



Department of **Planning,
Lands and Heritage**



Western
Australian
Planning
Commission

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Western Australia.*

State Planning Policy 5.4 Road and Rail Noise

September 2019

*Prepared under Part Three of the Planning and Development Act 2005
by the Western Australian Planning Commission*

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Published by the
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Published September 2019

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This document is available in alternative formats on application to the Department of Planning, Lands and Heritage Communications Branch.

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1 CITATION

This is a State Planning Policy prepared under Part Three of the *Planning and Development Act 2005*. It may be cited as *State Planning Policy No. 5.4 Road and Rail Noise* (SPP 5.4).

2 POLICY INTENT

The purpose of SPP 5.4 is to minimise the adverse impact of road and rail noise on noise-sensitive land-use and/or development within the specified trigger distance of strategic freight and major traffic routes and other significant freight and traffic routes.

SPP 5.4 seeks to ensure that the community is protected from unreasonable levels of transport noise, whilst also ensuring the future operations of these transport corridors.

SPP 5.4 should be read in conjunction with the *Road and Rail Noise Guidelines* (the guidelines); and is supported by the Department of Planning, Lands and Heritage mapping which specifies the State's transport routes and the policy's trigger distances which can be viewed at www.dplh.wa.gov.au.

3 ROAD AND RAIL NOISE IN WESTERN AUSTRALIA

Road and rail transport corridors play a vital role in moving people and goods safely and efficiently around the State and provide wide-ranging economic and social benefits to the community. However, road and rail noise can have an adverse impact on human health and the amenity of nearby communities, so it is important that a balanced approach is taken in land-use planning and development.

Urban consolidation brings challenges when planning for land near busy transport corridors. SPP 5.4 aims to ensure acceptable levels of acoustic amenity can be achieved through consideration of interface issues that balances reasonable and practical considerations when noise-sensitive land-use and/or development is proposed in areas impacted by road and rail noise.



4 POLICY APPLICATION

4.1 When and where it applies

SPP 5.4 applies to the preparation and assessment of planning instruments, including region and local planning schemes; planning strategies, structure plans; subdivision and development proposals in Western Australia, where there is proposed:

- (a) noise-sensitive land-use within the policy's trigger distance of a transport corridor as specified in **Table 1**;
- (b) new or major upgrades of roads as specified in **Table 1** and maps (**Schedule 1, 2 and 3**); or
- (c) new railways or major upgrades of railways as specified in maps (**Schedule 1, 2 and 3**); or any other works that increase capacity for rail vehicle storage or movement and will result in an increased level of noise.

4.1.2 Policy trigger distances

Table 1 identifies the State's transport corridors and the trigger distances to which the policy applies.

The designation of land within the trigger distances outlined in **Table 1** should not be interpreted to imply that land is affected by noise and/or that areas outside the trigger distances are un-affected by noise.

Where any part of the lot is within the specified trigger distance, an assessment against the policy is required to determine the likely level of transport noise and management/ mitigation required. An initial screening assessment (**guidelines: Table 2: noise exposure forecast**) will determine if the lot is affected and to what extent.

Table 1: Transport corridor classification and trigger distances

Transport corridor classification	Trigger distance	Distance measured from
Roads		
Strategic freight and major traffic routes Roads as defined by Perth and Peel Planning Frameworks and/or roads with either 500 or more Class 7 to 12 Austroads vehicles per day, and/or 50,000 per day traffic volume	300 metres	Road carriageway edge
Other significant freight/traffic routes These are generally any State administered road and/or local government road identified as being a future State administered road (red road) and other roads that meets the criteria of either ≥ 100 Class 7 to 12 Austroads vehicles daily or $\geq 23,000$ daily traffic count (averaged equivalent to 25,000 vehicles passenger car units under region schemes).	200 metres	Road carriageway edge
Passenger railways		
	100 metres	Centreline of the closest track
Freight railways		
	200 metres	Centreline of the closest track



Proponents are advised to consult with the decision making authority as site specific conditions (significant differences in ground levels, extreme noise levels) may influence the noise mitigation measures required, that may extend beyond the trigger distance.

