

# Interface between land uses

*EPA1106/17: This position statement will assist planning authorities and proponents of development understand the position of the Environment Protection Authority (EPA) on interfaces between land uses in relation to the South Australian planning system.*

## Introduction

This position statement describes how an interface between land uses is to be addressed at each stage of the South Australian planning system to meet the requirements of the *Environment Protection Act 1993* (EP Act), *Environment Protection (Air Quality) Policy 2016* (Air Quality Policy), *Environment Protection (Noise) Policy 2007* (Noise Policy), and *Local Nuisance and Litter Control Act 2016*.

Issues associated with an interface between land uses will be of an air quality and/or noise nature. The EPA has prepared statements describing the EPA's overarching position on how air quality<sup>1</sup> and noise<sup>2</sup> should be addressed at each stage of the planning system. The air and noise position statements should be read in conjunction with this document.

This position statement is not legally binding and cannot be used to alter, broaden or narrow the exercise of the EPA's functions and powers.

## What is an interface?

An interface between land uses is where different types of land use meet or are in close proximity to each other, and where there may be conflict due to air emissions and noise from a land use detrimentally affecting another.

Interface issues are caused when there is insufficient separation between a source that generates air emissions and noise and a sensitive land use<sup>3</sup>, or when there are insufficient controls to mitigate air quality and noise impacts.

Exposure to air pollution can have adverse effects on human health, including respiratory and cardiovascular effects, or in some cases an increased risk of cancer. Sensitive individuals, such as the elderly, children or those with existing cardiorespiratory diseases are particularly susceptible to air pollution. Some pollutants may also cause environmental nuisance. For example larger dust particles can cause annoyance to people by soiling washing or collecting on surfaces,

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<sup>1</sup> [Air quality and the South Australian planning system](#) (2016)

<sup>2</sup> [Noise and the South Australian planning system](#) (2016)

<sup>3</sup> Sensitive land uses include, but are not limited to, residential housing, childcare centres, educational institutions, hospitals, nursing homes and retirement villages, parklands and recreation areas, and tourism accommodation. Industrial and commercial premises can also be affected by noise and air emissions. Please refer to [Evaluation distances for effective air quality and noise management](#) (2016).

and odours such as from food outlets or intensive animal-keeping activities may cause nuisance. Persistent exposure to nuisance levels of dust and odour can lead to indirect health effects through stress.

Noise is an inherent part of many activities, but may become annoying if it intrudes into people's awareness, disturbs sleep or is heard against their wishes. This noise may disturb a person's everyday life or working environment, and may cause adverse health effects when sleep is disturbed.

As well as sensitive land uses being affected by interface issues, should a sensitive land use encroach on an activity that is a source of air and noise emissions, that activity may be compromised as a result of conflict.

## **Principles for managing air and noise emissions**

There are three principles that generally apply when managing air and noise emissions. Creating an appropriate separation between land uses is often believed to be the primary method of managing an interface between land uses, but consideration should also be given to controlling emissions at the source and receiver as required.

- **Control at source**

Where feasible, control or minimisation of emissions at the source is preferable. Engineering solutions such as acoustic barriers and acoustic treatment of plant and equipment can be used to control noise at the source. Air emissions can be managed through the use of technology or management practices (water sprays, covering stockpiles, ceasing operations in windy conditions, etc). Noise may be reduced by selection of equipment with lower emission levels.

- **Separation of source and receiver**

Separation may be achieved in some areas where buffer land such as open spaces, green areas or recreation areas are available, or where other less sensitive uses such as non-residential buildings can be interposed between sources and residential areas.

Determining an appropriate separation distance between a source and receiver requires knowledge of the particular activity proposed to be undertaken, including the types and levels of associated noise and air emissions, the scale of operations, topography and meteorology.

- **Control at receiver**

Controlling emissions at the receiver may require architectural design such as facing bedrooms and living spaces away from noise sources, double glazing, acoustic seals around doors and windows, acoustic building material, having air intakes away from air pollution sources, installation of dust filtration and positive pressure systems, and external design and orientation of buildings to avoid stagnant air and promote turbulence thereby minimising pollutant build up.

