

Airservices Australia Submission Impact and Mitigation of Aircraft Noise Inquiry

April 2024

Contents

1.0	History of Airservices' role in aircraft noise management in Australia	4
2.0	Government, industry and community roles and responsibilities in managing aircraft noise	9
3.0	Airservices roles and responsibilities including for aircraft noise and the environment	20
	Appendices	25

Airservices introduction

Airservices plays a critical role in the aviation industry and is owned by the Australian government. Airservices is responsible, under the *Air Services Act 1995*, for the provision of a range of services on which Australian society and industry depends, including air traffic control, aviation rescue firefighting, aeronautical information, aeronautical navigation, and aeronautical telecommunications. We are funded by charges to international and domestic aviation for the services that we provide, and these charges are regulated by the Australian Competition and Consumer Commission (ACCC).

We manage 11 per cent of the world's airspace, including the upper airspace for Nauru and the Solomon Islands.

We employ over 900 air traffic controllers at 29 of Australia's airports. Airservices also provides critical emergency services on the ground through our Aviation Rescue Fire Fighting Service. We have approximately 800 firefighting staff providing services at 27 of Australia's busiest airports.

1.0 History of Airservices' role in aircraft noise management in Australia

In 1991, following the Government response to the House of Representatives Select Committee on Aircraft Noise, the legislation governing the Federal Airports Corporation (FAC) and the Civil Aviation Authority (CAA) was amended to give each organisation explicit environmental responsibilities:

- The FAC was required to assume responsibility for on the ground issues primarily revolving around community consultation (convening airport and noise related consultative committees and handling noise complaints).
- The CAA was required to carry out tasks related to noise monitoring, the preparation of noise contours and the control of emissions from aircraft.

The FAC was also required to:

- Ensure that as far as practicable, the level of noise at airports is not such as to be detrimental to the communities near airports.
- Ensure that as far as practicable, the environment is protected from the effects of, and the effects associated with, the operation and use of aircraft operating to or from federal airports.

The CAA was required to:

- Endeavour to perform its functions, other than its regulatory functions, in a manner that ensures that, as far as practicable, the environment is protected from the effects of, and the effects associated with, the operation of aircraft.

- Carry out activities to protect the environment from the effects of, and the effects associated with, the operation of Commonwealth jurisdiction aircraft.
- Give effect to its environmental obligations through powers under the Air Navigation Act.

Aircraft noise patterns changed when the third runway opened in Sydney Airport in 1994, and this generated a significant reaction from communities across Sydney. This led to the establishment of the Senate Select Committee on Aircraft Noise in Sydney in 1995, which criticised the noise predictions in the Environmental Impact Statement for the new runway.

On 1 July 1995, the CAA ceased to exist. Two new bodies were established to take over its functions:

- Airservices Australia, with responsibility for air traffic services, air navigation facilities, the provision of an aeronautical information service, rescue and firefighting service and a national search and rescue service.
- The Civil Aviation Safety Authority (CASA), with responsibility for setting aviation standards, the registration of aircraft, licensing, ensuring compliance with safety regulations, safety promotion and education and having regulatory oversight of the services provided by Airservices Australia.

The legislation establishing each organisation provides that, subject to the

requirements of aviation safety, each organisation must perform its functions in a manner that ensures that, as far as practicable, the environment is protected from the effects of the operation and use of aircraft. Airservices is also required to perform specified environmental functions, including noise monitoring.

The Australian Government in 1996 made the decision to privatise Australia's airports, Australia was the first country in the world to privatise airports. The first phase of airport privatisation in Australia in 1996 included the sale of Melbourne, Perth, and Brisbane airports. Sydney was privatised in 2002.

The *Airports Act 1996* was introduced to:

- promote the sound development of civil aviation in Australia.
- establish a system for the regulation of airport users and the general community.
- promote the efficient and economic development and operation of airports.

The *Airports Act 1996* allowed private industry to promote the development of civil aviation in Australia and moved regulation of the airports from a federal entity, the FAC, to privately leased airports, with regulation by the Department of Infrastructure, Transport, Regional Development, Communications and the Arts.

Case studies for a range of Australian airports is provided in **Appendix A**.

Following the significant public concern at the opening of the third runway at Sydney Airport in 1994, the Long Term Operating Plan for Sydney Airport was released for public comment in 1996. In July 1997 a

Direction was issued to Airservices Australia to implement the Long Term Operating Plan. Airservices was also issued with a Ministerial Direction in 1999, which required:

- environment practices in relation to aircraft operations, provision of navigational aids and rescue and fire fighting activities at Australian airports
- provide advice, information, and data on the environmental aspects of air traffic management including aircraft movements, aircraft noise, aircraft engine emissions and aircraft operations.
- initiate and participate in discussions, consultations, in relation to environmental aspects of air traffic management.
- undertake monitoring, testing and compliance activities associated with the Air Navigation (Aircraft Noise) Regulations and Air Navigation (Aircraft Engine Emissions) Regulations.
- provide, maintain, and enhance public response and reporting services through a dedicated Noise Enquiry Service at airports covered by the *Airports Act 1996*, and other major Australian airports.
- install, maintain, and operate noise and flight path monitoring systems at major Australian airports.
- monitor, collate and report to the Secretary on aircraft movements during curfew hours at Sydney (Kingsford Smith), Adelaide and Coolangatta Airports.
- make available data for the development of aircraft noise exposure analyses and prediction and be responsible for endorsing Australian Noise Exposure

Indices/Forecasts for all Australian airports.

- provide advice, information, guidance, and assistance at locations outside controlled airspace on environmental aspects of aircraft operations.

A full timeline on the evolution of aircraft noise management in Australia is at **Appendix B**.