4.1.3 Noise-sensitive land-use and/or development

This is generally determined by land-uses or development as zoned by a local planning scheme or structure plan that is occupied or designed for occupation or use for residential purposes (including dwellings, residential buildings or short-stay accommodation), caravan park, camping ground, educational establishment, child care premises, hospital, nursing home, corrective institution; or place of worship.

4.1.4 Roads

Roads to which the policy applies are identified in maps (**Schedule 1, 2 and 3**) and the Department's public mapping viewer. These roads have been identified as their freight function and or high traffic volumes are considered to significantly generate noise in excess of the policies noise targets.

A major upgrade of an existing road involves:

- a) physical construction works designed to facilitate an increase in traffic-carrying capacity (such as carriageway duplication or the addition of a traffic lane);
- a) substantial change in the alignment that moves the asset closer to existing noise-sensitive land-use; or

- c) modifications which may improve road capacity, performance or function, such as an intersection expansion, grade separation or the like.

4.1.5 Railways

Passenger and freight railways are identified in maps (**Schedule 1, 2 and 3**) and the Department's public mapping viewer.

A major upgrade of a railway means:

- a) a proposed realignment, either inside or outside the existing corridor;
- b) a rail track duplication; or
- c) works that are likely to adversely affect a noise-sensitive land-use, such as the installation of switches/turnouts, signalling systems, spurs or passing loops, the modification to the track support structure, crossovers, refuges, and relief lines.

4.2 Planning horizon

The application of SPP 5.4 should consider future development and associated increases in traffic anticipated for the next 20 years from when the noise assessment has been undertaken. This includes any transport corridor proposals where there is sufficient certainty regarding the corridor's alignment and function.

4.3 Policy exemptions

SPP 5.4 does not apply:

- a) retrospectively to existing noise-sensitive land-use and/or development within the policy's trigger distance of existing railways or roads;

- b) planning proposals that do not result in intensification of land-use for example no proposed increase in the number of approved dwellings from that existing;
- c) to increases in road and rail traffic noise in the absence of physical construction works;
- d) to ongoing works such as routine maintenance, re-sealing, minor changes in alignment or minor changes required for safety reasons, unless such works would result in a significant increase in transport noise levels that has an adverse impact on human health and the amenity of nearby communities;
- e) to fixed sources of noise such as, but not limited to, horns, warning bells and sirens, safety warning devices installed on road or rail vehicles;
- f) to freight handling facilities;
- g) to any noise produced during the actual construction of new road and rail infrastructure, which is governed by the *Environmental Protection (Noise) Regulations 1997*; and
- h) to aircraft or watercraft transport noise.



5. POLICY OBJECTIVES

The objectives of SPP 5.4 are to:

- (a) protect the community from unreasonable levels of transport noise;
- (b) protect strategic and other significant freight transport corridors from incompatible urban encroachment;
- (c) ensure transport infrastructure and land-use can mutually exist within urban corridors;
- (d) ensure that noise impacts are addressed as early as possible in the planning process; and
- (e) encourage best practice noise mitigation design and construction standards.

6 POLICY MEASURES

The policy applies a performance-based approach to the management and mitigation of transport noise. The policy measures and resultant noise mitigation will be influenced by the function of the transport corridor and the type and intensity of the land-use proposed. Where there is risk of future land-use conflict in close proximity to strategic freight routes, a precautionary approach should be applied.

Planning should also consider other broader planning policies. This is to ensure a balanced approach takes into consideration reasonable and practical considerations. Refer to the guidelines for more information.

6.1 Noise targets

Table 2 sets out noise targets that are to be achieved by proposals under which the policy applies. Where exceeded, an assessment is required to determine the likely level of transport noise and management/mitigation required.

