

Aircraft Noise Discussion Paper

Prepared for the City of West Torrens



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Client: City of West Torrens

ABN: 16 346 877 634

Prepared by

AECOM Australia Pty Ltd

Level 28, 91 King William Street, Adelaide SA 5000, Australia
T +61 8 7223 5400 F +61 8 7223 5499 www.aecom.com

ABN 20 093 846 92520 093 846 925

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1.0 Introduction

Adelaide Airport, being an inner city airport less than 6 km from the Adelaide CBD, provides significant economic benefit to the State and to the City of West Torrens. The Airport is a major transportation hub and significant employer, and therefore its ongoing operations must be protected. However, consideration must also be given to the surrounding community and the trade-offs between airport operations, local amenity and urban development opportunities.

Recently, the residential suburbs of West Richmond and Brooklyn Park, immediately adjacent the north-eastern end of Adelaide Airport's major runway, have been the subject of further development pressures. A number of development applications for the intensification of residential development in areas that are subjected to significant aircraft noise, has resulted in tensions in our planning assessment process.

This Aircraft Noise Discussion Paper responds to a resolution of Council, at its meeting of 8 December 2015, which states:

"That as a matter of urgency, the Administration develop an Aircraft Noise Policy for Council consideration that provides a framework and sets out principles that are to guide planning proposals, development assessment and provision of aircraft noise information for those properties within the City of West Torrens affected by aircraft noise. The policy framework shall be consistent with national standards and State planning policies yet also be responsive to local needs and expectations. As a minimum the policy should aim to:

- *Facilitate the provision of information to the public about aircraft noise that is accurate and meaningful, and that enable people to make appropriate decisions*
- *Adopt the Building Site Acceptability principles outlined in Australian Standard AS 2021 – 2015, Acoustics – Aircraft noise intrusion – Building siting and construction, or any successor Australian Standard, but provides more definitive guidance regarding discretionary matters under that Standard*
- *Take into consideration the National framework for Safeguarding Airports*
- *Allow a merit-based development assessment framework that is responsive to local expectation, weighs up potential costs and benefits to the community, and promotes approaches that are cost-effective, equitable and affordable*
- *Promote a co-operative framework in which all interested stakeholders can contribute to the future planning of Adelaide Airport and its environs"*

The City of West Torrens recognises that aircraft noise management remains a critical concern to the community when it comes to airport operations. Council continues to support the retention of the Adelaide Airport night-time curfew and the work Airservices Australia is doing in developing new and improved flight path tracking and navigational technologies that enhance the efficiencies of aircraft in flight and which have the effect of minimising noise footprints.

Further, Council has also recognised that, notwithstanding recent changes to the West Torrens Council Development Plan through the *Housing Diversity Development Plan Amendment*, maps and policies relating to noise affected areas need to be reviewed.

This Discussion Paper has been prepared in consultation with Adelaide Airport Ltd.

2.0 Understanding Aircraft Noise

The continued growth of the aviation sector is vital for the development of international business, trade and tourism. However, increasing aircraft movements can impact the level of aircraft noise.

Residents living near airports or under busy flight paths can be exposed to the impacts of aircraft noise, and this can affect people in different ways.

2.1 Noise Levels

Noise is typically defined as 'unwanted sound', with sound levels expressed in decibels (dB). People react differently to varying levels of noise. However, it is general consensus that a noise level of 60 decibels (dB) is enough to disturb everyday activity.

To measure sound, a logarithmic scale is used with the decibel (dB) as the unit of measure. The sound level of typical daytime urban-based activities can vary between 40dB and 85dB. The typical aircraft noise levels are between 65dB and 95dB.

The following are examples of noise levels from everyday activity:

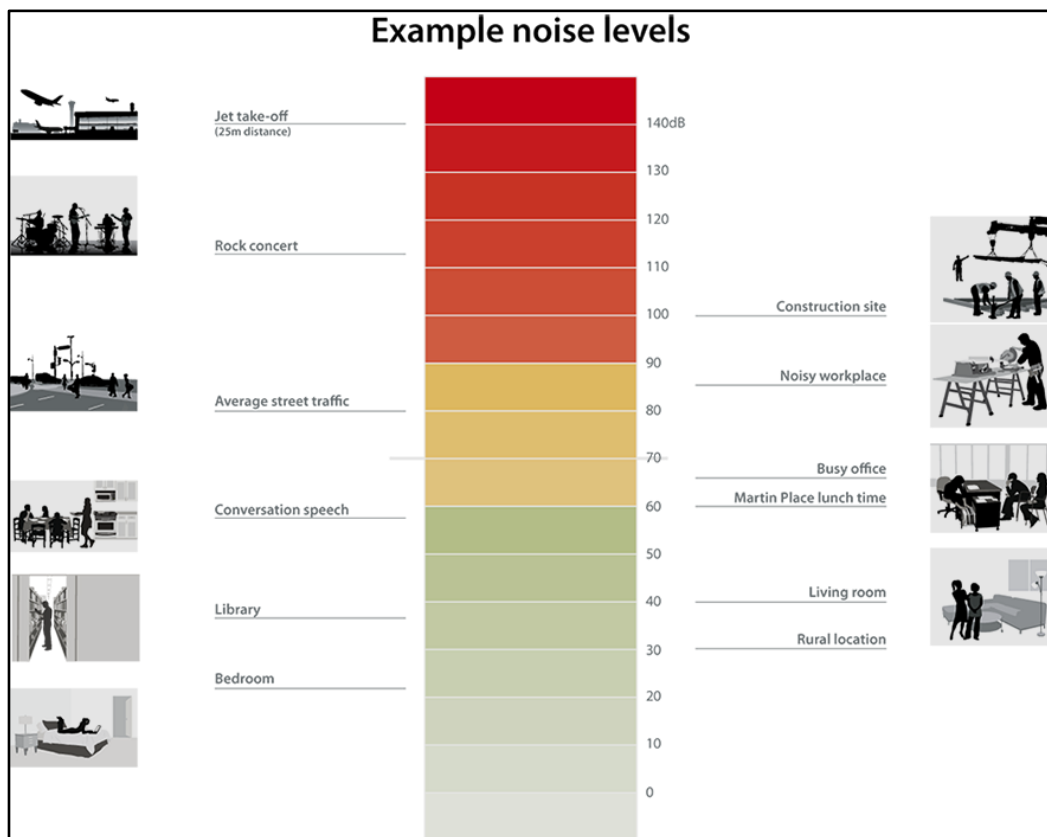


Figure 1 Example Noise Levels (In Decibels).

Source: Aircservices Australia and Australian Airports Association

Noise can have an impact on the following:

- Disruption of normal household activities such as conversation and watching television
- Waking up during the night with loss of quality of sleep, leading to reduced performance and concentration levels the following day
- Some studies have shown that exposure to high levels of noise over a long period can contribute to high blood pressure, heart disease and reduced immunity

While to some people it may be barely noticeable, to others the impact ranges from different levels of annoyance to a real, measurable effect on health and life style.

2.2 Noise Levels associated with Aircraft Operations

Aircraft operating in Australia have to meet international noise standards. Many airline operators have purchased quieter aircraft in response to community concerns, or have re-organised their fleets so that quieter aircraft operate at sensitive times, such as at night or weekends.

Flight Paths

Aircraft travel along designated corridors or 'flight paths'. These can be a number of kilometres wide – not the straight lines from one point to another often indicated on maps. At most major airports, flight paths are determined by air traffic control. This ensures that aircraft safely avoid noise sensitive areas (where possible) as well as obstacles and other aircraft.

Every runway will have a number of flight paths. These will be used depending on the type of aircraft, the volume of traffic, type of navigation aid being used, and current weather conditions. Changes to flight paths are made for a variety of reasons, including safety and the environment.

Take-off and Landing

Wind is a predominant factor in choosing the runway that an aircraft may use, given that, for safety reasons, aircraft arrive and depart into the wind. Prevailing winds in many Australian cities are seasonal, which means that one runway may be heavily used during certain months and rarely used at other times of the year.

Arriving aircraft will generally approach a runway in a straight line from around three to four kilometres from the runway end. Residential areas under these approaches, will also be under the flight path of aircraft taking off, and will be those most affected by aircraft noise.

Ground Running

Another aircraft operation that may create noise is 'ground running'. This is when an aircraft engine is tested while the aircraft is stationary on the tarmac. This allows engineers to verify that aircraft engines are working properly. During ground running, engine settings are increased from idle to a higher power in order to simulate what would happen in a flight. For safety purposes, engine ground running requires facing the engine into the wind. Therefore, the direction of the aircraft and its engine noise will change with wind direction. Due to airline operating schedules, ground running tends to take place at night, although at most airports, engine ground running locations are situated away from the closest residences to reduce noise impacts.

Airport Curfews

Aircraft curfews are one way of managing night time aircraft noise and provide communities around airports with some respite. However, operating restrictions such as curfews are considered in the International Civil Aviation Organisation's Balanced Approach as a last resort, after consideration of other measures.

Airservices, airports and airlines work together to minimise noise exposure from aircraft during night-time hours. This includes procedures such as preferred runways and flight paths and using reduced engine thrust when it is safe to do so. However, there are still flights at night. These night time flights at airports with a curfew are generally police and emergency services, medical evacuations and freight carriers.

2.3 Working Together – The Balanced Approach

In Australia, aviation activity is expected to increase by more than 60 per cent over the next 20 years. Similar growth is anticipated for Adelaide Airport.

Such growth must be accompanied by actions to manage even further the impact of the aviation sector on noise.

As air traffic levels continue to increase, managing noise is increasingly challenging. The entire aviation industry recognises the need to work together to meet this challenge, to safeguard the future viability of aviation operations.

A balanced approach to guide the management of aircraft noise has been developed by the International Civil Aviation Organization (ICAO). The Australian aviation industry is committed to using this approach to manage aircraft noise with all industry stakeholders playing their part.

The Balanced Approach addresses aircraft noise management in the following ways:

- Quieter aircraft and improvements to aircraft operations
- Land use planning and management
- Selection of preferred routes and runways to ease noise
- Operating restrictions on aircraft including caps, curfews and quotas
- Consultation with Local Communities

2.3.1 Quieter Aircraft and Improvements to Aircraft Operations

All parts of the industry are already working on noise reduction measures. Examples include:

- Quieter aircraft technology
- Smart Tracking (aircraft fitted with navigation systems that use satellite-assisted guidance)
- Flight path review (new procedures such as flight paths that avoid residences as far as possible)
- Continuous descent approach (aircraft approach the airport through a smooth, constant-angle descent to landing)
- Reduced thrust take-off (safe aircraft take-off utilising less engine thrust)

2.3.2 Land Use and Management

Land use planning around airports and flight paths takes into consideration the range of noise information relevant to the local community including the location of flight paths, numbers of aircraft and timing of aircraft movements, the intensity of noise events from those movements and the comparison to ambient noise levels.