The extensive list of obligations that have been placed on Airservices is significant in comparison to other air navigation service providers around the world (**Appendix C**). Much of the environmental responsibilities for aviation were moved to Airservices in early iterations.

In 2000, the Australian Government released the discussion paper *Expanding Ways to Describe and Assess Aircraft Noise*. This led to the adoption of three new metrics: flight path movement charts; respite and N70 (the number of events exceeding 70 decibels). This was following community criticism that the ANEF system did not adequately explain to communities the effects of aircraft noise or potential aircraft noise exposure. This being because communities affected were outside the ANEF contours, which had been adopted into land use planning tools to minimise the effects of aircraft noise on the community through planning controls.

The Australian Noise Exposure Forecast (ANEF) system remains the fundamental tool for achieving land use compatibility around airports in Australia. The ANEF and the Australian Noise Exposure Index continue to be the metrics for inclusion in noise amelioration programs based on those who are highly exposed to aircraft noise.

Both flight path movement charts and N70 for daytime noise and N60 metrics for night-time noise have been adopted by many airports as part of the Airport Master Plan and Major Development Plan processes.

The Government in the Aviation White Paper in 2009 pursued a range of measures to manage aircraft noise. These included:

- maintaining existing curfews and aircraft movement caps, and phasing out the operation of older, noisy aircraft.
- airport master planning processes and the ongoing importance of effective noise management strategies, including the need for a periodic review of the need for a curfew at Brisbane.
- strengthening Airservices Australia's approach to managing noise complaints and distributing noise information through the establishment of a noise information and complaints ombudsman.

[Measures implemented from the 2010 Inquiry into Airservices management of aircraft noise.](#)

a) Airservices should be a permanent member of all federal Community Aviation Consultation Groups.

Since 2010 Airservices has participated in and contributed to federal Community Aviation Consultation Groups including the provision of noise complaints data, noise complaint trends, updates to operations, new infrastructure projects, post implementation reviews on flight path design and noise improvement opportunities.

b) The Aircraft Noise Ombudsman should undertake a review of Airservices noise complaints handling.

The inaugural Aircraft Noise Ombudsman (ANO) was appointed to the role on 1 September 2010 and served in that role until 7 February 2017. The first review of Airservices noise complaints handling was completed on 1 February 2011. The review made a number of recommendations to amend systems and procedures for the former Noise Enquiry Unit to manage, track, and resolve complaints handling. Recommendations also included amending the name to a Noise Complaints Unit from a Noise Enquiry Unit, to indicate its role in complaints handling.

c) The Aircraft Noise Ombudsman should provide an annual report of its operations, and this should include a description of actions Airservices has undertaken to implement recommendations.

The ANO has produced an annual report each financial year since 2010-11 that includes a description of actions Airservices has undertaken within that calendar year to implement the ANO recommendations.

d) Airservices should be required to have regard to paragraph 160(2)(b) of the Environment Protection Biodiversity and Conservation Act 1999 (the EPBC Act 1999) and seek advice from the Minister for Environment Protection, Heritage and the Arts in advance of major changes to air routes around airports under its jurisdiction.

Airservices has incorporated into the Environmental Management of Changes to Aircraft Operations National Operating Standard guidance for when a major

change to an air route would trigger a referral under the *EPBC Act 1999*.

Following the 2010 Inquiry into Airservices management of aircraft noise, the New Parallel Runway (NPR) opened at Brisbane Airport on 12 July 2020. This was the first opening of a new parallel runway since Sydney Airport in the mid-1990s during a once in a hundred-year global pandemic, which fundamentally affected people's lives, wellbeing, patterns of work, employment and work location.

The closure of borders to other States/Territories also had a strong effect on runway usage with majority of travel in Queensland being intrastate, which meant due to the design of the NPR with flights North using the new runway with routes such as Brisbane-Cairns being one of the busiest routes in the country, which was not in the top ten routes prior to the pandemic.

The industry has seen a rapid recovery since the opening of the NPR with most airports around the country now back, or close to pre-pandemic levels following the reopening of international travel from China in March 2022.

Airservices Australia has made significant community engagement improvements post Brisbane NPR opening including introduction of Flight Path Design Principles (the Principles) (at [Appendix D](#)), which were adopted on 1 October 2020. The Principles provide the basis for designing and developing flight paths giving regard to the impacts of aviation activities and the potential trade-offs. Having regard to safety as the highest priority, the Principles seek to achieve a balance between operational efficiency, protecting the environment and minimising

the effects of aviation noise on the community, wherever practicable.

The Environmental Management of Changes to Aircraft Operations National Operating Standard (NOS) (at **Appendix E**) was revised to consider the differences in background noise levels between urban and rural areas for noticeability of aircraft noise, changing the trigger for engagement activity from the EPBC Act 1999 referral number above 60dB (N60) and number above 70dB (N70) noise levels to the noticeability of change. The NOS also included consideration of “newly overflowed” communities and different noise level assessment for daytime noise (6am-11pm) versus night-time noise (11pm-6am). The NOS considers fuel burn, CO₂ and other emissions in the assessment of the new flight paths.

Airservices launched last year after national consultation of the new Community Engagement Standard (the Standard) (at **Appendix F**). The Standard is part of the ongoing evolution of our flight path and airspace change community engagement practices, which commenced with our Community Engagement Framework (**Appendix G**) in August 2021. The Standard has been shaped by Aircraft Noise Ombudsman (ANO) findings, learnings from our engagement experience, feedback received from the communities we have engaged, and an independent review to identify best practice standards for community engagement.

2.0 Government, industry and community roles and responsibilities in managing aircraft noise

The effective management of aircraft noise is a partnership between community, government, and industry stakeholders.