## **Types of interfaces between land uses**

### **Interface with industry**

Schedules 21 and 22 of the *Development Regulations 2008* contains activities that are required to be referred to the EPA for review and advice or direction. Many of the activities are industrial and may have air and noise emissions at a level that can affect sensitive land uses.

The EPA's *Evaluation distances for effective air quality and noise management* (2016) or Evaluation distances guideline identifies recommended evaluation distances between sensitive land uses and polluting activities. If development is proposed within those evaluation distances then the potential adverse impacts on sensitive land uses need to be assessed. The activities identified in the guideline are generally industrial in nature and most are activities that are listed in Schedules 21 and 22 of the *Development Regulations 2008*.

Application of the guideline is intended to assist in protecting amenity in residential and other sensitive areas as well as protecting existing industry from encroachment by sensitive land uses. If the proposed development is within the

evaluation distance the applicant should demonstrate how a lesser distance could be appropriate. The guideline explains the type of information to be provided to facilitate smooth processing and assessment of applications/submissions, avoiding unnecessary delays and costs to proponents.

## Interface with primary production

Interface issues between primary production and residential development can be caused by odour, dust, application of chemicals and noise. Primary production interface issues are becoming more common as residential development encroaches on primary production lands. Local councils, particularly in peri-urban areas, have become aware of these land use conflicts and are taking steps through the planning system to prevent conflicts and protect primary production.

The Evaluation distances guideline identifies evaluation distances for certain primary production activities – fish farming, saleyards, dairies and poultry farms, and recommends that industry or national guidelines be consulted for separation distances for cattle feedlots and piggeries. However, the guideline does not identify evaluation distances for land uses such as broad-scale grazing, cropping, and horticulture.

Determining an appropriate distance between broad-scale grazing, cropping, horticulture and sensitive land uses can be difficult as dust or odour from grazing animals or other farm activities is often diffuse in nature and may occur at various parts of a property. The broad range of farming activities that can be undertaken in a zone for primary production will make it difficult to set a single separation distance to be applied to all of the activities within that zone. For example, a 40-m separation distance between primary production and residential land uses is sometimes proposed in planning policy<sup>4</sup>. This may be effective in reducing the impact of chemical spray drift from horticulture or viticulture, but it may not be effective in reducing the impacts of odour, dust or noise from broad-scale cropping or grazing activities.

In determining an appropriate separation distance between sensitive land uses and broad-scale grazing, cropping and horticulture, planning policy makers and assessors of development applications need to consider factors such as the types and levels of noise and air emissions associated with the land use, the scale of operations, topography, meteorology, and any other relevant issues.

The 'Interfaces between land uses' module from the *South Australian planning policy library Version 6* (2011) or SAPPL contains principles of development that specifically address rural interface issues and this should be applied through a development plan amendment (DPA) if it is not already in the development plan.

## Interface with mixed use zones and transport corridors

### Mixed use zones

Mixed use zones envisage a range of land uses such as dwellings, offices, educational facilities, shops, licensed premises, live music venues and food outlets, and are often associated with a public transport corridor.

Such activities can cause conflict through noise from licensed premises and live music venues, and through odours from food outlets. These interface issues can occur within the mixed use zone between residential and commercial land uses, and between the mixed use zone and nearby residential zones.

Many of the activities envisaged in a mixed use zone do not have a recommended evaluation distance in the Evaluation distances guideline. Therefore, it may be necessary to undertake investigations to demonstrate that any proposed activities would not affect amenity of sensitive land uses within and outside of the mixed use zone.

In addressing interface issues associated with mixed use zones it may be necessary to demonstrate that odour criteria and ground level concentrations of pollutants meet the requirements of the Air Quality Policy, and that the Noise Policy, the EP Act's general environmental duty, or other relevant noise requirements would be met.

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<sup>4</sup> *South Australian Planning Policy Library Version 6* (2011) – 'Interface between land uses' module.

The Noise and Air Emissions Overlay from the SAPPL contains planning policies to protect new sensitive development from noise and air emissions generated from mixed land uses and major transport corridors. The Noise and Air Emissions Overlay invokes *Minister's Specification SA 78B Construction requirements for the control of external sound* (2013) or the Minister's Specification seeks to protect internal living and sleeping areas from noise by applying design requirements to new Class 1, 2, 3 and 4 buildings and 9c aged care buildings, and to additions to existing buildings within those classes<sup>5</sup>.