As part of their master planning process, airports are required to produce noise contour maps every five years. These help planning authorities, such as state and local governments, to take aircraft noise exposure into account when making decisions on development proposals.

Land use planning around airports is primarily the responsibility of local government, which take into account state and territory laws and policies. Existing urban development near an airport has the potential to restrict the effectiveness of the airport's operations, as well as potentially adversely impacting upon the amenity and well-being of local communities.

The National Airports Safeguarding Advisory Group (NASAG) has been working to develop a framework that would minimise noise-sensitive developments near airports. This is described further in Section 5 of this Discussion Paper.

2.3.3 Selection of preferred routes and runways to ease noise

The impacts of aircraft noise will be greatly affected by the flight paths that are used by aircraft approaching the airport or after take-off. The flight paths used are determined by the runway allocation and the destination of the flight.

The runways used by aircraft for arrivals or departures are largely controlled by wind direction and may change during different times of the year, and even time of the day.

The choice of runway can also be influenced by aircraft type, as the larger aircraft can only use the main runway while smaller aircraft have more options available. Operational rules may also be imposed to limit the number of flights on runways that have greater impacts on noise (as a standard noise abatement procedure).

2.3.4 Operating restrictions on aircraft

A limited number of airports around Australia have legislated curfews and operating restrictions on particular aircraft to limit noise impacts from aircraft at night. Sydney, Adelaide, Essendon and Gold Coast airports currently have legislated curfews in relation to the operating arrangements.

During curfew hours, take-offs and landings at such airports are restricted to specific types of aircraft and operations. Some aircraft can operate during the curfew if they meet certain low-noise criteria and observe noise abatement procedures.

2.3.5 Consultation with Local Communities

Airports engage with local communities surrounding the airport through a range of committees and forums. Principally, the Consultative Committees have been established, which includes local community representatives, providing a forum where any issue relating to the operations of the airport and potential effects on the local community can be raised.

Airservices Australia maintains a web site, 'WebTrak', which provides information about individual flights and allows users to investigate issues and lodge noise complaints if needed.

2.4 Responsibility for managing Aircraft Noise

The responsibility for aircraft noise management is shared between airlines and aircraft operators, air navigation service providers, airports, federal government agencies and state and local governments.

Table 1 Responsibility for managing Aircraft Noise

Agency/Authority	Aircraft Noise Responsibility
Airservices Australia	<ul style="list-style-type: none"> - Maintaining technology used by the industry for navigation and surveillance and aircraft noise monitoring - Major role in managing aircraft noise and distributing information about aircraft noise management - Maintains a focus on safety and works closely with airports and airlines to ensure, wherever possible, that flight departures and arrivals avoid residential areas and that noise-abatement principles are implemented
Civil Aviation Safety Authority (CASA)	<ul style="list-style-type: none"> - Independent statutory authority with responsibility for the regulation of civil aviation operations in Australia and the operation of Australian aircraft overseas - CASA gives overriding consideration to air safety, consideration of the environmental effects of the activities it regulates are secondary to its safety-related obligations - Responsible for airspace regulation
Department of Infrastructure and Regional Development	<ul style="list-style-type: none"> - Advises government on the policy and regulatory framework for Australian airports and the aviation industry - The Department also provides policy advice to the Minister on the efficient management of aircraft noise, including regulatory oversight of: <ul style="list-style-type: none"> • Curfews which apply to night time aircraft operations at Sydney, Adelaide, Gold Coast and Essendon airports • The Air Navigation (Aircraft Noise) Regulations 1984 as they apply to aircraft which do not meet Australian aircraft noise standards
Aircraft Noise Ombudsman	<ul style="list-style-type: none"> - The aviation industry works closely with the independent office of the Aircraft Noise Ombudsman (ANO) to improve the way in which it can respond to community concern about the impact of aviation on communities
Airports	<ul style="list-style-type: none"> - Airports ensure that noise-generating activities, such as ground running and helicopter take-offs, take place as far away as possible from residential areas
State/territory governments and local councils	<ul style="list-style-type: none"> - State governments determine planning frameworks for areas around airports to ensure that inappropriate developments are avoided where aircraft noise is (or could be in the future) particularly high - Local councils are responsible for implementing these frameworks

2.5 Australian Noise Exposure Forecast (ANEF)

The *Airports Act 1996* requires an Airport Master Plan to include forecasts of noise levels resulting from the operation of the airport. The Australian Government has specified the use of the computer-based Integrated Noise Model (INM) which produces Australian Noise Exposure Forecasts (ANEFs) for the prediction of exposure to aircraft noise.

An ANEF is a plot of estimated noise exposure based on a forecast of aircraft movements and fleet mix for a defined future horizon. The ANEF provides an indication of the change in noise emissions over time and is used for developing appropriate land use zoning of areas affected by aircraft noise.

Noise plots are plans of the airport and surrounding localities on which contours of equal noise units (usually 20, 25, 30 and 35) have been superimposed, with the level of noise increasing as the noise level value increases.

The following factors of aircraft noise are taken into account in calculating the ANEF:

- The intensity, duration, tonal content and spectrum of audible frequencies of the noise of aircraft take-offs, landings and reverse thrust after landing (the noise generated on the airport from ground running of aircraft engines or taxiing movements is not included for practical reasons)
- The forecast frequency of aircraft types and movements on the various flight paths
- The average daily distribution of aircraft take-offs and landing movements in both daytime (7.00am to 7.00pm) and night time (7.00pm to 7.00am) hours
- The topography of the area surrounding the airport

There can be only one ANEF plot for any airport at any one time. This is the ANEF endorsed by Airservices Australia and incorporated into the latest Airport Master Plan.

2.6 Australian Standard AS2021

Australian Standard (AS) 2021: Acoustics – Aircraft Noise Intrusion – Building Siting and Construction (AS2021) provides an assessment of potential aircraft noise exposure around airports based on the ANEF system. This is widely referred to in guiding strategic land use planning in the vicinity of airports.

This Standard provides guidance on the siting and construction of new buildings against aircraft noise intrusion and on the acoustical adequacy of existing buildings in areas near airports and aerodromes. The assessment of potential aircraft noise exposure at a given site is based on the Australian Noise Exposure forecast (ANEF) system. The Standard also provides guidelines for determining the type of building construction necessary to provide a given noise reduction.

In March 2015, Standards Australia released the revised Standard AS2021-2015. This revision includes updated aircraft tables and advice about the development and endorsement process for ANEFs. Standards Australia is in the process of preparing a handbook to better explain the AS2021-2015.

Table 2 Building Site Acceptability Based on ANEF Zones

(Based on Australian Standard AS 2021-2015 Table 2.1)

Building Type	ANEF Zone of Site		
	Acceptable ^A	Conditional ^B	Unacceptable ^C
House, home unit, flat, caravan park	Less than 20 ANEF (Note 1)	20 to 25 ANEF (Note 2)	Greater than 25 ANEF
Hotel, motel, hostel	Less than 25 ANEF	25 to 30 ANEF	Greater than 30 ANEF
School, university	Less than 20 ANEF (Note 1)	20 to 25 ANEF (Note 2)	Greater than 25 ANEF
Hospital, nursing home	Less than 20 ANEF (Note 1)	20 to 25 ANEF	Greater than 25 ANEF
Public building	Less than 20 ANEF (Note 1)	20 to 30 ANEF	Greater than 30 ANEF
Commercial building	Less than 25 ANEF	25 to 35 ANEF	Greater than 35 ANEF
Light industrial	Less than 30 ANEF	30 to 40 ANEF	Greater than 40 ANEF
Other industrial	Acceptable in all ANEF Zones		

^A 'Acceptable' means that special measures are usually not required to reduce aircraft noise

^B 'Conditional' means that special measures (noise attenuation) are required to reduce aircraft noise

^C 'Unacceptable' means that the development should not normally be considered

There are further notes associated with Table 2.1, which state:

Note 1	The actual location of the 20 ANEF contour is difficult to define accurately, mainly because of variation in aircraft flight paths. Because of this, procedure of Clause 2.3.2 may be followed for building sites outside but near to the 20 ANEF contour.
Note 2	Within 20 ANEF to 25 ANEF, some people may find that the land is not compatible with residential or educational uses. Land use authorities may consider that the incorporation of noise control features in the construction of residences and schools is appropriate.
Note 3	There will be cases where a building of a particular type will contain spaces used for activities which would generally be found in a different type of building (eg an office in an industrial building). In these cases Table 2.1 should be used to determine site acceptability, but internal design noise levels within the specific spaces should be determined by Table 3.3.
Note 4	This Standard does not recommend development in unacceptable areas. However, where the relevant planning authority determines that any development may be necessary within existing built-up areas designated as unacceptable, it is recommended that such development should achieve the required ANR determined according to Clause 3.2. For residences, schools, etc., the effect of aircraft noise on outdoor areas associated with the buildings should be considered.
Note 5	In no case should new development take place in greenfield sites deemed unacceptable because such development may impact airport operations.

Of particular relevance to development within existing established urban areas is Note 4 (above). Key aspects of this note state:

- The Standard does not recommend development in unacceptable areas" [my underlining]
- A relevant planning authority may determine that is necessary to support a development that is designated as 'unacceptable development' within existing built-up areas – but consideration must be given to acoustic treatment to the building, along with the effect of aircraft noise on outdoor areas associated with such development

3.0 National Airports Safeguarding Framework (NASF)

The Commonwealth Government's 2009 Aviation Policy White Paper: *Flight Path to the Future* proposed the development of a national land use planning framework in order to improve community amenity and improve safety outcomes associated with aviation in Australia.

The National Airports Safeguarding Advisory Group (NASAG) was responsible for the development of the National Airports Safeguarding Framework (NASF) in coordination with State Governments and Councils surrounding the major airports in Australia. This was part of the agreement by Commonwealth, State and Territory ministers at the Standing Council on Transport and Infrastructure meeting on 18 May 2012.

The NASF is a national land use planning framework that aims to:

- Improve community amenity by minimising aircraft noise-sensitive developments near airports including through the use of additional noise metrics and improved noise-disclosure mechanisms; and
- 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.

3.1 NASF Principles

The seven NASF Principles acknowledge the importance of airports to National, State, Territory and local economic, transport networks and social capital. The Principles promote a national approach to improving planning outcomes near airports and under flight paths; noting that the responsibility for land use planning outside of the boundaries of the major Australian airports primarily rests with State, Territory and Local Governments. The principles include:

Principle 1	<i>The safety, efficiency and operational integrity of airports should be protected by all governments, recognising their economic, defence and social significance.</i>
Principle 2	<i>Airports, governments and local communities should share responsibility to ensure that airport planning is integrated with local and regional planning.</i>
Principle 3	<i>Governments at all levels should align land use planning and building requirements in the vicinity of airports.</i>
Principle 4	<i>Land use planning processes should balance and protect both airport/aviation operations and community safety and amenity expectations.</i>
Principle 5	<i>Governments will protect operational airspace around airports in the interests of both aviation and community safety.</i>
Principle 6	<i>Strategic and statutory planning frameworks should address aircraft noise by applying a comprehensive suite of noise measures.</i>
Principle 7	<i>Airports should work with governments to provide comprehensive and understandable information to local communities on their operations concerning noise impacts and airspace requirements.</i>

3.2 NASF Guidelines

The NASF Guidelines provide guidance on planning requirements for new development that could impact aviation operations, such as building activity around airports that could penetrate operational airspace, impact on operating hours (due to noise), and/or affect navigational procedures for aircraft.