The government and industry stakeholders must work together to provide effective tools and information to enable the community to access information relating to where aircraft operate, how aircraft operate (flight paths, frequency of operations, types of operations etc), when aircraft operate (day time versus night-time, international schedules, freight flights, emergency movements etc) and the value of aviation to Australian society and our economy and how this connects major cities, regional centres, and services provided.

Airservices has a responsibility under the *Air Services Act 1995* to provide services and facilities for the safety, regularity or efficiency of air navigation in Australian administered airspace. Airservices can provide this service within and outside Australian jurisdiction under a contract arrangement for other jurisdictions.

Air navigation service provision includes air traffic services, an aeronautical information service, aeronautical radio navigation service and aeronautical telecommunications service.

In addition, Airservices is required to provide an aeronautical information service, which collects and disseminates aeronautical information relevant to the safety, regularity and efficiency of air navigation including the Aeronautical Information Publication, Notices to Airmen

and other aeronautical information products and services.

Airservices along with other commercial organisations in Australia are certified by the Civil Aviation Safety Authority (CASA) to hold a Part 173 Certificate under the *Civil Aviation Act 1998*, which enables the undertaking of flight path design at Australian airports. In doing this work Airservices must work closely with the aviation industry and community to ensure flight path design offers safe and efficient operations and seeks to minimise the impact as far as practicable. Our flight path design procedures require us to undertake community engagement on any proposed change to a flight path with the potential to result in a noticeable change in aircraft operations. Airservices has Flight Path Design Principles ([Appendix D](#)), which sets out the overall considerations and principles we consider for flight path design and operation.

Flight path design principles



Safety and compliance principles

Safety of air navigation must be the most important consideration.

Flight path design must comply with Australian and International design standards, and cater for the range of aircraft that will operate on the flight paths.



Noise and Community Principles

Consider concentrating aircraft operations to avoid defined noise sensitive sites.

Consider potential impacts on social, economic and cultural values of communities and locations, including Indigenous and other heritage places.

Where high-density residential areas are exposed to noise, consider flight path designs that distribute aircraft operations, so that noise can be shared.

Where noise exposure is unavoidable, consider Noise Abatement Procedures that adjust aircraft operations to reduce noise impacts, including consideration of the time of these operations.

Consider current and expected future noise exposure when designing flight paths.



Efficiency and Environmental Principles

Consider Matters of National Environmental Significance, other sensitive habitats, and registered heritage sites.

Design flight paths that deliver operational efficiency and predictability, and minimise the effect on the environment through reducing fuel consumption and emissions.



Operational Principles

Design flight paths to facilitate access to all appropriate airspace users.

Consider flight paths that optimise airport capacity, and meet future airport requirements.

Consider flight paths that optimise overall network operations, including consideration of operations at the adjacent airports.

Consider innovation and technology advancements in navigation and aircraft design.

Flight path design involves trade-offs across a number of considerations after safety, which is the most important consideration and never subject to trade-off. In general, for an individual flight path it can mean selecting one of three options for example:

1. minimise the total number of people overflown, with routes designed to impact as few people as possible.
2. minimise the number of newly overflown, keeping routes close to where they are today, wherever possible.
3. share routes over a wider area, which may increase the total number of people overflown but would reduce the total number of people directly affected by routes as the noise would be shared more equally.

There are also considerations for urban versus rural areas:

1. prioritise routing aircraft over urban areas, recognising that urban areas have higher noise levels; or
2. prioritise routing over rural areas where fewer people live.

In urban areas, there are further considerations:

1. design flight paths over parks and open spaces rather than residential areas; or
2. design flight paths over residential areas, avoiding overflight of parks and open spaces.

Consideration needs to be given to noise and emissions:

1. design flight paths that prioritise the reduction of aircraft noise for local communities over those that reduce fuel burn and emissions; or

2. design flight paths that prioritise a reduction in fuel burn and emissions over those that reduce noise for local communities.

Finally, it is the case that often these considerations must also be balanced with the design of other flight paths, connections with the enroute network and other airspace uses such as military restricted areas. There can also be future uses that need to be planned for, such as airport developments including new runways.

These trade-offs highlight the complexity in flight path design and the trade-offs, which are required to balance the needs of both the community and industry in flight path design.

Noise and Flight Path Monitoring System

Airservices is also required to undertake noise monitoring and compliance reporting activities. Our Noise and Flight Path Monitoring System (NFPMS) collects noise and flight path data at Brisbane, Cairns, Canberra, Gold Coast, Sydney, Melbourne, Essendon, Adelaide, and Perth airports. This system operates 24-hours-a-day, seven-days-a-week, collecting data from every aircraft operating to and from the airport.

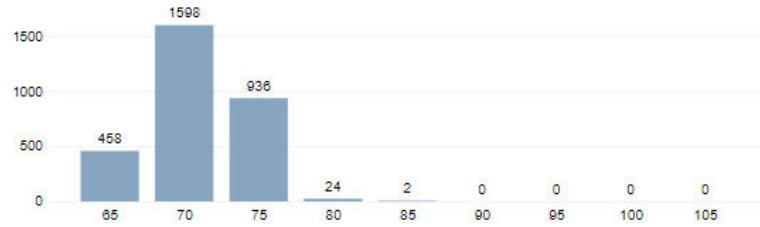


Sample Noise and Flight Path Monitoring System Report (source Aircraft in Your Neighbourhood)

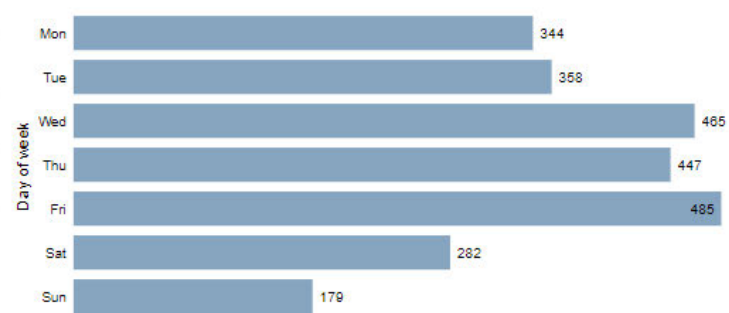
Select a month: Select a noise monitoring terminal:

