Strategic context

The 30-Year Plan for Greater Adelaide (The Plan) provides for transit oriented developments around major transit corridors (road and rail) that are mixed use developments incorporating medium to high-density housing. It is therefore critical that there are appropriate policies in place to protect sensitive land users (e.g. residential) from noise and air emissions generated by major transit corridors and mixed land uses.

The Plan contains the following relevant policies and targets:

**Transit corridors**

**Policy**

14 Concentrate higher densities and medium-rise development around mixed-use activity centres and railway, tram and bus stations.

**Health and Wellbeing**

**Target**

C Provide by end of 2011, through a model Design Code, a range of measures to attenuate the effects of noise and air pollution.
Role and purpose of the Overlay

The Noise and Air Emissions Overlay (the Overlay) contains planning policies to protect new noise and air quality sensitive development from noise and air emissions generated from major transport corridors (road and rail) and mixed land use. Noise and air quality sensitive development includes residential dwellings, nursing homes, educational institutions, hospitals, places of worship and caravan parks that accommodate existing long-term residential use.

Noise and air quality has been linked together in this Overlay as many of the policies are useful for reducing both the impacts of noise and air emissions through—for example—the location of private and communal open space at the rear of buildings, away from the emission source.

This Overlay also designates where the Minister’s Specification SA 78B for the Construction Requirements for the Control of External Sound applies for new Class 1, 2, 3, 4 and 9c dwellings and what type of noise source.

Where should the overlay apply?

The Overlay is intended to apply to areas that are likely to be affected by noise and air emissions, in particular:

- mixed use zones—e.g. Urban Core, Urban Corridor and Suburban Activity Node
- adjacent to specific road types (Type A, B and R – refer to Table 1)
- adjacent to tram lines
- adjacent to train lines.

Table 1: Types of roads which may be designated as noise sources in the Minister’s Specification SA 78B

<table>
<thead>
<tr>
<th>Types of roads</th>
<th>Definition</th>
</tr>
</thead>
</table>
| Type A         | • 50,000 vehicles per day (vpd) and over; or  
|                | • a freight route (not rural). |
| Type B         | • 25,000 – 49,999 vpd; or  
|                | • a freight route; or  
|                | • a DPTI major traffic route; or  
|                | • the basis for a growth corridor. |
| Type R         | • a rural road which is a freight route. |

The State Government’s core priority will be to apply the Overlay adjacent to the above listed roads, tram lines and railway lines where:

- urban renewal is expected and encouraged through rezoning
- the Department for Planning, Transport and Infrastructure has made previous substantial investments in individual property acoustic treatments to mitigate noise.

Councils will be able to request and justify that the Overlay is applied through the usual Development Plan Amendment (DPA) process. Please refer to Figure 1 for the process to identify where the Overlay should apply.

Refer to the maps in Figure 2, 3 and 4 to identify which roads are classified as Type A, Type B or Type R.
Does the council area have any train lines, tram lines or roads designated as A, B or R (as shown in Figure 2, Figure 3 and Figure 4)?

**NO**

Are mixed use zones being introduced or existing, where it may be appropriate to introduce the Overlay to protect new dwellings from the higher background noise level expected?

Councills, through their Development Plan Amendment (Statement of Intent) may justify this need. The Minister for Planning will decide whether or not to accept the proposal.

Refer to Situation 3 for further info about how to map this Overlay.

**NO**

The Noise and Air Emissions Overlay is not applicable to your council area.

Is a mixed use zone* where urban renewal is encouraged being introduced next to one of these noise sources?

* e.g. Urban Core, Urban Corridor and Suburban Activity Node.

**YES**

The Noise and Air Emission Overlay must apply.

Refer to Situation 1 for further information about how to map this Overlay.