The Guidelines cover the topics of managing impacts of aircraft noise, risk of building generated windshear and turbulence, risk of wildlife strikes in the vicinity of airports, risk of wind turbine farms as physical obstacles to air navigation, lighting distractions to pilots, and risk of intrusions into protected airspace.

The six current Guidelines are:

Guideline A	Measures for Managing Impacts of Aircraft Noise
Guideline B	Managing the Risk of Building Generated Windshear and Turbulence at Airports
Guideline C	Managing the Risk of Wildlife Strikes in the Vicinity of Airports
Guideline D	Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation
Guideline E	Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports
Guideline F	Managing the Risk of Intrusions into Protected Airspace of Airports

A further Guideline, 'NASF Guideline G – Protecting Aviation Facilities – Communication, Navigation and Surveillance', is currently being developed.

The Commonwealth Government has also initiated a review of Public Safety Zones (PSZ) for airports around Australia, and is encouraging Airport organisations to work with Local and State Government authorities to explore the incorporation of PSZ into planning policies.

Public Safety Zones (PSZ) are areas of land at the ends of the runways, within which future development is restricted in order to limit the number of people on the ground at risk of death or injury in the event of an aircraft accident on take-off or landing. The overall aim is that, over time, the number of people living, working and assembling in these areas should be reduced as circumstances allow, in an effort to minimise the risk of harm in the locations in the vicinity of runways.

3.2.1 NASF Guideline A – Measures for Managing Impacts of Aircraft Noise

The purpose of this Guideline is to guide decision makers to manage the impacts of noise around airports, including the suitability of developments.

Over the long term, inappropriate development around airports can result in unnecessary constraints on airport operations and negative impacts on community amenity due to the effects of aircraft noise. These impacts need to be managed in a balanced and transparent way.

Guideline A provides advice on the use of a complementary suite of noise metrics, including the Australian Noise Exposure Forecast (ANEF) system and frequency-based noise metrics, to inform strategic planning and provide communities with comprehensive and understandable information about aircraft noise.

The Guideline seeks to utilise the endorsed ANEF and ANEC (ultimate capacity) for an airport to ensure greater alignment, incorporating into strategic planning documents guidance on managing noise impacts when rezoning land and assessing new applications within noise sensitive areas. Specific noise measurements are provided in order to assess whether proposed rezoning or new development is appropriate in a particular location; particularly in relation to more sensitive land uses.

Utilising ANEC (ultimate capacity), there should be no intensification of noise sensitive land uses over 30 ANEC, and within the 25- 30 ANEC there should be limitations on new noise sensitive development. Within this region, buildings must incorporate appropriate noise attenuation measures.

Rezoning of brownfield areas to permit noise sensitive uses

This section of the Guidelines applies to urban land that is currently primarily designated for non-noise sensitive uses and is being considered for rezoning, for example, for residential infill or increasing residential densities, such as within a mixed use precinct near a transport corridor.

An extract from the Guideline relating to urban consolidation is provided below:

21. *In some instances, areas identified for urban consolidation can also be subject to aircraft noise impacts. In these circumstances, there is a need to balance the need to provide housing, economic growth and strategic planning outcomes against the operational needs of the airports. This approach may identify some adversely impacted parties and it can also identify where benefits outweigh the overall disadvantages.*
22. *Whilst it would not be appropriate to allow for development that would impact on the operational safety of an*

airport, there may be circumstances where increasing settlement in existing areas exposed to a significant degree of aircraft noise, would be acceptable given other benefits the site has to offer.

- 23. Consideration should be given to measures to manage the implications. This could include conditions that require development to be undertaken in a manner that physically reduces noise impacts (e.g. through appropriate construction techniques) and requirements for a disclosure processes that ensure future residents are made aware of these impacts prior to purchase.*
- 24. In some circumstances, redevelopment of areas already exposed to aircraft noise can result in a better outcome through better design and construction responses.*

Assessment of new developments applications for noise sensitive uses within existing residential areas

This section of the Guideline applies to urban land that is already designated for noise sensitive uses, primarily residential areas where development pre-dates the significant growth of airport traffic experienced following the introduction of jet aircraft in the late 1950s.

An extract from the Guideline below recognises that trade-offs need to be considered between impacts of aircraft noise and further intensification of new development.

- 27. Whilst it would not be appropriate to allow for development that would impact on the operational safety of an airport, increasing densities or new developments in existing areas exposed to aircraft noise may be acceptable where the site provides other desirable outcomes such as providing housing near transport or meeting urban consolidation targets. In some circumstances, redevelopment of sites already exposed to aircraft noise can result in a better outcome through better design and construction responses.*
- 28. Such development should be undertaken in a manner that physically reduces noise impacts (e.g. through appropriate construction techniques and adherence to AS2021) but also through a disclosure process that ensures future residents are aware of these impacts prior to purchase.*
- 29. Commonwealth, State, Territory, Local Governments and airport operators should support effective disclosure of aircraft noise to prospective residents.*

4.0 Adelaide Airport – Noise and Land Use Controls

4.1 Adelaide Airport Master Plan

Chapter 5 of the *Adelaide Airport Master Plan 2014* relates to Aircraft Noise, taking into consideration flight movements, fleet mix, flight paths, runway utilisation, and aircraft noise mitigation strategies and actions.

The Master Plan includes the endorsed Australian Noise Exposure Forecast (ANEF) plot of estimated noise exposure based on a forecast of aircraft movements and fleet mix to 2034, along with an Australian Noise Exposure Capacity (ANEC) for the ultimate capacity of the Airport.

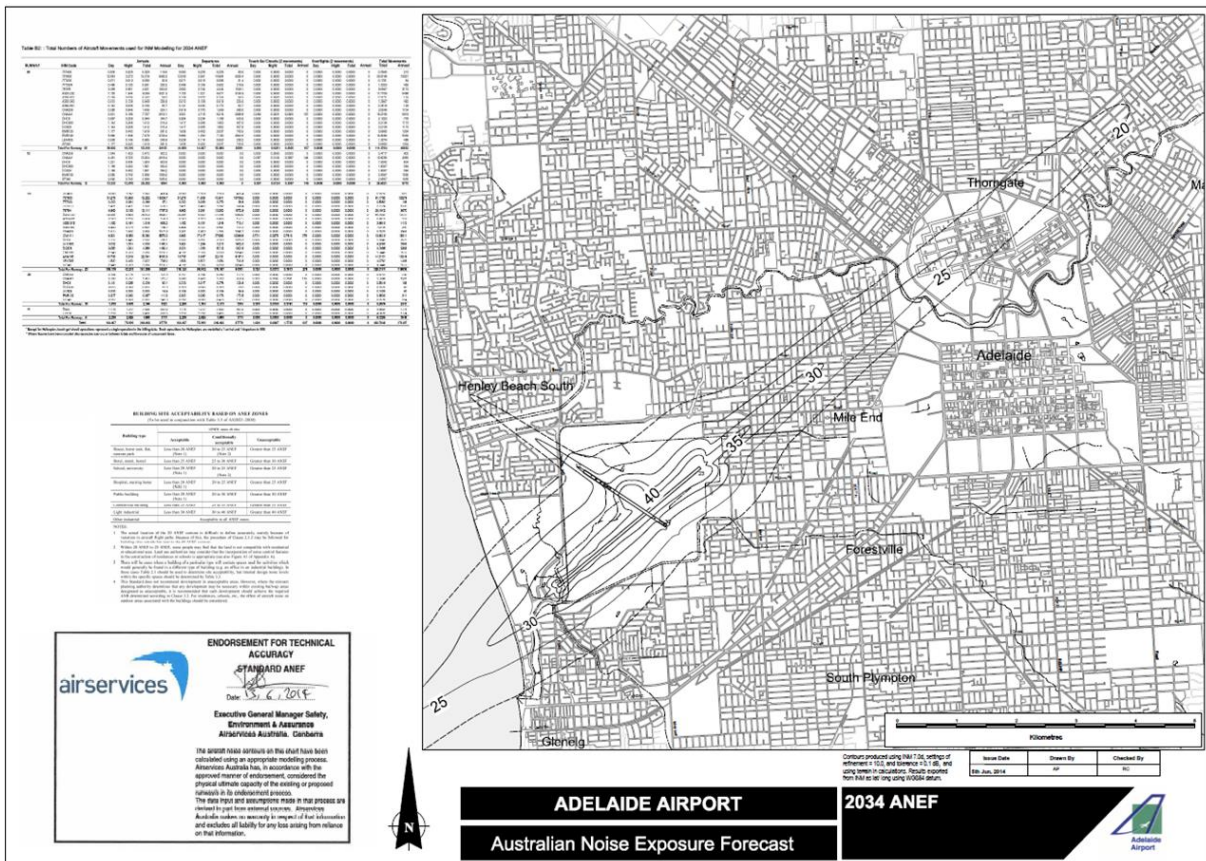


Figure 2 Adelaide Airport – Endorsed 2034 ANEF

Source: Adelaide Airport Master Plan 2014

Due to the location of Adelaide Airport within an existing established urban area within 6 km of the Adelaide CBD, there are many residential properties and sensitive land uses in areas that are identified as being high aircraft noise contours (ie within the 25+ ANEF contour).

In terms of significant 2034 ANEF contours, the 35 ANEF contour is generally restricted to airport land, public open space and the residential areas at West Richmond and Brooklyn Park. The 35 ANEF contour extends outside the north-eastern boundary of Adelaide Airport and just crosses Marion Road. Much of this area was subject to a Commonwealth programme of noise insulation measures in the past decade.

The Adelaide Airport Noise Amelioration program was established by the Commonwealth Government in 2000 to fund the installation of noise insulation for eligible residences and public buildings in the vicinity of Adelaide Airport. Residential properties in the ANEI (Australian Noise Exposure Index) 30 contour and public buildings (schools, churches, day care centres and hospitals) in the ANEI 25 contour were eligible for assistance under the programme.

The costs of the measures were offset through the collection of a noise levy at Adelaide Airport under the *Aircraft Noise Levy Act 1995* and the *Aircraft Noise Levy Collection Act 1995*. This program has now closed.

The 30 ANEF contour extends further to the north-east and almost reaches Henley Beach Road.