February
2024

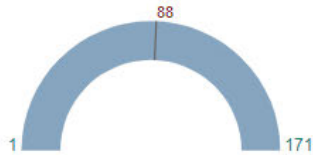
No. of events by Noise level (dBA)



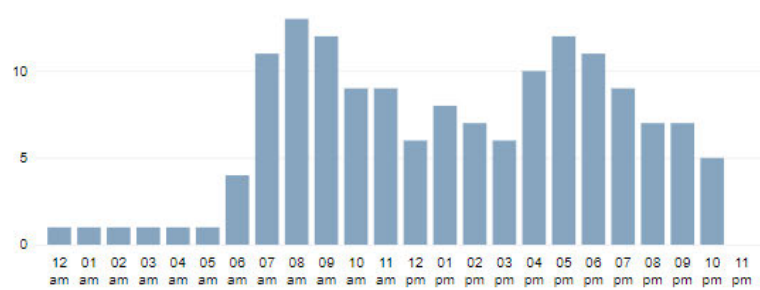
No. of events by Day of week



Average number and daily range of events at or above 70 decibels (dBA)



Hourly distribution of noise events above 70 decibels (dBA)



Aircraft average noise levels dBA

* This table shows the 15 aircraft types with the loudest average noise levels

Aircraft type	Avg. noise level (dBA)	Total events	Max. events per day	Min. events per day	Avg. events per day
B738	75.1	1,165	79	1	40
DH8D	70.5	361	28	2	12
A320	73.3	307	23	2	11
SF34	70.7	212	19	1	7
DH8C	72.7	98	9	1	3
B789	73.4	77	8	1	3
A321	74.6	82	7	1	3
A21N	74.5	69	6	1	2
A359	74.3	49	6	1	2
A20N	73.9	50	5	1	2
A333	76.8	41	5	1	1
DH8B	72.7	46	5	1	2
A332	77.6	31	4	1	1
B350	72.0	40	4	1	1
B737	74.1	42	4	1	1
BE20	70.0	36	4	1	1

Noise Complaints and Information Service

Airservices provides a Noise Complaint and Information Service (NCIS) which responds to complaints and enquiries about aircraft operations. Airservices uses complaints and enquiries to help identify operations of concern and possible improvement opportunities, which are progressed by Airservices through airspace reviews and Post Implementation Reviews of new operations. Below is a summary of the National contacts and complainants for 2023 and the most frequent complainants for 2023. Complaints are managed in accordance with the NCIS Managing Aircraft Noise Complaints and Enquiries Procedure at [Appendix H](#).

NATIONAL – Contacts and complainants by year

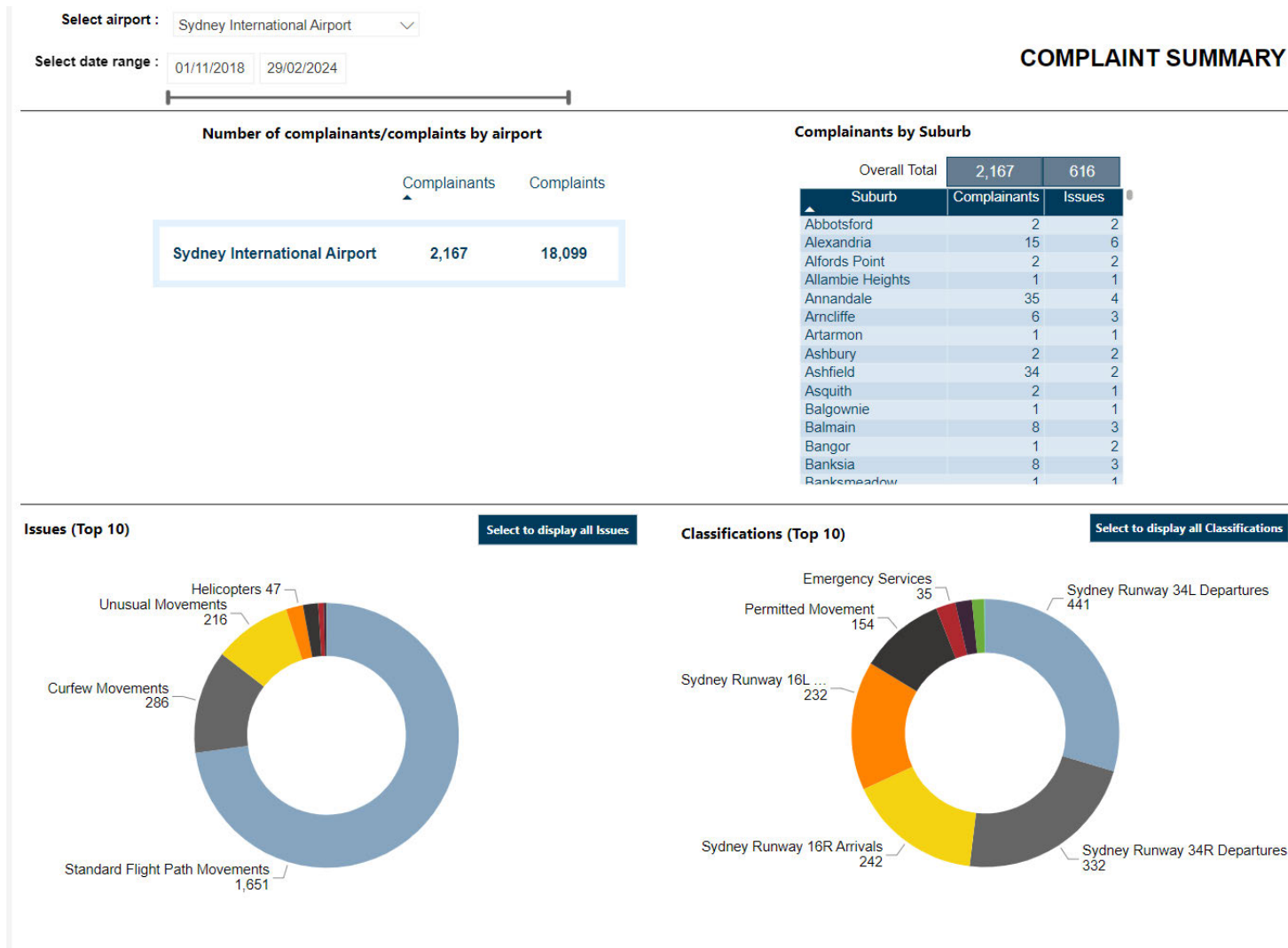
Year	Contacts	Complainant
2019	18,302	5,964
2020	13,649	4,541
2021	18,995	4,583
2022	25,178	4,768
2023	51,589	5,035