While the Minister's Specification sets noise levels for the interior of buildings, the World Health Organization (WHO) *Guidelines for community noise* (1999) is used by the EPA to set noise levels for outdoor areas where there is an interface with a road transport corridor.

### **Transport corridors – roads**

The Evaluation distances guideline recommends an evaluation distance of 100 m between sensitive land uses and major roads<sup>6</sup>. If a sensitive land use is proposed within the 100 m evaluation distance, potential adverse impacts of air quality on sensitive receptors would need to be assessed.

Design techniques to protect sensitive development from air and noise emissions from transport corridors are contained in *Reducing noise and air impacts from road, rail and mixed land use – a guide for builders, designers and the community* (2012), and in the Minister's Specification where it is applicable in areas affected by a Noise and Air Emissions Overlay.

### **Transport corridors – railway lines**

The Minister's Specification aims to protect internal living and sleeping areas in new Class 1, 2, 3 and 4 buildings and 9c aged care buildings, and in additions to existing buildings within those classes where they are within an area affected by the noise and air emissions overlay including near a railway line.

In contrast to the Minister's Specification, the EPA's [Guidelines for the assessment of noise from rail infrastructure](#) (2013) (Rail noise guidelines) can be applied to railway lines in areas that are outside noise and air emission overlays, and to external recreation areas, not just internal living areas. The guidelines identifies evaluation distances within which the impact of noise and vibration on internal living areas and external recreation areas should be predicted and considered in the design of sensitive land uses. It aims to provide guidance on whether investigation of potential impacts will be required. In practice, rail infrastructure and residential areas can be brought closer than the stated evaluation distance by effective mitigation of noise at the source, between the source and the sensitive development, or at the sensitive development itself.

The guidelines apply to interfaces between new or upgraded railway lines and existing sensitive land uses, and between existing railway lines and encroaching sensitive land uses.

The guidelines and the Minister's Specification play a complementary role in addressing noise impacts from railways.

### **Interface with airports**

The EPA will assess and provide advice when a DPA proposes policy or rezoning that would result in an interface with an airport and will provide advice on a referred development application for development within the vicinity of certain airports.

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<sup>5</sup> In the Minister's Specification, Class 1, 2, 3 and 4 buildings and 9c aged care buildings have the same meaning as defined in the *National Construction Code Series – Building Code of Australia (Volumes One and Two)*.

<sup>6</sup> 'Major roads' are those classified in the *Road classification guidelines in South Australia* (2008) [Local Government Association and Department for Transport, Energy and Infrastructure] as being 'arterial roads'.

The Australian Noise Exposure Forecast (ANEF) system shows the amount of total noise energy received by locations on the ground near an airport on an annual average day. *Australian Standard 2021–2015 Acoustics – Aircraft noise intrusion – building siting and construction* provides guidance on the siting and construction of buildings in the vicinity of airports to minimise aircraft noise intrusion.

The EPA will give consideration to ANEF and AS 2021–2015 when undertaking assessments.

## Addressing interface issues at each stage of the South Australian planning system

The major components of the South Australian planning system – Planning Strategy, Development Plan, development application, and major development or project are interconnected and the system is regulated through the *Development Act 1993* and the *Development Regulations 2008*.

Within this framework the EPA provides advice on proposed changes to the Planning Strategy and Development Plan, and assesses referred development applications and major development or project applications.

### South Australian planning strategy

At this stage the EPA's interest is in the location of land identified for future development such as transport corridors, ports, industry and sensitive land uses, and in ensuring that high-level planning policy in respect of interface, air quality and noise is incorporated into the various volumes of the Planning Strategy.

When an amendment to the South Australian Planning Strategy is prepared, it is the EPA's position that:

- key development areas will not create land use conflicts through exposure of sensitive land uses to unacceptable air quality and noise
- background levels of air pollutants in the region and the potential cumulative impact of development on the airshed be taken into account when identifying key development areas
- consideration be given to the cumulative impacts of noise sources in the region when identifying key development areas
- principles and policies that reference interface, noise and air quality be included to enable further consideration and expansion of those principles and policies in other levels of the planning system.

### Development Plan Amendment (DPA)

At the DPA stage the EPA will have an interest in proposed changes to planning policy or rezoning of land that could result in land use conflicts through exposure of sensitive land uses to unacceptable air quality and noise.