The 25 ANEF contour extends north-east and reaches Wellington Square in North Adelaide. To the south-west, the 25 ANEF contour extends over an area of residential land in North Glenelg and the 30 ANEF contour also passes over some residential properties in this area.

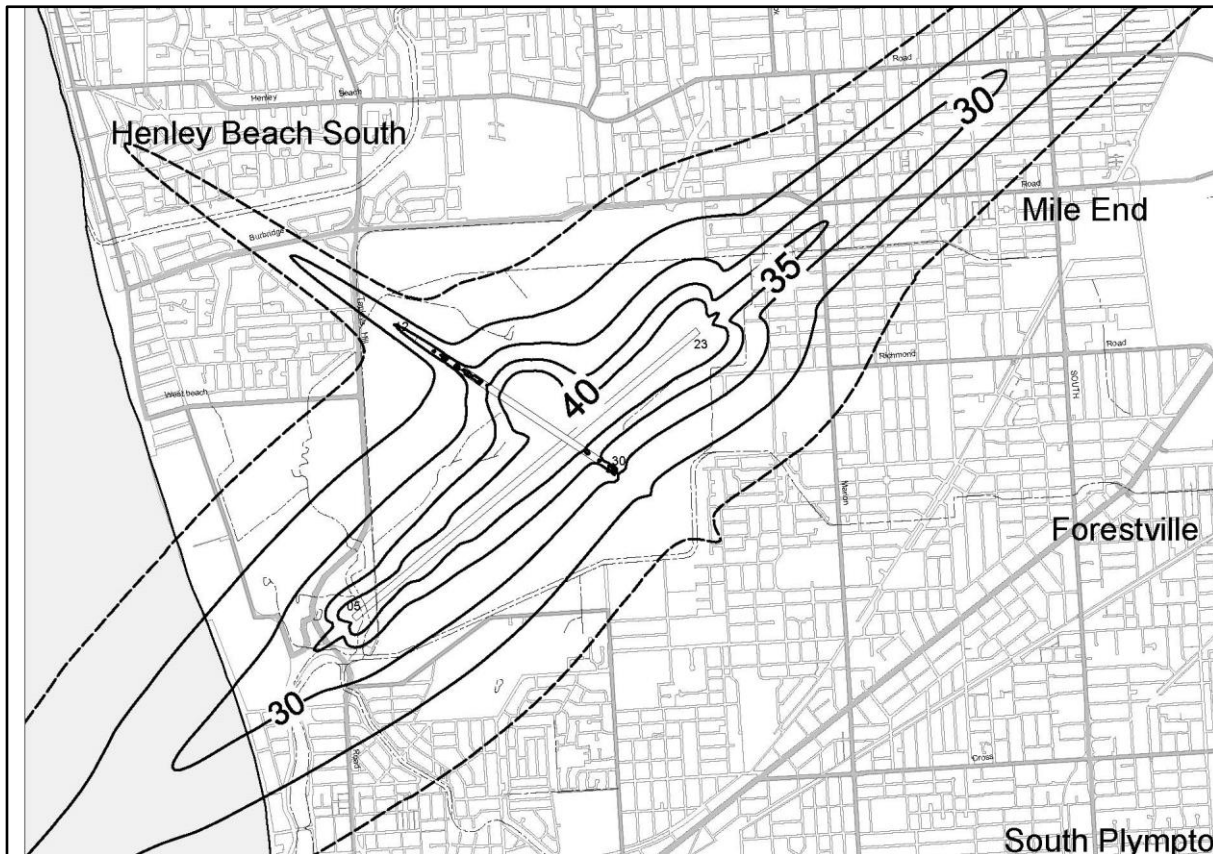


Figure 3 Adelaide Airport – Endorsed 2034 ANEF (Enlargement)

Source: Adelaide Airport Master Plan 2014 (Enlargement)

The following summary information provided by the City of West Torrens illustrates the number of existing dwellings and other sensitive uses currently situated within the various ANEF contours.

Table 3 Adelaide Airport - Noise Affected Areas Statistical Analysis

Allotments	ANEF 25-30	ANEF 30-35	ANEF 35+
Dwellings (on individual allotments)	2,343	735	65
Multiple dwellings	152 (on 31 allotments)	50 (on 9 allotments)	5 (on 1 allotment)
Total Dwellings	2,495 (on 2,274 allotments)	785 (on 744 allotments)	70 (on 66 allotments)
Other Sensitive Uses (ie Child Care Centre, Primary School, etc.)	13	2	-

Source: City of West Torrens

The *Adelaide Airport Master Plan 2014* also includes N60 and N70dB maps, illustrating an alternate approach to depicting the likely predicted number of noise events from aircraft flying overhead. As an example, the N70 noise modelling computes the number of noise events greater than 70dB on an 'average' day over particular areas. It is calculated as the number of noise events, over a one year period, averaged per day. It is not indicative of a typical day and actual experience on any given day can be considerably different to the 'average' day.

The 70dB level was selected by the Commonwealth Government as an aircraft noise level of 70dB (noise level inside a house of 60dB). A level of 60dB inside a house may interfere with a normal conversation or with listening to radio or television. Thus the use of the 70dB level is used to define 'noise' events from aircraft overflights.

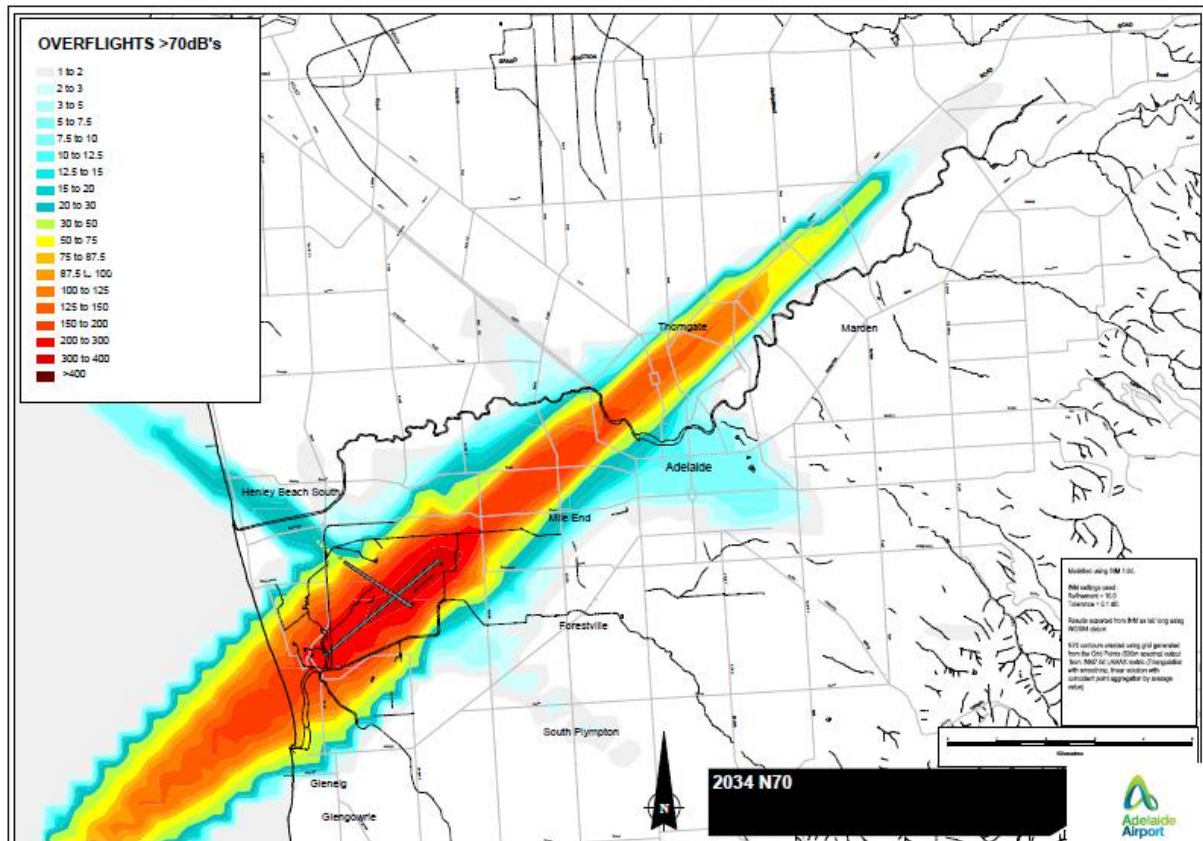


Figure 4 N70 Map for Adelaide Airport in 2034

Source: Adelaide Airport Master Plan 2014

The N70 map (based on the forecast numbers of aircraft to be operating at the airport in 20 years' time), together with the ANEF map, allow stakeholders to assess the suitability of areas for property purchase, and enable land use planners to plan for long-term land uses in the vicinity of the airport.

4.2 Airport Operations

Adelaide Airport Ltd has a broad range of programs in place to address aircraft noise around the Airport. These include:

- Working with stakeholders to observe the existing curfew arrangements
- Consulting and engaging with the local community
- Working closely with the Commonwealth, State and Local Governments to ensure a consistent approach, management and implementation of the noise mitigation measures
- Consulting with the airlines that use the airport
- Investing in airport infrastructure to support new generation quieter aircraft

As previously described, as part of the preparation of the *Adelaide Airport Master Plan 2014* (and previous iterations of the Master Plan) Air Services Australia has prepared the endorsed ANEF contours for the airport, providing guidance as to areas that will likely be affected by aircraft noise.

Adelaide Airport Curfew Details

Adelaide Airport operates under a legislated curfew (*Adelaide Airport Curfew Act 2000* and *Adelaide Airport Curfew Regulations 2000*) to limit noise impacts from aircraft at night. During curfew hours (the period 11.00pm to 6.00am), take-offs and landings at the airport are restricted to specific types of aircraft and operations. For departing flights to meet the curfew they must be given taxi clearance by Airservices Air Traffic Control after 6.00am and before 11.00pm.

Some aircraft can operate during the curfew if they meet certain low-noise criteria and observe noise abatement procedures. These aircraft movements include:

- A maximum of 15 take-offs and 25 landings each week during the curfew by low-noise heavy freight aircraft that meet the noise level requirements set out in the *Adelaide Airport Curfew Act 2000*
- Aircraft that are propeller driven or listed as specified types of jet aircraft, of a maximum take-off weight of 34,000 kilograms or less, that meet the noise level requirements set out in the *Adelaide Airport Curfew Act 2000*

Adelaide Airport Ltd is working with the South Australian Government, the City of West Torrens and other surrounding councils on land use and land management issues. This is elaborated in Section 5 of this Discussion Paper.

5.0 Land Use Planning Around Adelaide Airport

This section explores the current strategic context of Adelaide Airport and land surrounding the Airport, from a State and Local Government perspective.