TOP COMPLAINANTS – 2023

Complainant	Contacts	Airport
1	20,716	Perth
2	4,071	Archerfield
3	2,665	Brisbane
4	2,084	Brisbane
5	1,007	Brisbane
6	852	Sydney
7	672	Sydney
8	527	Hobart
9	500	Brisbane
10	465	Parafield

Below is a sample noise complaints monthly report.

Sample Noise Complaints Monthly Report

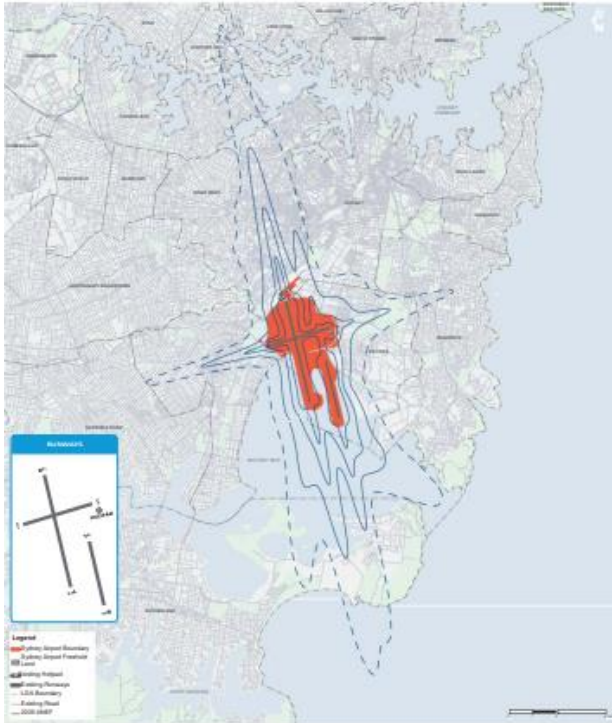


Australian Noise Exposure Forecast – Manner of Endorsement for Airport Master Plans

Airservices under a direction from the Minister, endorses the technical accuracy of Australian Noise Exposure Forecasts (ANEFs) produced by Airport Lessee Companies as required for airport Master Plans under the Airport Act 1996.

In deciding whether to endorse an ANEF, Airservices must have regard to a) the appropriate selection of aircraft types; b) the runway usage and flight track data; c) the forecast number of movements; d) the contours are modelled correctly and e) the proponent has taken into account issues raised by State and Local Governments.

Sydney 2039 ANEF example



Airlines and aircraft operators have a responsibility under the Air Navigation (Aircraft Noise) Regulations 2018 to ensure the aircraft fleet used is compliant with international noise standards and requirements. This requires investment in fleet renewal to ensure environmental and sustainable outcomes can be achieved, including the use and investment in newer, larger, and quieter aircraft.

Airports have a responsibility under the *Airports Act 1996* to develop a master plan and development plans for their airport, which have undergone consultation with the airlines, local government bodies and the community. These consultation opportunities, for communities, are required to provide the community with an awareness of forecast aircraft movements at the airport including the noise exposure over residential areas, particularly under flight paths, surrounding the airport. Airports also need to provide community with an explanation of how aircraft noise is mitigated through the development of noise management plans.

The master plan includes an Australian Noise Exposure Forecast (ANEF) for the areas surrounding the airport, as well as flight paths at the airport. Airports provides communities with several noise contour maps that must adhere to Australian Standard AS 2021-2000 Acoustics – Aircraft noise intrusion – Building siting and construction.

State and local governments are responsible for zoning in their jurisdictions and are accountable in terms of what is built or approved in high noise impact areas (as identified in the ANEF). This is particularly important for land planning around infrastructure such as airports, as well as areas under flight paths. Many noise complaints are received from areas well outside areas subject to noise related

land-use planning controls based on ANEF contours. The current metrics used for Land-Use-Planning schemes may not be appropriate to address impacts in low background noise areas under flight path corridors or broader community sensitivity to aircraft noise.

The National Airports Safeguarding Framework (NASF) provides a guide to state and local governments in implementation of best practice in relation to land use assessment and decision making in the vicinity of airports.

State and local governments must work in partnership with airports on land-use planning and future developments in and around airports, including under flight paths, which may be impacted by aircraft noise. This includes consultation mechanisms which ensure timely and relevant distribution of aircraft noise-related information to communities.

The Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA) is responsible for the management of airports through the *Airports Act 1996* and airport regulations.