It is the EPA's position that when changes to planning policy or rezoning of land are proposed through the DPA process:

- key development areas will not create land use conflicts through exposure of sensitive land uses to unacceptable air quality and noise
- background levels of air pollutants in the region and the potential cumulative impact on the airshed be taken into account when identifying key development areas
- consideration be given to the cumulative impacts of noise sources in the region when identifying key development areas
- the Statement of Intent proposes to investigate any potential air quality and noise issues where these may be present; if not the EPA will recommend additional investigations that should be undertaken
- the DPA proposes policy, such as that in the Interface between Land Uses module of the SAPPL, for inclusion in the development plan, or there is existing policy in the development plan, to avoid or mitigate adverse air quality and noise impacts of activities.

## Development application and major development or project

At the development application, and major development or project stage the interest of the EPA is in whether the development would cause interface issues by exposing sensitive land uses to unacceptable air quality or noise.

When a development application and any major development or project is prepared it is the EPA's position that the proposed development not create an interface that would have an adverse air quality and noise impact on sensitive land uses, with consideration given to cumulative impacts and background levels of air pollutants in the local area and the existing noise environment in the area. This could be achieved by:

- demonstrating that the proposed development would be able to achieve the relevant evaluation distance recommended by the Evaluation distances guideline
- In general for distances greater than the relevant evaluation distance, EPA is unlikely to request specific evaluation of impacts predicated on typical activities. However, in exceptional circumstances it may be necessary for the proponent to demonstrate that adverse impacts are reduced to acceptable levels (or below) even though the proposed development would be able to achieve the evaluation distance recommended by the Evaluation distances guideline.
- demonstrating that odour criteria and ground level concentrations of pollutants identified in the Air Quality Policy would be met<sup>7</sup>
- providing an environmental noise assessment in the form of an acoustic report that demonstrates that requirements of the Noise Policy, the EP Act's general environmental duty, relevant Australian Standards, or WHO Guidelines for community noise would be achieved
- demonstrating that the potential adverse impacts of air quality have been assessed and addressed where proposed sensitive land uses would be separated from roads classified in the *Road classification guidelines in South Australia* (2008) as being 'arterial roads' by a distance of less than 100 m
- demonstrating that proposed development of sensitive land uses would be able to achieve the requirements of the Rail noise guidelines
- demonstrating that the proposed development near airports would be able to achieve the 'acceptable' requirements in Tables 2.1 or D1 in Australian Standard 2021–2015 Acoustics – Aircraft noise intrusion – building siting and construction.

The proposed major development or project must include a statement of the extent to which the expected effects of the development or project are consistent with the general environmental duty and objects of the EP Act and the requirements of the Air Quality and the Noise policies if it involves, or is for the purpose of, a prescribed activity of environmental significance as defined by the EP Act; this is a requirement of section 46 of the *Development Act 1993*.

## Disclaimer

This publication is a guide only and does not necessarily provide adequate information in relation to every situation. This publication seeks to explain your possible obligations in a helpful and accessible way. In doing so, however, some detail may not be captured. It is important, therefore, that you seek information from the EPA itself regarding your possible obligations and, where appropriate, that you seek your own legal advice.

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<sup>7</sup> Further information can be found in the EPA document, *Ambient air quality assessment* (2016).

## Further information

### Legislation

[Online legislation](#) is freely available. Copies of legislation are available for purchase from:

Service SA Government Legislation Outlet  
Adelaide Service SA Centre  
108 North Terrace  
Adelaide SA 5000

Telephone: 13 23 24  
Facsimile: (08) 8204 1909  
Website: [shop.service.sa.gov.au](http://shop.service.sa.gov.au)  
Email: [ServiceSAcustomerservice@sa.gov.au](mailto:ServiceSAcustomerservice@sa.gov.au)

### General information

Environment Protection Authority  
GPO Box 2607  
Adelaide SA 5001

Telephone: (08) 8204 2004  
Facsimile: (08) 8124 4670  
Freecall: 1800 623 445 (country)  
Website: [www.epa.sa.gov.au](http://www.epa.sa.gov.au)  
Email: [epainfo@sa.gov.au](mailto:epainfo@sa.gov.au)

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