5.1 South Australian Government – Strategic Context

5.1.1 The 30-Year Plan for Greater Adelaide (2010)

The *30-Year Plan for Greater Adelaide* recognises Adelaide Airport as a ‘Specialist Activity Centre’ and promotes an increase in the level of economic activity generated on airport land. It signals the importance of Adelaide Airport for a range of economic uses, and gives a clear policy direction towards protecting its ongoing operations from encroachment by incompatible uses.

The *30-Year Plan* shifts the emphasis of urban growth away from expansion of the urban fringe towards a greater proportion of development within existing urban areas. Growth within Adelaide’s existing footprint is promoted by increasing housing densities close to selected transport corridors and at new Transit Oriented Developments. The Plan includes population and employment targets for western Adelaide, seeking 42,560 new dwellings (33,060 within corridors and 9,500 outside corridors) and 40,500 new jobs over the 30-year period.

The policy directions of the *30-Year Plan* of promoting urban infill along main roads close to the airport and under flight paths, and further urban regeneration and consolidation within the surrounding suburbs, is anticipated to increase the number of people living near the airport who may be affected by its ongoing operations. There is some tension between such policy directions and the National Airports Safeguarding Framework, particularly in relation to increasing urban infill in areas affected by aircraft noise.

The *30-Year Plan* is currently being reviewed and updated by the South Australian Government.

5.1.2 Integrated Transport & Land Use Plan (2015)

The South Australian Government’s *Integrated Transport and Land Use Plan* (ITLUP) provides a comprehensive and integrated plan for land use, infrastructure and transport for the coming 30 years for South Australia.

ITLUP recognises the importance of Adelaide Airport, its proximity to the Adelaide CBD as a ‘competitive advantage’, and the recognition that such location requires “... *some compromises to protect community amenity, such as curfew arrangements and flight path procedures.*”

The role of Adelaide’s Airports and their location as a competitive advantage

Adelaide Airport is Australia’s fifth busiest airport serving over 7.5 million passengers in 2013 and is ideally situated to encourage growth in both tourism traffic and air freight to and from South Australia. More than 7,480 tonnes of freight was exported in 2013.

The current position of Adelaide Airport is one of South Australia’s competitive advantages: it’s easy to get to, has ample room for growth and is supported by a range of businesses and industries that have grown alongside it to benefit from the flow of passengers and freight in the area or to support activities at the airport. This proximity to Adelaide’s metropolitan areas requires some compromises to protect community amenity, such as curfew arrangements and flight path procedures.

Adelaide Airport and Parafield Airport are owned by the Australian Government and leased to private industry. Adelaide Airport Limited purchased the leases for both airports in May 1998. The initial 50 year lease expires in 2048 and there is an option to extend the lease period to 2097. In its 2009 National Aviation Policy White Paper, the Australian Government confirmed its commitment to the continued operation of these nationally important facilities and is working with all states and territories to ensure that these and all significant airports are protected from inappropriate surrounding development.

Landside links are currently satisfactory to support the needs of the airports and, with the future potential tram link to Adelaide Airport and upgrades to Sir Donald Bradman Drive, the airport’s future transport requirements will be met.

Source: South Australian Government’s Integrated Transport and Land Use Plan (2015)

5.2 City of West Torrens – Strategic Context

5.2.1 *Vision 2025 – Strategic Directions Report (Section 30 Development Plan Review)*

Section 30 of the *Development Act 1993* requires all councils to review the policies in their Development Plans and produce a Strategic Direction Report (SDR) following any significant alteration to the Planning Strategy for South Australia, at least every five years. The SDR is intended to outline a strategic vision for growth within West Torrens by means of a program of Development Plan Amendments to translate Council's strategic vision into Development Plan content.

Within the *Strategic Directions Report*, Adelaide Airport is identified as having a dominant presence within the City of West Torrens, occupying approximately 20 per cent of its land area. In addition the following issues and opportunities are identified:

- Emissions from aircraft, principally noise remain a planning concern affecting many residential properties and sensitive land uses within the Council.
- The airport is a primary node for a raft of land uses including, retail, commercial, logistical, industry and administrative functions which activities outside of the airport need to be conscious of.
- The space occupied by the Adelaide Airport sits within the basin of metropolitan catchments prone to flood inundation. Hence effective stormwater management remains a planning concern.

Airport noise is identified as a growing challenge for the area surrounding Adelaide Airport. Noise from airport operations is forecast to increase by 2034.

The City of West Torrens recognises that aircraft noise management remains a critical concern to the community. Council continues to support the retention of the Adelaide Airport night-time curfew and the work Airservices Australia is doing in developing new and improved flight path tracking and navigational technologies that enhance the efficiencies of aircraft in flight and which have the effect of minimising noise footprints. Council also supports Adelaide Airport Ltd in continuing to work with Council and the local community, to actively pursue aircraft noise mitigation measures and investing in airport infrastructure that supports new-generation quieter aircraft.

Council's Strategic Directions Report emphasises the need for a collaborative planning approach between Council and Adelaide Airport to resolve shared planning concerns. It is also important that development surrounding the airport does not compromise the operational integrity of airport operations, taking into account the specification of the National Airport Safeguarding Framework (NASF).

5.2.2 *Towards 2025 Community Plan (September 2014)*

The *Towards 2025 Community Plan* is the City of West Torrens's strategic planning project to determine key priorities for the city for two decades. The *Towards 2025 Community Plan* was developed in close consultation with the people who live and work within the City of West Torrens to capture their needs and expectations for the future.

In the Plan, Adelaide Airport is recognised as a major feature of the City, a significant land holder, and the largest employer within the City of West Torrens. It is also acknowledged that Adelaide Airport Ltd provides considerable retail and commercial activity with significant development underway that will further strengthen its role as a retail centre and significant employment provider.

5.3 City of West Torrens Development Plan

The *West Torrens Council Development Plan* (consolidated 5 November 2015) specifies the type of development that can occur within the City of West Torrens.

Adelaide Airport is located within an Airfield Zone, a zone which seeks to accommodate a range of services and facilities necessary for the safe, convenient and efficient operation of aviation activities at the Adelaide Airport. The Desired Character for the Zone states:

“Development will promote the economic improvement of the State and the City of West Torrens by maintaining the airport as the international, national and regional gateway to South Australia, enhancing the airport as a major element of public infrastructure and facilitating the movement of time sensitive freight and passengers by infrastructure improvements.”

Development zones (and policy areas) surrounding the Adelaide Airport reflect the established land use pattern of development, which primarily comprises low-density residential areas and some business uses, including industry. The main land uses surrounding Adelaide Airport are Residential, Industry, Community and Recreation uses.

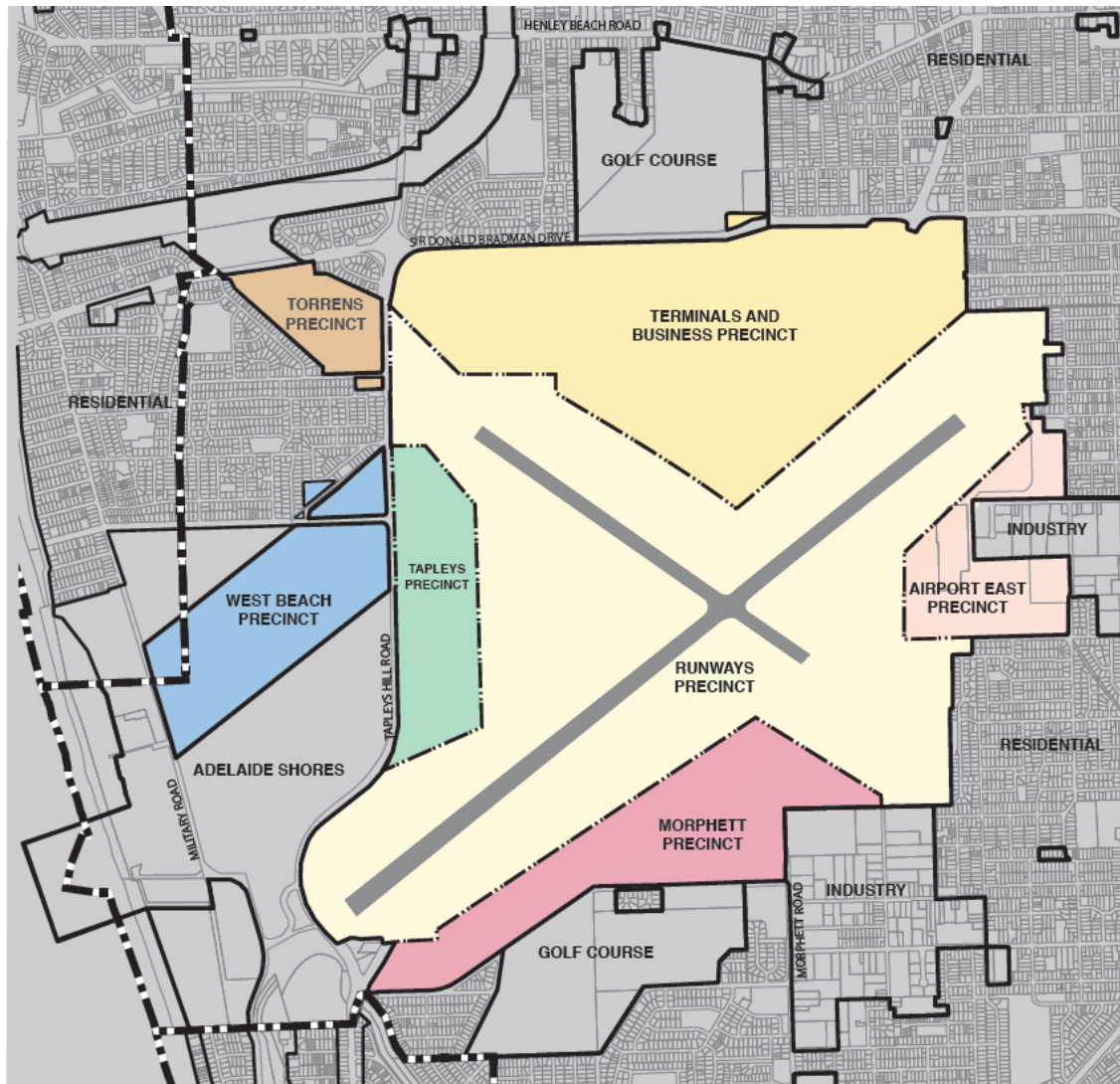


Figure 5 Zoning Surrounding Adelaide Airport

Source: Adelaide Airport Master Plan 2014

The City of West Torrens, through the *Housing Diversity Development Plan Amendment* authorised on 25 June 2015, updated the planning policies for West Richmond and Brooklyn Park (land immediately to the north-east of Adelaide Airport – under the flight path of the main runway). This area, whilst still remaining in a Residential Zone, has been amended to a low density Policy Area – Residential Policy Area 20 – which encourages a range of dwellings at low density, accommodating mainly detached dwellings and some other dwellings types such as semi-detached and group dwellings. The Policy Area also envisages affordable housing, supported housing, child care facilities, primary and secondary schools.