All leased federal airports are subject to the following regulations:

- Airport lease requirements which subjects leased federal airports to rules and procedures regarding their leases with the Commonwealth. Provisions relating to airport leases are located within Part 2, Divisions 2–8 of the *Airports Act 1996*.
- Restrictions on Ownership and Control of airport infrastructure
- The Protection of Airspace around airports
- Building Control
- Environmental Management

Certain leased federal airports are subject to further regulations:

- Economic Regulation which includes reporting on the prices charged for aeronautical services and facilities, financial statements, and quality of service information (Brisbane, Melbourne, Sydney, and Perth Airports)
- The Parking Infringement Notices Scheme (Brisbane, Gold Coast, Hobart, Launceston, Melbourne, Perth, Sydney, and Townsville Airports)
- Administration of the Liquor Licensing Regime (Sydney, Bankstown, and Camden Airports)
- The Slot Management scheme (Sydney Airport)
- Curfews (Adelaide, Sydney, Gold Coast and Essendon Fields Airports)

DITRDCA also have responsibility for the National Airports Safeguarding Framework (NASF) that aims to:

- improve community amenity by minimising aircraft noise-sensitive developments near airports.
- improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning decisions through guidelines being adopted by jurisdictions on various safety-related issues.

NASF has implications for anyone working in town planning, residential or commercial development, building construction or related industries. It consists of a set of guiding principles with nine guidelines relating to aircraft noise, windshear and turbulence, wildlife strikes, wind turbines, lighting distractions, protected airspace, communication

equipment, helicopter landing sites and public safety areas at the end of runways.

It is the responsibility of each jurisdiction to implement the Framework into their respective planning systems. Each state and territory will align their respective planning processes with the Framework principles and guidelines, as appropriate.

- The oversight functions include:
 - airport planning, development, and land use.
 - airport insurance compliance.
 - airport environment and building control regulation; and
 - payment of Government rates and taxes.

DITRDCA is also responsible for the development of aircraft noise policy and administration of the Air Navigation (Aircraft Noise) Regulations 2018.

The Air Navigation (Aircraft Noise) Regulations 2018 require aircraft operating in Australian airspace to comply with noise standards and recommended practices introduced under the Convention on International Civil Aviation or to hold a valid exemption to operate. Most aircraft operating in Australian airspace must meet the standards set out in Volume I of Annex 16 to the Convention on International Civil Aviation (ICAO standards).

Aircraft verified as complying with the ICAO standards are issued with a Noise Certificate by Airservices Australia. Under the Regulations, aircraft without an exemption and those that have been noise certificated at Annex 16 Chapter 2 noise standards, are not permitted to operate in Australia. Applications for aircraft noise assessments are managed by Airservices Australia and can be lodged via the Airservices Australia website.

**The Department of Climate Change,
Energy, Environment and Water (DCCEEW)**

is responsible for safeguarding the environment through the *EPBC Act 1999*.

Section 160 of the *EPBC Act 1999* requires that before an agency of the Commonwealth can take an action, which includes managing aircraft operations in airspace or adopting or implementing a major development plan for an airport, where the action has been identified as having a potentially 'significant' impact as defined in the *EPBC Act 1999*, the agency must seek advice from the Minister for the Environment.

The Minister for the Environment will then make a determination on what actions are required to protect the environment including assessment of Matters of National Environmental Significance and protection of the environment to minimise the impacts.

**The Department of Health and Aged Care
(DHAC)**

The Environmental Health Standing Committee (enHealth) advises the Australian Health Protection Principal Committee (AHPPC) on environmental health policy. It brings together expertise from Australian, state and territory health departments and research councils, and their New Zealand counterparts.

DHAC through the Environmental Health Standing Committee reviews evidence related to the health effects of environmental noise. This includes aircraft, road and rail noise and are published in the enHealth - The health effects of environmental noise. This guidance is updated to take into account contemporary research related to environmental health effects.

3.0 Airservices roles and responsibilities including for aircraft noise and the environment

Airservices has a responsibility under the *Air Services Act 1995* to provide services and facilities for the safety, a regularity or efficiency of air navigation in Australian administered airspace. Airservices can provide this service within and outside Australian jurisdiction under a contract arrangement for other jurisdictions.

Consistent with our obligations Airservices purpose is to connect people with their world safely. We are committed to transparent and proactive aircraft noise management, international benchmarking, and collaboration across industry to minimise as far as practicable the impact of aircraft noise.

We are committed to world's best practice aircraft noise management processes and practice, to respectfully managing noise complaints, and to providing transparent information to communities.

We aim to minimise the impact of aircraft operations on the community where practicable. This includes designing flight paths to avoid overflying residential areas, where possible, and consulting with the community and aviation industry on proposed flight path and airspace changes to achieve the best outcome, balancing the needs of all stakeholders.

We recognise the value of engagement and dialogue with the community on flight path design, airspace changes, current operations, and aircraft noise. We are committed to a rigorous process to ensure the delivery of meaningful community engagement and consideration of improvements to noise outcomes wherever safe and feasible.

Airservices has the following functions:

- providing services and facilities for the safety, regularity, or efficiency of air navigation.
- fostering and promoting civil aviation whether inside or outside Australia.
- functions prescribed in relation to the effects of, and effects associated with the operation of aircraft.

Services include:

- air traffic services
- aeronautical information service
- aeronautical radio and telecommunications service; and
- rescue and firefighting services.

In undertaking these functions Airservices must regard the safety of air navigation as the most important consideration. Subject to safety as the most important consideration Airservices must exercise its powers to ensure that as far as practicable the environment is protected from the effects of the operation and effects associated with the operation of aircraft.

In performing these functions Airservices must where appropriate consult with government, industry, consumer/community, and other relevant bodies including the International Civil Aviation Organization and other bodies representing the aviation industry.