**NO**

Council, through their Development Plan Amendment (Statement of Intent stage), may choose to justify the need to include the Noise and Air Emissions Overlay to protect new residential dwellings adjacent to train lines, tram lines or roads which satisfy the criteria to be designated as A, B or R. The Minister for Planning will decide whether or not to accept the proposal.

Refer to Situation 2 for further information about how to make this Overlay.

Figure 1: Process to identify where the Noise and Air Emissions Overlay should apply.
Figure 2: Roads in the Greater Adelaide area classified as Type A, B or R.
Figure 3: Rural roads classified as Type R.
Figure 4: Rural roads classified as Type R.
Links to building requirements for noise sensitive development

When the Noise and Air Emissions Overlay is introduced in a Development Plan the Minister’s Specification SA 78B for the Construction Requirements for the Control of External Sound will be activated. The Minister’s Specification contains different construction requirements depending on the distance from the noise source and the type of development expected in a location (zoning).

The Minister’s Specification comprises:

- **Performance criteria**—the acceptable internal noise standard—for Building Code of Australia class 1, 2, 3, 4 and 9c aged care buildings
- **Deemed-to-satisfy** requirements—such as window glazing, solid doors and seals, wall and ceiling insulation, alternative ventilation if necessary—based on the noise exposure at the building façade
- **Alternative solution**—an acoustic consultant report can be prepared to demonstrate compliance with the performance requirement—allowing flexible design solutions to be adopted.

The level of treatment that is required at the building façade will depend on the noise exposure, which can be determined knowing the separation distance from the building to the noise source.

There are three different situations where the Overlay may need to be applied:

1. A mixed use zone located adjacent to a designated sound source (type A, B or R road, train or tram).
2. A residential type zone located adjacent to a designated sound source.
3. A mixed use zone not located adjacent to a designated sound source.

**How to map the Overlay in Development Plans**

**Important note:** The designated area within the Overlay indicates the assessment area for the Specification; it is not the assessment tool itself for building rules.

Instructions on how to apply the Overlay in each of the above situations are described below.

**Situation 1: Mixed use zone adjacent designated sound sources**

In many cases a mixed use zone will be located adjacent to one or more designated sound sources (Type A, B or R road, train line or tram line). The Noise and Air Emissions Overlay will need to cover the full extent of the mixed use area. Sometimes this will mean the Overlay is mapped beyond the distance where the Minister’s Specification would apply to require buildings to be constructed to mitigate noise impacts from transport sources (see Table 1 for distances). This is because, the Minister’s Specification also includes construction requirements that address the higher background noise levels expected in a mixed land use area. In a mixed use context, there are also requirements for new dwellings locating within 65 metres of an existing entertainment venue.
**Mapping instructions:** Use the mixed use zone boundary as the boundary for the designated area for the Noise and Air Emissions Overlay (refer to Figure 5 for an example of the Noise and Air Emission Overlay Map in the South Australian Planning Policy Library (SAPPL) format (formerly called the BDP format). DPTI can also provide a black and white template for Development Plans which have not been converted to the SAPPL format.

**Situation 2: Primarily residential zone adjacent designated sound source(s)**

In some situations the Noise and Air Emissions Overlay will apply adjacent to designated roads, train and tram lines, where the land use zoning is primarily only of a residential nature. In these cases, the extent of where the overlay map should apply needs to be calculated based on the type of designated sound source (Type A, B or R road, train line or tram line). Table 2 sets out the maximum distance from the noise source that the Overlay will need to apply for different types of roads and the speed limits of those roads.

The Minister’s Specification requires different construction requirements for dwellings depending on their distance from a noise source and the intensity of that noise source. For example, Type A roads carry higher volumes (and often higher traffic speeds) than type B roads. This means that dwellings locating up to 200 metres away from a Type A road (speed limit 110km/hr) will have requirements under the Minister’s Specification, while only dwellings up to 130 metres away from a Type B road (speed limit 110km/hr) will have obligations.