In the application of the noise targets the objective is to achieve:

- indoor noise levels as specified in **Table 2** in noise-sensitive areas (for example, bedrooms and living rooms of houses, and school classrooms); and
- a reasonable degree of acoustic amenity for outdoor living areas on each residential lot. For non-residential noise-sensitive developments, for example schools and child care centres the design of outdoor areas should take into consideration the noise target.

It is recognised that in some instances, it may not be reasonable and/or practicable to meet the outdoor noise targets. Where transport noise is above the noise targets, measures are expected to be implemented that balance reasonable and practicable considerations with the need to achieve acceptable noise protection outcomes.



Table 2: Noise targets

Proposals	New/upgrade	Noise targets		
		Outdoor		Indoor
		Day (L _{Aeq} (Day) dB) (6 am–10 pm)	Night (L _{Aeq} (Night) dB) (10 pm–6 am)	(L _{Aeq} dB)
Noise-sensitive land-use and/or development	New noise-sensitive land-use and/or development within the trigger distance of an existing/proposed transport corridor	55	50	L _{Aeq} (Day) 40 (living and work areas) L _{Aeq} (Night) 35 (bedrooms)
Roads	New	55	50	NA
	Upgrade	60	55	NA
Railways	New	55	50	NA
	Upgrade	60	55	NA

Notes:

- The noise target is to be measured at one metre from the most exposed, habitable façade of the proposed building, which has the greatest exposure to the noise-source. A habitable room has the same meaning as defined in *State Planning Policy 3.1 Residential Design Codes*
- For all noise-sensitive land-use and/or development, indoor noise targets for other room usages may be reasonably drawn from Table 1 of Australian Standard/New Zealand Standard AS/NZS 2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors (as amended) for each relevant time period.
- The 5dB difference in the criteria between new and upgrade infrastructure proposals acknowledges the challenges in achieving noise level reduction where existing infrastructure is surrounded by existing noise-sensitive development.
- Outdoor targets are to be met at all outdoor areas as far as is reasonable and practical to do so using the various noise mitigation measures outlined in the guidelines. For example, it is likely unreasonable for a transport infrastructure provider to achieve the outdoor targets at more than 1 or 2 floors of an adjacent development with direct line of sight to the traffic.



6.2 Noise exposure forecast

When it is determined that SPP 5.4 applies to a planning proposal as outlined in **Section 4**, proponents and/or decision makers are required to undertake a preliminary assessment using **Table 2: noise exposure forecast** in the guidelines. This will provide an estimate of the potential noise impacts on noise-sensitive land-use and/or development within the trigger distance of a specified transport corridor. The outcomes of the initial assessment will determine whether:

- no further measures is required;
- noise-sensitive land-use and/or development is acceptable subject to deemed-to-comply mitigation measures; or
- noise-sensitive land-use and/or development is not recommended. Any noise-sensitive land-use and/or development is subject to mitigation measures outlined in a noise management plan.

6.3 Noise level contour map

Where it is determined that noise impacts on noise-sensitive land-use and/or development within the trigger distance of **Table 1** is likely, then a noise level contour map can be used to inform planning proposals on the likely impacts of transport noise upon the subject site. The map illustrates the likely noise levels and associated noise exposure categories as per **Table 2: noise exposure forecast in the guidelines** and can be either prepared using the noise level information contained within the noise exposure forecast table or more commonly prepared using site-specific noise level information provided by a suitably qualified acoustic consultant/engineer at the discretion of the decision maker.

If the noise level contour map identifies that no part of the site is estimated to be affected by noise levels above the criteria, no further measures are required.

6.4 Noise management plan

Preparation of a noise management plan by a suitably qualified professional acoustics engineer or consultant is required early in the planning process to determine actual noise levels across the subject site and demonstrate that the proposal can adequately mitigate the noise impacts through use of noise attenuation measures. Noise management plans already approved by the relevant state agency responsible for noise at the time of gazettal of this policy are deemed to be satisfactory.

