

<b>POL</b>	<b>NOISE ATTENUATION</b>	<b>LPP 1.12</b>
------------	--------------------------	-----------------

<b>POLICY CODE:</b>	LPP 1.12
<b>DIRECTORATE:</b>	Planning and Development
<b>BUSINESS UNIT:</b>	Statutory Planning Services & Environmental Health Services
<b>SERVICE UNIT:</b>	Statutory Planning Services / Environmental Health Services
<b>RESPONSIBLE OFFICER:</b>	Manager, Statutory Planning
<b>FILE NO.:</b>	104/001 & 182/001
<b>DATE FIRST ADOPTED:</b>	11 June 2015
<b>DATE LAST REVIEWED:</b>	10 December 2015
<b>ATTACHMENTS:</b>	Yes
<b>DELEGATED AUTHORITY REF.:</b>	N/A
<b>VERSION NO.</b>	2

<b>Dates of Amendments / Reviews:</b>	
DAPPS Meeting:	26 February 2015 2 June 2015 26 November 2015
OCM:	12 March 2015

## **BACKGROUND:**

Increasingly, residential development within the City of Cockburn is occurring within town centres and intense mixed use community areas, with a mix of residential and non-residential land uses. Maintaining the sustainability of the City and encouraging the vibrant communities with residential land uses close to transport corridors, places of employment, shops and cafes, requires buildings to be designed and constructed with appropriate noise attenuation measures to protect the amenity of residents.

In order to protect the long term health and amenity of residents from road, rail and aircraft noise, noise from non-residential land uses and other sources, the City of Cockburn requires noise attenuation of residential and other noise-sensitive land uses. This is to be demonstrated and implemented through the development process achieving compliance with noise legislation, standards and policies.

## **PURPOSE:**

The purpose of the Noise Attenuation Policy and associated Guidelines is to:

1. Detail the noise attenuation and noise management reporting process when undertaking development within the City of Cockburn.
2. Provide details of the City's requirements for the different types of acoustic reports.

<b>POL</b>	<b>NOISE ATTENUATION</b>	<b>LPP 1.12</b>
------------	--------------------------	-----------------

3. Provide guidance to applicants as to when an acoustic consultant should be engaged and provide information on the type of assistance an acoustic consultant might provide.

**POLICY:**

- (1) An Acoustic Report must accompany a Structure Plan, variations to a Structure Plan that materially alter the Plans intent or a Local Development Plan. The Acoustic Report shall be prepared in accordance with the attached City of Cockburn Noise Attenuation Guidelines where:
  - (a) Noise sensitive development is proposed in the vicinity of an existing or future major road, rail infrastructure or a freight handling facility as required by SPP 5.4;
  - (b) The land is located within either the Core Area or Frame Area for Jandakot Airport as identified by SPP 5.3; or
  - (c) Noise sensitive development and commercial, industrial or light industry land uses or essential infrastructure are proposed in close proximity.
  
- (2) An Acoustic Report must accompany a Development Application, in accordance with the attached City of Cockburn [Noise Attenuation Guidelines](#) where:
  1. Non-residential development which includes plant and equipment which is likely to be a source of noise (such as air conditioning systems, compressors, public address systems, amplified music, musical instruments) within 100m of noise sensitive land uses; or
  2. A change of use is proposed that may involve noise emitting activity such as entertainment or amplified music; or
  3. Land uses which cause large numbers of people to congregate (such as hotels, sporting clubs, taverns and other licensed/non-licensed premises) are proposed, including accommodation premises (such as lodging houses and backpacker establishments); or
  4. Noise sensitive developments are proposed in the vicinity of an existing or future major road or rail infrastructure as required by SPP 5.4; or
  5. A freight handling facility is proposed in the vicinity of noise sensitive land uses as required by SPP 5.4; or
  6. Noise sensitive developments within the Core Area or Frame Area for Jandakot Airport as identified by SPP 5.3; or

<b>POL</b>	<b>NOISE ATTENUATION</b>	<b>LPP 1.12</b>
------------	--------------------------	-----------------

7. Noise sensitive land uses, mixed use or multistorey residential developments within intense mixed use community areas such as Cockburn Coast, Port Coogee, Muriel Court, Cockburn Central Town Centre and Cockburn Central West; or
  8. An application is deemed likely to contribute to, or be exposed to, heightened ambient noise, at the discretion of the City.
- (3) At the Subdivision stage the City will request a Noise Management Plan as a condition of consent, as detailed in Clause 1.
  - (4) Further Acoustic Reports prepared in accordance with the attached City of Cockburn Noise Attenuation Guidelines may be required as a condition of Development Approval to ensure that appropriate noise mitigation measures are implemented as the development proceeds, including prior to the submission of the Building Permit Application.
  - (5) Further supporting information may also be required to demonstrate that the completed development complies with the requirements of the Acoustic Report, with the Building Permit Application, the BA7 Building Completion Form or the BA15 Building Approval Certificate Strata.