5.3.1 Building near Airfields – Development Constraints

It should be noted that the development Zones and Policy Areas within the West Torrens Council Development Plan make no reference to Adelaide Airport, or the protection of on-going airport operations. However, the Development Plan does include provisions relating to land within close proximity to Adelaide Airport. Specifically, the Development Plan includes the following:

- Development Constraints Overlay Maps which relate to 'Airport Building Heights' and 'Areas affected by aircraft noise'
- 'Building near Airfields' module within the General Section of the Development Plan

As an example, the Development Constraints Overlay Map for the area immediately to the east and north-east of Adelaide Airport is provided on the following page.

The Development Constraints map provides a 'trigger' for consideration of development within 'Areas affected by aircraft noise'. Specifically, Principles of Development Control 6 and 7 of the 'Building near Airfields' module states:

6. Development within areas affected by aircraft noise should be consistent with *Australian Standard AS2021 - Acoustics - Aircraft Noise Intrusion - Building Siting and Construction*.
7. Residential development on land within areas affected by aircraft noise as shown on Overlay Map WeTo/8 - Development Constraints should incorporate noise attenuation measures.

Aside from a referral requirement within Schedule 8 of the *Development Regulations 2008* relating to 'Airport Building Heights, as 'triggered' through the Development Constraints maps, there are no other statutory referrals in relation to airport operational management.

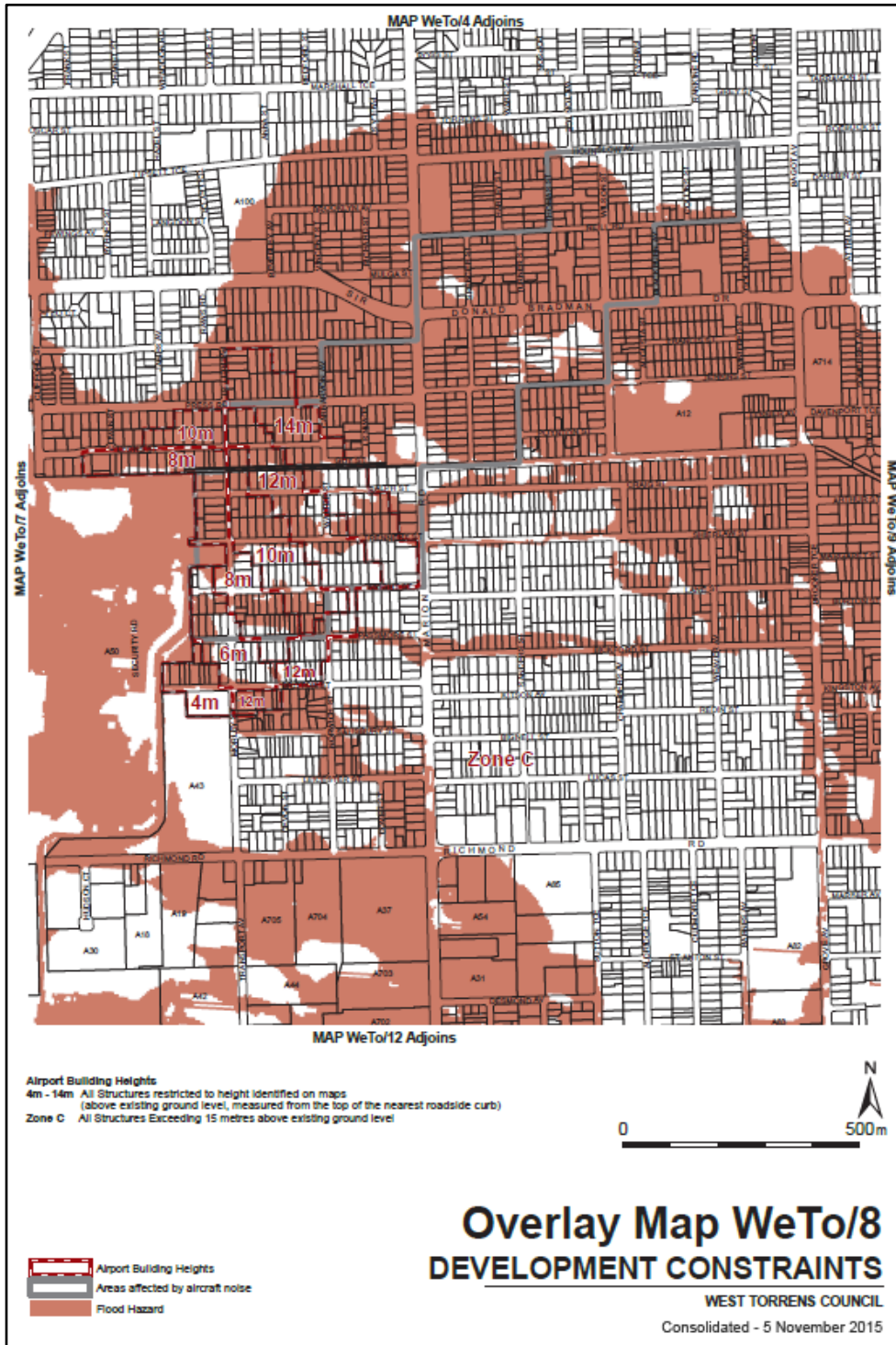


Figure 7 West Torrens Council Development Plan – Airport Development Constraints

Source: West Torrens Council Development Plan

There is some confusion between the 'Areas affected by aircraft noise' shown on West Torrens Council *Development Plan Overlay Maps – Development Constraints* and Australian Standard AS 2021-2015.

As can be seen from the following figure (Figure 7), the 'Areas affected by aircraft noise' shown on West Torrens Council *Development Plan Overlay Map WeTo/8 – Development Constraints* does not align with the endorsed Australian Noise Exposure Forecast (ANEF) plot of estimated noise exposure based on a forecast of aircraft movements and fleet mix to 2034 (as contained in the *Adelaide Airport Master Plan 2014*).

Further, Australian Standard AS 2021-2015 provides a further definition of areas affected by aircraft noise, with areas greater than 25 ANEF being identified as 'unacceptable' for all forms of residential and community-related uses.

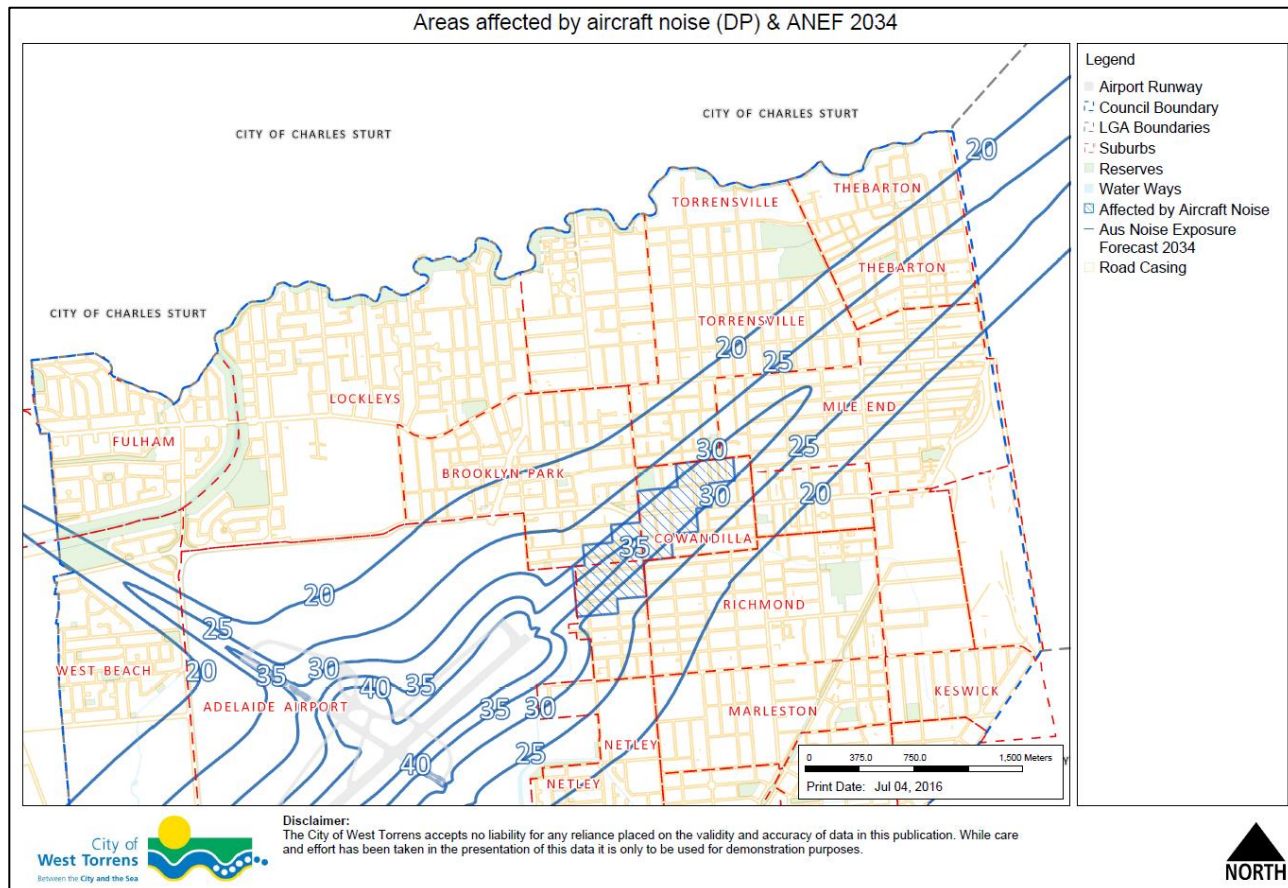


Figure 8 Areas affected by Aircraft Noise (Development Plan) & ANEF 2034

Source: City of West Torrens

5.3.2 Residential Code

Large areas of the Residential Zones of the City of West Torrens are covered by the Residential Code (Determined Area for the Purposes of Schedule 4 of the *Development Regulations 2008 – Complying development, Clause 2B – New Dwellings*). However, the 'Areas affected by aircraft noise', as shown on the Development Constraints maps, are excluded from the Residential Code (noting that such areas do not directly align with the current ANEF Noise Contours).

5.3.3 Minister's Specification SA 78B – Construction requirements for the control of external sound

The Minister for Planning issued the 'Minister's Specification SA 78B – Construction requirements for the control of external sound' in February 2013. The purpose of this Specification is to protect the occupants of Class 1, 2, 3 and 4 buildings and 9c aged care buildings (under the Building Code of Australia) from the impact of existing or future road and rail sound and from mixed land use area sound sources.

The Specification only relates to transport noise (excluding aviation) and noise from mixed land use developments – and only applies to new areas which have been rezoned (including uplifting of zoning) triggered through Overlays in the relevant Development Plans. Such controls have not yet been applied retrospectively.