Noise management plans are required where:

- a) proposals fall into exposure categories D and E in the noise exposure forecast table;
- b) strategic planning, region and local planning scheme and amendments, structure plans and activity centre plans adjacent to a specified proposed road or railway identified in the policy's mapping, which is not yet planned for construction but is anticipated within 20 years;
- c) a new or major upgrade of a road or railway is located adjacent to urban zoned land with the potential to accommodate noise-sensitive land-use and/or development; and
- d) where all practicable steps to avoid or minimise transport noise have been taken but the noise levels are predicted or measured to exceed the policy's noise target.

6.5 Implementation

As a general principle, noise should be considered at the earliest stages of the planning process and not defer its resolution or management to subdivision or development assessment stage, where mitigation options are more limited.

Planning proposals are generally to be accompanied by the following information where deemed appropriate and prepared in accordance with the guidelines:

- Noise exposure forecast table assessment; and/or
- Noise level contour map; and/or
- Noise management plan, outlining the proposed noise mitigations measures.

The level and recommended type of noise management and mitigation measure will be dependent on the severity of the noise source, the type and intensity of the proposed land-use, the function of the transport corridor and the information available at the particular stage of the planning.

There is a general presumption against approving proposals that cannot achieve the policy's noise targets. However it is acknowledged that in some circumstances, it may not be reasonable or practicable for the policy's noise targets to be met.

Discretion may be exercised by the decision-maker to take into consideration reasonable and practical matters including:

- the requirements of other relevant plans and policies;
- the impact of proposed mitigation measures on the amenity of the built environment;



- the seasonality of train movements, particularly in regional towns; and
- advice received from relevant referral agencies.

Justification as to why the noise targets cannot be achieved and whether the noise can be reduced to an acceptable level should be documented by the proponent and considered by the decision maker.

The guidelines assist in outlining ways in which some reasonable and practicable limitations can be addressed in a manner that also minimise transport noise.

6.5.1 High-order strategic planning

Strategic planning documents such as planning frameworks and strategies should seek to avoid the risk of future land-use conflict with noise by:

- (a) identifying the location of relevant transport corridors on maps and clearly distinguishing the function of the transport corridor;
- (b) outlining design solutions commensurate with the function of the transport corridor and preferred land-use interface; and
- (c) demonstrating that the noise impact on the proposed noise-sensitive land-use and/or development is to be addressed at the next stage of the planning process to meet the policy's noise targets.

6.5.2 Region and local planning scheme and amendments, structure plans and activity centre plans

The above planning instrument's will address the impact of noise through:

- a) identification of appropriate compatible land-use zoning that is commensurate with the function of the transport corridor;
- b) design solutions that utilise street and lot configuration to screen and/or buffer noise;
- c) consideration of density and built form outcomes that will help alleviate and/or manage noise;
- d) outlining the need for additional noise mitigation measures through quiet house requirements and or noise barriers in accordance with the guidelines; and
- e) consideration to appropriate future planning provisions to ensure more detailed planning is undertaken at the subdivision and development stage.

6.5.3 Subdivision and development

Subdivision and development applications should take into consideration any previous planning, noise assessment and/or noise management plan conducted earlier in the planning process and any existing planning controls in place.

Subdivision and development should seek to manage and avoid land-use conflict through:

- a) the design of the street, lot and building configuration in accordance with the guidelines;
- b) consideration to the preparation of a site specific local development plan; and

- c) quiet house requirements and or other noise mitigation in accordance with the guidelines.

6.5.3.1 Conditions of subdivision and development

The decision-maker may impose conditions on subdivision and development applications requiring the implementation of mitigation measures as outlined in the guidelines in particular **Table 2: noise exposure forecast** or a noise management plan. These may include the construction of physical barriers, quiet house requirements or the need for more detailed planning through the preparation of a local development plan. Noise management plans must be completed and approved prior to conditional approval of the subdivision proposal.

Notifications on title are required as a condition of subdivision (including strata subdivision) and development approval informing of the existence of transport noise where existing and or forecasted noise levels are to exceed the policy's outdoor noise targets.