Figure 5: Example of a Noise and Air Emissions Overlay (in SAPPL format) over an Urban Core Zone (Bowden Development, City of Charles Sturt).
Mapping instructions:

1. The starting point for mapping is the cadastical boundary of the road, train or tram corridor adjacent to the proposed Overlay designated area.

2. Use Table 2 to determine how far the Overlay will need to be mapped from this point.

3. If there are two different types of road intersecting, map to the furthest extent that the Minister’s Specification would apply.

4. Ensure that complete allotments are included in the Overlay, even if the Specification only has requirements for part of an individual dwelling. For example, along tram lines, it is likely that only the front facades of dwellings immediately adjacent the tram line would have requirements under the Specification. However, the whole of the allotment boundary would still be mapped. However, in greenfill situations it may not be possible to determine the location of individual allotments at this stage. Therefore in this situation, just buffer to the distance requirements in Table 2.

Table 2: Type of sound source and maximum distance of area affected

<table>
<thead>
<tr>
<th>Type of sound source</th>
<th>50-60km/hr</th>
<th>70-90km/hr</th>
<th>100-110km/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type A road</td>
<td>100m</td>
<td>150m</td>
<td>200m</td>
</tr>
<tr>
<td>Type B road</td>
<td>60m</td>
<td>95m</td>
<td>130m</td>
</tr>
<tr>
<td>Type R road</td>
<td>35m</td>
<td>55m</td>
<td>75m</td>
</tr>
<tr>
<td>Train line</td>
<td>50m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tram line</td>
<td>20m</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Adapted from the Minister’s Specification SA 78B.

Note: It is important to check if the speed limits for the road is envisioned to be changed in the future. If it is, map to the necessary distance to accommodate this.

Situation 3: Mixed use zone not adjacent designated transport sound source(s)

In addition to addressing noise from rail, road and tram, the Minister’s Specification includes construction requirements that address the higher background noise levels expected in a mixed land use zone (e.g. from entertainment venues). For this reason, when introducing a mixed use zone into the Development Plan, it may be appropriate to apply the Noise and Air Emissions Overlay. For example, when introducing the Urban Core Zone (where higher intensity mixed land use is envisioned) to an area adjacent to the O-bahn. (The O-bahn is not a designated sound source in the Specification).

Mapping instruction: Apply the Noise and Air Emissions Overlay to the whole of the mixed use zone.
Air emission mitigation

The Noise and Air Emission Overlay also includes planning policies to protect air quality sensitive development. Air quality can be addressed in a number of ways through building and streetscape design that result in the dispersal of pollutants. Importantly, the formation of urban canyons that reduce air dispersion should be minimised through, for example:

- having less confined areas to enable winds and breezes to disperse and carry away air pollutants (i.e. ensure careful consideration of the orientation and continuity of open spaces, their dimension and shape, topography and the layout of buildings surrounding the area)
- stepping back the upper storeys of roadside buildings to increase dispersion of air pollutants and minimising the ‘canyoning’ effect of tall buildings close to the road.

The above design techniques should be supported by ensuring that air intakes and ventilation systems are not located on the road side of buildings. Note that this is assessed at the building rather than planning stage.

Street trees are also valuable in improving local ambient air amenity. Landscaping also has the added benefit of improving aesthetics and minimising visual intrusion from an adjacent roadway or railway line.

Local policy

Local policy may not be inserted into this module.

For further information

DPTI has developed guidelines to assist council officers, planners, acoustic engineers, building certifiers, architects, developers and applicants understand and meet the requirements of the Noise and Air Emissions Overlay and Minister’s Specification SA 78B for Construction Requirements for the Control of External Sound. These guidelines also cover the following:

- advice on potential design techniques at the planning stage to reduce applicant obligations under the Minister’s Specification
- potential air mitigation design techniques available at the planning stage
- case studies based on specific land use zones.

For a copy of these guidelines visit: www.sa.gov.au/planning/planningpolicies