Underpinning our approach across all five areas is our Environmental Sustainability Strategy 2021-2026 (Appendix I) which includes Aircraft Noise as a strategic pillar. The key elements of focus are:

- improved balancing of competing flight path design constraints.

- expansion of flight path monitoring data.
- continuous descent operations.
- uncrewed Traffic Management.

Airservices will continue to play a key role to minimise the impact of aircraft operations on the community and increase efficiency to reduce emissions. There is also the need to balance community expectations and social licence regarding aircraft noise which have evolved in the post pandemic environment, with the need for the industry to maintain connectivity and growth.

Balancing competing flight path design constraints

Community expectations in relation to environmental protection are evolving, with the impacts of aircraft emissions, aircraft noise and the industry's resilience on natural resources gaining increasing scrutiny at a global, national and community level. Airservices will continue to work with airlines and airports to help them become more efficient and environmentally sustainable, while balancing community expectation in relation to noise.

New airport infrastructure

The location of an airport within a community and the configuration of its existing runways are fixed. Airservices does not have a decision-making role in the configuration, citing or location of an airport or runway infrastructure. Airport runway configurations largely determine flight path design in the vicinity of airports, as aircraft need to be runway aligned prior to landing and for short periods after departure to ensure stable, safe operations. Safety of air navigation must be the most important consideration in flight path design which is consistent with the objectives of the *Air Services Act 1995*.

Other principles on flight path design require a balance between:

- noise and community principles.
- Efficiency and environmental principles
- Operational principles

Airport Master Plans contain forecast future passenger and aircraft movements over a twenty-year horizon to ensure the future needs of civil aviation users and other users of the airport can be met over time. Airservices is required to design airspace and flight paths consistent with the approved Master Plan.

In doing so, Airservices designs flight paths to maximise movements over areas of lower population density, such as industrial estates, parklands, and water, or over areas of higher ambient noise such as major arterial roads and highways.

To reduce noise exposure for the community where high-density residential areas are exposed to noise, we consider flight path designs that distribute aircraft operations so that noise can be shared and provide respite where overflight of these areas cannot be avoided. Airservices also designs Noise Abatement Procedures that adjust aircraft operations to reduce noise impacts including the time of these operations where practicable.

In managing efficiency and environment Airservices considers Matters of National Environmental Significance and other sensitive habitats in flight path design. Airservices also designs flight paths to deliver operational efficiency, predictability and minimise the impacts on the environment from fuel burn and emissions. These principles are consistent with the objectives in the *Air Services Act 1995* to as far as practicable, the environment is protected from the effects and operation and use of aircraft, and the

effects associated with the operation and use of aircraft.

Airservices is not an environmental regulator, the protection of the environment sits with both the Minister for the Environment under the *EPBC Act 1999*, and the Minister for Infrastructure, Transport, Regional Development and Local Government under the *Airports Act 1996* for Airport Environment Plans, management of the environment at an airport, biodiversity protection, flora and fauna protection, management of environmental risks on airport.

From an operational perspective Airservices designs flight paths to facilitate access to all airspace users. We design flight paths that optimise airport capacity and meet future airport requirements consistent with the objectives defined in the *Air Services Act 1995* to foster and promote civil aviation. Airservices also designs flight paths that optimise the overall network operation, including the consideration of operations at adjacent airports. Flight path design cannot occur in isolation at one airport. The networked nature of the Australia aviation market means that changes at one major airport can have flow on effects to other airports. More than 50 per cent of Australian domestic traffic transits through Sydney Airport every day. The four busiest routes in Australia in 2023 were Melbourne-Sydney, Brisbane-Sydney, Brisbane-Melbourne, and Gold-Coast-Sydney, which highlights the importance of taking a network approach to airspace design. Melbourne-Sydney was the fifth busiest domestic route in the world in 2023.

Flight path monitoring data

Airservices has been required, since the mid 1990', to monitor flight path data and undertake noise monitoring. Noise and flight path monitoring is undertaken to provide accurate information to the

community, government stakeholders and Airservices on aircraft movements, patterns, and noise levels. Noise and flight path monitoring also determines potential environmental noise impacts on the community while providing safe and efficient air navigation services.

Noise and flight path monitoring also validates aircraft noise modelling results and identifies acoustic impacts of current and historic aviation activity to guide decisions on proposed changes to operations. Airservices has expanded and enhanced the provision of noise and flight path monitoring data by the provision of comprehensive information in the *Aircraft in Your Neighbourhood* (<https://aircraftnoise.airservicesaustralia.com>) for airports around the country. The purpose of *Aircraft in Your Neighbourhood* is to provide information about flight paths and aircraft movements within local areas with resources that assist in more detailed information on:

- where aircraft operate
- how frequent are flights
- what altitude do aircraft operate at
- monthly trends
- links to near real-time data on Webtrak
- how to make an aircraft noise complaint
- noise monitoring data and results.

Airservices does not regulate the noise level produced by an aircraft, aircraft are certified in accordance with the Air Navigation (Aircraft Noise) Regulations 2018. Airservices does conduct noise certification assessments for those aircraft which may not have a noise certificate in accordance with the Air Navigation (Aircraft Noise) Regulations 2018.

Aircraft Noise certification

A noise certification test was last undertaken on 11 December 2019 for a Whitney Boomerang DW200 aircraft

requested by the Boomerang Aircraft Owners Group in La Trobe Airport in Victoria. Prior to the latest test one was conducted in 2015 for the Gibbs Aero and Seabird aircraft.

Exemptions from the regulations are granted by DITRDCA. Airservices does not have the power to determine what times aircraft operate, what noise levels aircraft produce or to prevent an aircraft operating based on noise levels if it is operating as permitted by the Air Navigation (Aircraft Noise) Regulations 2018.

World Health Organization Guidelines for Environmental Noise for the European Region

Reference has been made by some members of the community to the World Health Organization (WHO) Guidelines for Environmental Noise in the design of flight paths in Australia and the regulation of aircraft noise.