5.4 Review of recent Development Applications in Noise Affected Areas

In the past five years (since August 2011, when the West Torrens Council Development Plan was significantly updated), the areas affected by aircraft noise have been the subject of a number of development applications for intensification of residential development.

The following table summarises such applications:

Table 4 Development Application Decisions – Noise Affected Areas (since August 2011)

Development Type	ANEF 25-30		ANEF 30-35		ANEF 35+	
	Approved	Refused	Approved	Refused	Approved	Refused
Land Division	17	5	5	2	2	-
New Dwellings	43	14	8	2	4	-

Source: City of West Torrens

This information is indicated on the map provided by the City of West Torrens (Appendix A).

As can be seen in Table 4, there have been 24 land division applications (for residential use) and 55 new dwellings approved within areas affected by noise (ie within the 25+ ANEF contour) in the past five years, including four new dwellings within the 35+ ANEF.

Australian Standard AS 2021-2015 (see Table 2 of Section 2.6 of this Discussion Paper) identifies that residential development is an ‘unacceptable’ form of development within the 25+ ANEF contour. However, the notes associated with this table state:

“... where the relevant planning authority determines that any development may be necessary within existing built-up areas designated as unacceptable, it is recommended that such development should achieve the required ANR determined according to Clause 3.2. For residences, schools, etc., the effect of aircraft noise on outdoor areas associated with the buildings should be considered.”

West Torrens Council Development Plan Principles of Development Control 6 and 7 of the ‘Building near Airfields’ module reflect the need to consider the consistency of any proposed development Australian Standard AS 2021-2015.

Appropriate noise attenuation measures may be included in the building construction (ie building materials and finishes, insulation, double glazing of windows, etc.), but such treatment does not address outdoor amenity issues and does not provide an obligation for the planning authority to approve such applications.

Further, such provisions do not give due consideration to land division applications, the intended form of development of such proposed new allotments, and the ability for any future development to be designed to meet the relevant Australian Standard relating to *Aircraft Noise Intrusion*.

This issue has been particularly highlighted in a number of recent development applications within the 30+ ANEF contour, where the City of West Torrens Development Assessment Panel has refused development applications relating to intensification of residential development in areas which are affected by aircraft noise (land division applications and dwelling applications).

Land Division Application, Brooklyn Park – Court Appeal

- Predominantly located within the ANEF 30 (with a small portion within the ANEF 35)
- General Land Division Objective 1 states *“Land division that creates allotments appropriate for the intended use”*
- Development assessment report states:
 - “Whilst the present application is for land division only, approval would infer that the land is suitable for its intended use which would result in the intensification of the residential use of the site from one to two residential allotments and the same number of resultant dwellings where residential development is deemed unacceptable under AS2021. Clearly, based upon AS2021, the resultant land division would not result in allotments that are appropriate for their intended residential use, and as such the proposed land division is not supported.”*
- The application was refused, and the applicant has appealed the decision to the Environment Resources and Development Court (ERD Court)
- Specifically, Note 4 of AS2021 ‘Table of Building Site Acceptability Based on ANEF Zones’ states:

“This Standard does not recommend development in unacceptable areas. However, where the relevant planning authority determines that any development may be necessary within existing built-up areas designated as unacceptable, it is recommended that such development should achieve the required ANR determined according to Clause 3.2 in AS2021 – 2015. For residences, schools etc., the effect of aircraft noise on outdoor areas associated with the building should be considered.”

- Through the ERD Court process, contradictory acoustic engineering advice was provided as to how (if possible), this Note could be satisfied. Council resolved to compromise on such matters, noting that the detailed building noise attenuation measures will be addressed at the dwelling application stage.

5.5 Council Notification – Noise Affected Areas

The current planning policies in the West Torrens Council Development Plan provides insufficient guidance to the impact of airport operations on the future development of areas affected by aircraft noise, and to balancing the potentially conflicting implications for existing residents, future residents and airport operations.

Whilst the City of West Torrens *Housing Diversity Development Plan Amendment* updated the planning policies for West Richmond and Brooklyn Park to a low density Policy Area – Residential Policy Area 20 – the Development Plan still envisages infill development in noise affected areas (both those prescribed in the Development Plan and those within the 30+ ANEF Noise contour.

The City of West Torrens has recognised the importance of informing prospective purchasers of noise impacts from the operations of Adelaide Airport by including the following notice on properties within the 30+ ANEF Noise contour under Section 12 of the *Land and Business (Sale and Conveyancing) Act 1994*:

Is the land identified in the Development Plan as impacted by a 1 in 100 yr ARI Flood? **YES**

Is the land identified as being in an area affected by Aircraft Noise? **YES**
Aircraft Noise Affected - ANEF 30

Table 5.1 AS2021 Table of Building Site Acceptability Based on ANEF Zones

Building type	ANEF Zone of Site		
	Acceptable	Conditionally Acceptable	Unacceptable
House, home unit, flat, caravan park	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF
Hotel, motel, hostel	Less than 25 ANEF	25-30 ANEF	Greater than 30 ANEF
School, university	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF
Hospital, nursing home	Less than 20 ANEF	20-25 ANEF	Greater than 25 ANEF
Public building	Less than 20 ANEF	20-30 ANEF	Greater than 30 ANEF
Commercial building	Less than 25 ANEF	25-35 ANEF	Greater than 35 ANEF
Light industrial	Less than 30 ANEF	30-40 ANEF	Greater than 40 ANEF
Other industrial	Acceptable in all ANEF zones		

Notes:
 4. This Standard does not recommend development in unacceptable areas. However, where the relevant planning authority determines that any development may be necessary within existing built-up areas designated as unacceptable, it is recommended that such development should achieve the required ANR determined according to Clause 3.2 in AS2021 – 2000. For residences, schools etc., the effect of aircraft noise on outdoor areas associated with the building should be considered.

Figure 9 City of West Torrens – Section 12 Notice (Extract) under the *Land and Business (Sale and Conveyancing) Act 1994*

6.0 Review of other State/Territory Government Approaches to Aircraft Noise

The NASF Principles recognise responsibility for land use planning rests primarily with State, Territory and Local Governments. The responsibility for the regulation of flight safety, however, rests with the Australian Government through the legislation covered earlier in this report. The NASF Principles and the application of the NASF Guidelines rely on a cooperative approach to land use planning between these different jurisdictions.

In relation to Guideline A – Aircraft Noise, there has been wide ranging approaches and limited success in the embedding of noise controls into State and Territory planning schemes.

The most recent and relevant example of embedding noise controls into State and Territory planning schemes is the recent Victorian Government's approach. However, other States provide excellent examples of raising awareness of the impact of aircraft noise on current and future owners/occupiers of properties who may be affected. Such examples are provided below.

6.1 Victorian Government's approach to aircraft noise

The Victorian Government has recognised that managing the use and development of land in airport environs is necessary to protect flight paths from inappropriate sensitive development and the subsequent exposure of further people to aircraft noise. The Government has stated that "... *doing so is important to the ongoing viability of airports, particularly those curfew free operations, but also to minimise impacts on surrounding communities. The National Airports Safeguarding Framework addresses aircraft noise through Guideline A: Measures for Managing Impacts of Aircraft Noise.*"

The Victorian Government 'State Planning Policy 1/02 – Development in the Vicinity of Certain Airports and Aviation Facilities' (SPP) recognised the need to protect airports and the nearby community. Specifically, this includes:

Protecting Airports and Aviation Facilities

- This SPP applies to airports and aviation facilities of National and State significance (and of national defence significance) and that such airports/aviation facilities be protected from development that could undermine their safety or operational efficiency
- Indirect impacts of development arise when people living in, working in, or visiting that development perceive aircraft noise as a significant problem and consequently campaign to curtail aircraft operations to reduce noise impacts

Protecting the Community

- Incompatible development encroaching on airports also has implications for community amenity and public safety
- People living, working and congregating in areas adversely affected by significant aircraft noise experience a reduction in amenity. Therefore, development in the vicinity of airports needs to be compatible with forecast levels of aircraft noise

The SPP recognises and promotes the following:

- Areas affected by significant aircraft noise are those within the 20 ANEF contour. The ANEF system underpins AS2021, which addresses aircraft noise, its compatibility with land uses, and standards of noise attenuation
- This SPP aims to avoid large increases in the numbers of people exposed to particular levels of aircraft noise. However, this objective may not be achievable in certain circumstances:
 - Existing development commitments – nevertheless, the adverse impacts of aircraft noise should be mitigated where practicable by the use of appropriate conditions on development permits
 - In some cases it may be possible to demonstrate that a proposed development would fulfil a particular public interest to an extent that would override the public interest in the development being compatible with forecast levels of aircraft noise. Determining an overriding need in the public interest will depend on the circumstances of the particular development proposal

- The SPP provides the framework for making and amending a Planning Scheme, in that:
 - Operational airspace should be identified in the planning scheme using information from the airport's master plan
 - The Planning Scheme should identify the ANEF contours derived from an airport's ANEF chart, which identifies a series of ANEF contours from 20 upwards

The Victorian Government, in November 2015, updated the 'Airport Environs Overlay' and the 'Melbourne Airport Environs Overlay' to limit intensification of noise sensitive uses and the impacts of aircraft noise development through attenuation measures.

Lessons from Victoria

Any new building (other than an open sided carport, verandah, pergola or other open sided structure, a non-habitable room or outbuilding, swimming pool, tennis court or a dwelling extension of up to 50% of the floor area of the dwelling that existed when the new controls came into effect) must be constructed to comply with any noise attenuation measures required by Section 3 of Australian Standard AS 2021-2000, Acoustics – Aircraft Noise Intrusion – Building Siting and Construction.

The Australian Standard provides guidance on building siting and construction to minimise aircraft noise intrusion.

Notice of an application to use land, subdivide land or to construct a building or works must be given to the airport lessee company of Melbourne Airport under section 52(1)(c) of the *Planning and Environment Act 1987*. (Note: the airport owner / lessee is not a referral authority under section 55 of the Act under the Melbourne Airport Environs Overlay.)

6.2 Western Australian Government's State Planning Policy 5.1 – Land use planning in the vicinity of Perth Airport

Similar to the Victorian Government, the Western Australian Government has recently updated '*State Planning Policy 5.1 – Land use planning in the vicinity of Perth Airport*'.

The intent and purpose of SPP 5.1 is to:

- Protect Perth Airport from future claims from landowners whose property is affected or may be affected in the future
- Protect Perth Airport from unreasonable encroachment by incompatible (noise sensitive) development, to provide for its ongoing development and operation
- Minimise the impact of airport operations on existing and future communities with reference to aircraft noise

Specifically, SPP 5.1 incorporates the following:

- Areas between 20 ANEF and 25 ANEF have specialised zoning, density, development, noise insulation and advice for future development within these areas.
- Similarly, areas above 25 ANEF also have specific requirements for zoning, density, development, noise insulation and advice for future development within these areas.


