hurt from this noise at night? And they say, "We haven't done the research on that." Or "It's not our mandate". They have allotted no money for, or attention to, this kind of research, because they don't want to know the answer.*

*But following a reasonable precautionary principle, and given that based on overseas research it is almost certain that people can and are being measurably harmed, no politician should have the power and the authority to play with anybody's lives for the reasons given. And proper sleep is an uncontroversial need for a healthy life, universally recognised by medical professionals and the general community.*

*And the time is proving right now that we have to defend the fundamental rights of people to live in a healthy environment as the first priority, more important than the economy, corporate profits, and convenience to frequent flyers or travellers who want cheap night time flights (aside: why are night flights cheap?).*

*Planners at the airport and within AirServices might mean well, and perhaps they have delivered or are delivering some improvement. But scheduled traffic increases essentially nullify any reduction in noise and the framework is flawed.*

*So currently you have the options of flight path A at night for community X, or flight path B for community Y – as provided to you by the government via ASA.*

*Who wins the divisive noise lottery? The stakes are high: the losers are essentially forced to live in a harmful environment sanctioned by a political elite - if you live in a certain area, you currently don't have a 'permission' from the government to sleep without interruption, because they don't want to limit operational 'efficiency' for the 'essential' industry due to their past planning errors and misrepresentations. [Stonewalling Noise. https://bfpca.org.au/ncis/](https://bfpca.org.au/ncis/)*

To WSI A clear and ethical solution is to implement a curfew and implement caps on hourly flights, so that no community is affected by night-time flights and so that all residents can maintain equitable quality of life, as is afforded to residents within the flight paths into and out of SYD