The WHO Guidelines for Environmental Noise are based on noise surveys conducted after 2000. A set of surveys was selected and analysed by a team of researchers commissioned by the WHO. There were issues of bias with the surveys included because half the selected surveys were derived from specifically noise sensitive age group not representative for the general population close to airports.¹

The WHO Guidelines for Environmental Noise do note the moderate quality of evidence in their report to recommend a limit of L_{den} 45dB and L_{night} 40dB to avoid adverse health impacts. Many researchers have now analysed data sets post 2000 using recommended standardised methods and consistent with International Standard ISO 1996-1. The research using a wider set of data using those conducted in

accordance with international standards recommends that exposure should be limited to L_{den} 55dB for daytime and L_{night} 50dB for night-time. It should be noted that L_{den} is an average sound pressure level on all days, evenings and nights in a year. and this is not the same measure as the noise level indicated on noise monitors during a single aircraft movement (L_{max}). The former is an average noise level over time while the latter is a single aircraft movement noise event.

Australia does not use the L_{den} metric when calculating the impacts of aircraft noise. Airservices calculations for aircraft noise exposure are based on L_{max} which provides the maximum sound pressure level reached during a measurement period (single aircraft noise event) in dB(A).

It is important to note that no countries have adopted into legislation, regulation, or guidance material the WHO Guidelines for Environmental Noise for the European Region.

Australian Standard 2021:2015 Acoustics – Aircraft Noise Intrusion – Building Siting and Construction (the Standard) sets the requirements for siting and construction of building against aircraft noise intrusion. Those dwellings built to the Standard will have aircraft noise no greater than 60db(A) for daytime noise and 50db(A) for night-time noise. These standards broadly align with the research conducted both prior and post 2000 which align with international standards of research to assess noise intrusion and aircraft noise annoyance.

Airservices does not have a role in determining the thresholds used for aircraft noise annoyance and regulation of

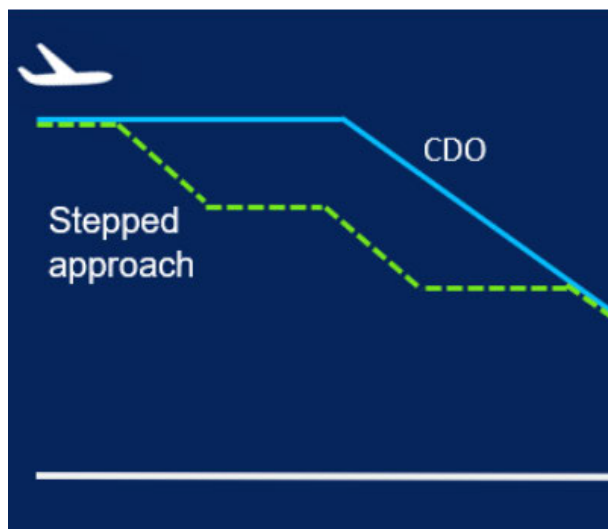
¹ A Systematic Review of the Basis for WHO's New Recommendation for Limiting Aircraft Noise Annoyance Truls Gjestland, December 2018,

International Journal of Environmental Research and Public Health (IJERPH).

aircraft noise. These are matters for the Department of Infrastructure, Transport, Regional Development, Communications and the Arts and State/Territory Governments in land use planning decisions and compliance with Australian standards.

Continuous Descent Operation

Landing procedures traditionally involve aircraft descending in successive steps from cruising altitudes to the airport runway. In a Continuous Descent Operation (CDO) approach the aircraft flies from cruising altitude all the way down to the runway in one smooth and uninterrupted descent. CDO provides airlines a predictable idle descent, saving fuel, reducing carbon emissions and potentially decreasing descent noise. A diagram demonstrating CDO is provided below.



Drones and Flight Information Management System

The industries currently generating the most annual drone flights are agriculture and mining.

However, it is expected that the transport and logistics industry will rapidly become the largest user of drone flights in the Australian market. This industry is dominated by goods delivery (e.g. takeaway food, groceries, parcels) and includes passenger transportation

later in the 20-year horizon.

Autonomous air transport is continuing to move from science fiction towards reality, and deliveries of food, goods and medical products by drone will become commonplace in the future. Commercial operations are already underway in some of these industries, and technologies are continuing to be developed and enhanced.

Airservices is anticipating a rapid growth in the drone market from around 1.5 million drone flight today to up to 60 million drone flights by 2043. To manage this rapid growth, Airservices is investing in a Flight Information Management System (FIMS) that will enable Airservices to seamlessly incorporate drones, air taxis and other uncrewed aircraft into Australian airspace.

FIMS will be at the core of Australia's Uncrewed Aircraft Systems Traffic Management (UTM) ecosystem. It will enable Airservices to share flight information between air traffic control, traditional aircraft, and uncrewed airspace users. This system will not however regulate the noise output of these new aircraft types. The Department of Infrastructure, Transport, Regional Development, Communications and the Arts are responsible for the management and regulation of drone noise in Australia. Airservices will safely integrate these new airspace users.

Appendices

The following documents have been submitted separately and form part of this submission.

- Appendix A – Airport Case Study Examples
- Appendix B – Timeline of Noise Management in Australia
- Appendix C – International Benchmarking
- Appendix D – Flight Path Design Principles
- Appendix E – Environmental Management of Changes to Aircraft Operations – National Operating Standard
- Appendix F – Community Engagement Standard for Flight Path and Airspace Change Proposals
- Appendix G – Community Engagement Framework
- Appendix H – Noise Complaints and Information Service Managing Aircraft Noise Complaints and Enquiries Procedure
- Appendix I - Environment and Sustainability Strategy 2021-2026