Further, SPP 5.1 notes that you can find out if your property is affected by aircraft noise by viewing the 'Perth Airport Noise Contour Map' – linked to the WA Planning Commission website, and notification is registered on the Certificates of Title for properties that may be affected by aircraft noise (Section 70A notification under the Western Australian *Transfer of Land Act 1893*).

The following is an extract from SPP 5.1 in relation to the wording that must be included on the property title of affected properties within the 20+ ANEF Noise Contour:

"This property is situated in the vicinity of Perth Airport and is currently affected, or may be affected in the future by aircraft noise. Noise exposure levels are likely to increase in the future as a result of an increase in aircraft using the airport, changes in aircraft type or other operational changes. Further information about aircraft noise is available from the Perth Airport website. Information regarding development restrictions and noise insulation requirements for noise affected property is available on request from the relevant local government offices."

The City of Swan, a local government authority immediately adjacent Perth Airport, also included the following Fact sheet in relation to Aircraft Noise:

Planning Application
Section 70A Notification for Aircraft Noise - Fact Sheet



When is a Section 70A Notification (Form N1) for aircraft noise required?

A Section 70A Notification (Form N1) for aircraft noise is generally a requirement of a development approval where a habitable property is exposed to considerable aircraft noise from the Perth (Domestic & Internal) or Pearce Airports.

The purpose of a Section 70A Notification (Form N1) for aircraft noise is as follows.

- To warn prospective purchasers of a property that it is exposed to aircraft noise which is likely to increase in the future;
- To protect the airport(s) from unreasonable encroachment by incompatible (noise sensitive) development, to provide for its ongoing development and operation; and
- To minimise the impact of airport operations on existing and future communities with reference to aircraft noise.

The following condition and advice note will generally be imposed on a development approval that relates to a habitable property exposed to considerable aircraft noise.

Condition:
A Notification under Section 70A of the Transfer of Land Act 1893 must be registered over the certificate of title to the land the subject of the proposed development prior to the issue of a building licence to notify owners and prospective purchasers of the land that the land is located above the 20 ANEF Contour as identified by Figure 1 of Western Australian Planning Commission Statement of Planning Policy 5.1 and may be affected by aircraft noise.

The Section 70A Notification can be prepared by the City's solicitors (currently McLeods, 220-222 Stirling Highway, Claremont - Ph 9383 3133) to the satisfaction of the City of Swan or it can be prepared and lodged at LandGate with the assistance of the City and all costs of and incidental to the preparation of and registration of the Section 70A Notification including the City's solicitors' costs (if applicable) shall be met by the applicant or the owner of the land.

Advice Note:
The property is situated in the vicinity of Perth International Airport and is currently affected, or may in the future be affected, by aircraft noise. Noise exposure levels are likely to increase in the future as a result of increases in numbers of aircraft using the airport, changes in aircraft type or other operational changes. Further information about aircraft noise, including development restrictions and noise insulation requirements for noise-affected property, is available on request from the relevant local government offices.

Figure 10 City of Swan – Section 70A Notification for Aircraft Noise – Fact Sheet Extract

6.3 Perth Airport – Reducing aircraft noise in existing homes (2016)

Perth Airport recently updated its document *Reducing aircraft noise in existing homes*. The booklet provides assistance to existing home owners who wish to reduce aircraft noise intrusion into their homes. It includes information on simple and practical noise reduction measures that can be adopted for established homes.

The booklet addresses:

- How noise enters a home
- Practical ways of reducing noise levels in a home
- An example of the scale of costs and order of efficiency for measures to reduce noise entering a home for a typical brick home affected by aircraft noise

The booklet also highlights that the measures to reduce noise entering a home will generally lessen noise intrusion from other external sources as well, not only aircraft noise. In addition, many of these measures will have the added benefit of improving the thermal insulation of the home.

6.4 Port Stephens Council Aircraft Noise Policy (2010)

Port Stephens Council has as developed an Aircraft Noise Policy to provide guidance to its community in relation to aircraft noise associated with RAAF Base Williamtown, Newcastle Airport and the Salt Ash Air Weapons Range.

The policy is intended to guide the activities of Port Stephens Council in terms of land use planning and other activities. It draws upon AS 2021-2000 which applied at the policy was prepared. It identifies an Aircraft Noise Planning Area and that are located within the ANEF 20 contour. The policy is intended to prevent an increase in the aircraft noise burden on sensitive land uses within the planning area. It provides guidance on long term strategic planning, amendments to zone policies and assessment of development applications.

The policy emphasises the importance of cooperation between Council and airport operators, state government agencies and the local community. In particular it recommends Council prepare and implement an Aircraft Noise community information strategy. Its purpose is to provide non-technical information that will enable members of the public to make informed decisions about the noise environment at particular locations and the implications for different activities.

6.5 Summary

The review of state and local planning policy documents highlights the strong interest that some governments have identified to establish a balance between the needs of the aviation industry and community expectations for residential and other types of development.

The review establishes the Australian Noise Exposure Forecast (ANEF) system as the principal standard to guide land use planning policies in areas that are subject to aircraft noise. It also highlights the use *Australian Standard 2021-2015 Acoustics – Aircraft noise intrusion- Building siting and construction* to guide development assessment in areas that are identified in through planning policy as subject to aircraft noise exposure.

Finally, the review highlights the importance of pro-active communication with current and future residents of areas affected by noise, and the benefits of communicating simple and practical noise reduction measures that can be adopted to reduce aircraft noise for established homes.

7.0 Review and Recommendations

7.1 Review of Findings

National standards relating to aircraft noise, the protection of airport operations and amenity of adjacent neighbours have not been evenly applied in State and Territory planning schemes.

Within South Australia planning framework and in the City of West Torrens Development Plan, there are insufficient policy directions. State and local planning policies enable infill development in areas affected by aircraft noise. Property owners believe they can and are encouraged to redevelop and intensify urban development on their properties. The inconsistency in planning policy exacerbates this expectation.

The current and future airport operations will increase the impacts of aircraft noise on these areas. They will impact on the amenity of existing and future residents.

There is a mismatch between the Development Plan and the ANEF contours. The Development Plan does not reflect the current (2014) ANEF as endorsed by Air Services Australia and contained in the *Adelaide Airport Master Plan 2014*.

7.2 Policy Directions and Policy Options

Based upon this review, the following policy directions and policy options have been derived from an analysis of national standards, State/Territory and local planning policies across Australia, and a detailed review of the planning policies within the West Torrens Council Development Plan relating to aircraft noise impacts.

Proposed Policy Directions

1. Protect residential amenity, health and well-being
2. Enable on-going and future airport operations
3. Ensure a balance between airport operations and community expectations
4. Provide better guidance in relation to development potential and alternative land within noise affected areas

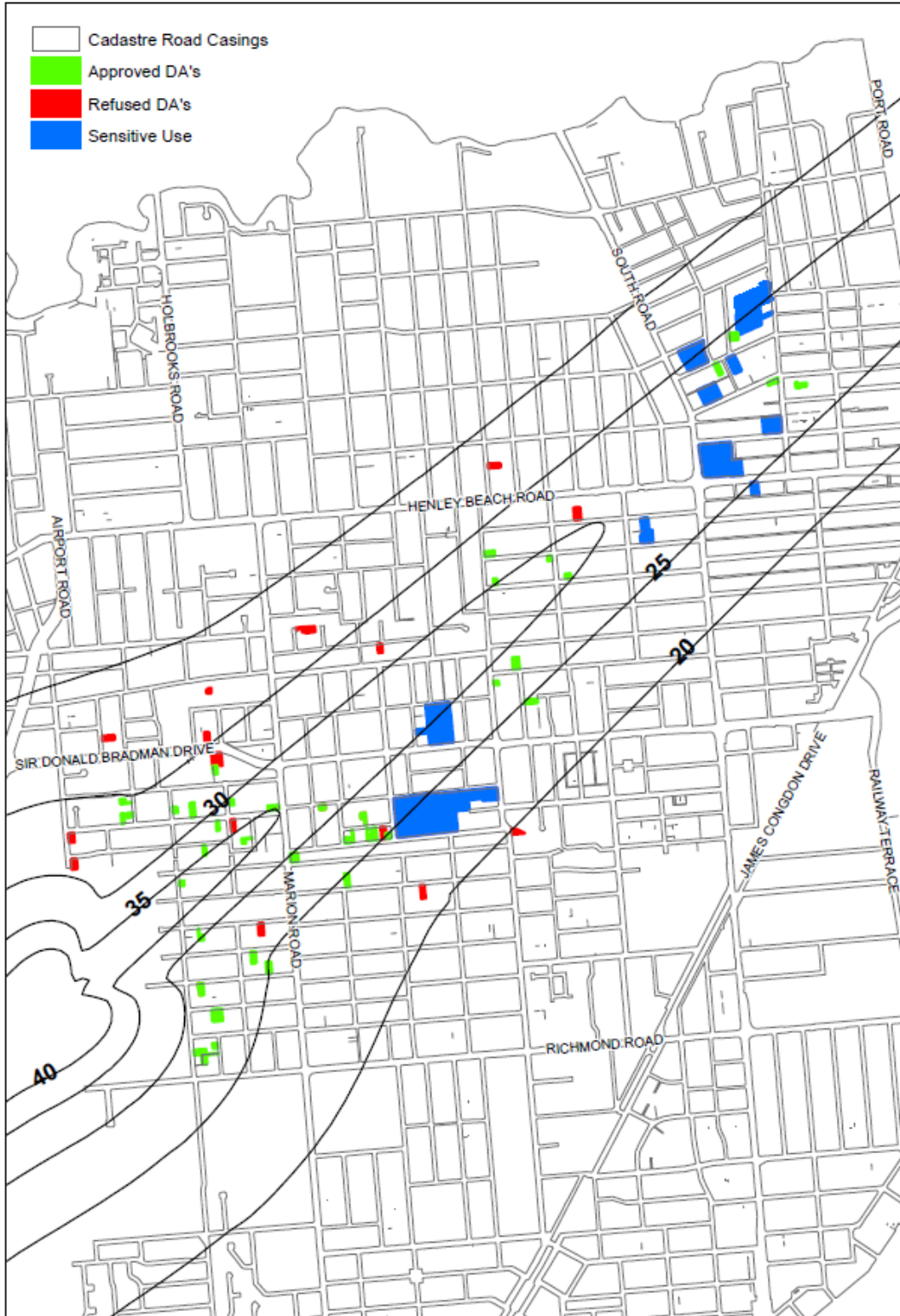
Policy Actions

1. Update the West Torrens Council Development Plan to better reflect the impact of aircraft noise on residential intensification
2. Prepare public information materials on residential development in the City of West Torrens

Appendix A

Recent Development Applications and Sensitive Uses in Noise Affected Areas

Appendix A Recent Development Applications and Sensitive Uses in Noise Affected Areas



Source: City of West Torrens