6.5.4 Major road and railway proposals

New or major upgrades of roads and railway construction proposals in existing reserves generally do not require planning approval as public works are exempt from the development assessment process under the deemed provisions of the *Public Works Act 1902*. However infrastructure providers, operators and governing bodies are encouraged to continuously enhance assets to reduce noise and to carry out works in a manner that is consistent with SPP 5.4.



To achieve overall noise management outcomes, proposals for new or major upgrade of roads and railways within the scope of this policy should consider:

- a) route selection and alignment that is commensurate with the function of the transport corridor and preferred land-use interface;
- b) natural topography to shield the transport corridor, reducing the reliance on noise walls; and
- c) acquiring or preserving adequate space in the corridor reserve to ensure that mitigation measures can be achieved.

Proposals for a major road and railway are to be accompanied by the following information in accordance with the guidelines:

- a) A noise management plan to determine actual noise levels accounting for any relevant adjacent zoning under an applicable region or local scheme.
- b) Demonstrate that the proposal can adequately mitigate the noise impacts which include at-source mitigation.

6.5.5 State authority advice on noise

The advice of the State authority responsible for noise regulation is to be sought and considered by the decision-maker in the preparation and determination of all proposals outlined in **Sections 6.5.1 to 6.5.4** where:

- a) compliance with these policy measures is unlikely to be achieved;
- b) additional/alternative noise mitigation measures are proposed; and/or
- c) assumptions informing noise management plans are not agreed to by a decision-maker.

Proposals that fall within the policies trigger distance for a railway that is subject to a State Agreement Act shall be referred to the relevant agency responsible for the administration of the State Agreement Act.



7 DEFINITIONS

A- weighted level

A level which includes the frequency-weighting network 'A' (see AS IEC 61672.2-2004) to approximate the frequency response of the normal human ear.

dB

Decibel. A unit used to measure the intensity of a sound.

development

As defined in the *Planning and Development Act 2005*. Development includes land-use, but for the purpose of this policy does not include subdivision.

Class 7 to 12 Austroads vehicles per day

Refer to appendix 6 of the guidelines.

intensification of land-use

Creation of a new noise-sensitive land-use and/or development.

a habitable room

As defined in *State Planning Policy 3.1 Residential Design Codes*.

L_{Aeq}

The equivalent steady-state, A-weighted sound level which in a specified time period contains the same acoustic energy as the time-varying level during the same period.

$L_{Aeq}(\text{Day})$

The L_{Aeq} (16 hour) for the time period 6 am to 10 pm.

$L_{Aeq}(\text{Night})$

The L_{Aeq} (8 hour) for the time period 10 pm to 6 am.

noise

Sound that is unwanted, unpleasant or loud. For the purposes of this policy, noise does not include regenerated noise or vibration.

noise exposure forecast

Table 2- Noise exposure forecast table of the guidelines which provides noise forecast levels that are used to inform an initial screening assessment.

noise level contour map

Scale map to illustrate noise forecast levels and associated noise exposure categories informed by either an initial screening assessment or by more detailed noise prediction calculations in a noise management plan.

noise management plan

Site specific noise assessment and recommended mitigation measures to accompany planning proposals.

noise-sensitive land-use and/or development

Land-uses or development occupied or designed for occupation or use for residential purposes (including dwellings, residential buildings or short-stay accommodation), caravan park, camping ground, educational establishment, child care premises, hospital, nursing home, corrective institution or place of worship.

outdoor living area

As defined in the *State Planning Policy 3.1 Residential Design Codes* as the area external to a single house, grouped or multiple dwelling to be used in conjunction with that dwelling such that it is capable of active or passive use and is readily accessible from the dwelling.

reasonable and practicable

Refer to section 3.2.1 of the guidelines.

transport infrastructure provider

An agency responsible for the design, construction and/or management of transport infrastructure as identified by this policy, including local and State government agencies.