# **NOISE ATTENUATION GUIDELINES**

**December 2015**

## Table of Contents

<b>INTRODUCTION</b>	<b>1</b>
<b>1.0 JURISDICTION</b>	<b>1</b>
<b>2.0 DEFINITIONS</b>	<b>3</b>
<b>3.0 ACOUSTIC REPORTS</b>	<b>6</b>
3.1 Who can help me with preparing an Acoustic Report?	6
3.2 When must I submit an Acoustic Report?	6
3.3 What must the Acoustic Report contain?	6
3.4 What criteria should the Acoustic Report address?	7
3.5 What will happen if the Acoustic Report submitted does not follow these Guidelines?	8
<b>4.0 NOISE SOURCE IDENTIFICATION</b>	<b>9</b>
4.1 Noise from Road, Rail and Freight Infrastructure	9
4.2 Breakout and Street Noise	10
4.3 Mechanical Plant and Equipment	11
4.4 Co-existing Land Uses	12
4.5 Noise Sensitive Developments in Proximity to Jandakot Airport	12
<b>5.0 NOISE TREATMENT SOLUTIONS</b>	<b>14</b>
5.1 Development Planning and Design	14
5.2 Construction Methods and Materials	15
<b>6.0 DOCUMENT REQUIREMENTS FOR ACOUSTIC COMPLIANCE</b>	<b>17</b>
Appendix 1 – Transport Noise Source Identification	17

---

## INTRODUCTION

Mixed land use areas, with residential and commercial land uses in close proximity, are actively encouraged by the City of Cockburn in town centre and intense mixed use community areas. A mix of residential and commercial activities provides residents and visitors to an area with access to places of employment, shops and cafes, and can contribute to the vibrancy of a community.

Locating residential land uses close to main roads, marina's, other transport infrastructure and non-residential areas, assists in maintaining the sustainability of the City and encourages active transport within the locality. However this mix of non-residential and residential land uses, and proximity to transport infrastructure, can result in an increase in ambient noise levels to residential areas from sources such as vehicle and pedestrian traffic, mechanical equipment and people.

It is therefore necessary to consider potential noise and amenity impacts throughout the planning process so as to ensure that appropriate noise attenuation measures are incorporated into the design and construction of developments within the City.

### 1.0 JURISDICTION

1. *Environmental Protection Act 1986* (EPA) and the *Environmental Protection (Noise) Regulations 1997* (EPRs) provide powers for officers of the Department of Environment Regulation, WA Police Service and authorised Environmental Health Officers from Local Governments to deal with noise.
2. The Director Liquor Licensing Division has the power to deal with noise issues and anti-social behaviour under section 117 of the *Liquor Act 1988*.
3. The *Planning and Development Act 2005* (P&D Act) provides the determining authority with the power to impose conditions on development approvals that protect the amenity of an area.
4. The *Building Act 2011* provides the authority to set building standards and ensure that they are met through the issue of building and occupancy permits to protect the health and safety of the buildings inhabitants.

In addition to the above listed legislation, reference is made to the following State Planning documents prepared and adopted under the P&D Act:

1. State Planning Policy 4.1 "*State Industrial Buffer*", 2006 (SPP 4.1).
2. Draft State Planning Policy 4.1 "*State Industrial Buffer*", 2009 (Draft SPP 4.1).
3. State Planning Policy 5.3 "*Land Use Planning in the Vicinity of Jandakot Airport*", 2006 (SPP 5.3).
4. DRAFT State Planning Policy 5.3 "*Land Use Planning in the Vicinity of Jandakot*

**Disclaimer:** This document is a guide only. It does not replace professional specialised acoustic advice by a suitably qualified and experienced acoustic consultant. For full details of legislative requirements refer to the *Environmental Protection Act 1986*, the *Environmental Protection (Noise) Regulations 1997*, the *Liquor Act 1988*, the *Planning and Development Act 2005*, the *Building Act 2011*, *State Planning Policy 4.1 "State Industrial Buffer"*, *State Planning Policy 5.3 "Land Use Planning in the Vicinity of Jandakot Airport"*, *DRAFT State Planning Policy 5.3 "Land Use Planning in the Vicinity of Jandakot Airport"* dated 2013, *State Planning Policy 5.4 "Road and Rail Transport Noise and Freight Considerations in Land Use Planning"* and the *Implementation Guidelines for the State Planning Policy 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning (the Implementation Guidelines)*.

- 
5. *Airport* 2013 (Draft SPP 5.3).
  5. State Planning Policy 5.4 “*Road and Rail Transport Noise and Freight Considerations in Land Use Planning*” (SPP 5.4).
  6. The Implementation Guidelines for the State Planning Policy 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning (the Implementation Guidelines).
  7. Western Australian Planning Commission publication “*Aircraft Noise Insulation for Residential Development in the Vicinity of Perth Airport*” 2004.

---

## 2.0 DEFINITIONS

**“Acoustic Consultant”** is the term used to describe a specialist consultant with expertise in the science of acoustics, noise, and/or vibration. This highly technical field is further divided into broad areas of expertise.

**IMPORTANT NOTE:**

*An appropriately qualified and experienced acoustic consultant can assist a developer by providing technical advice and guidance on noise and vibration as well as how to manage their impact, assisting in the design and construction of a development. See also Section 3.1 - Who can help me with preparing an Acoustic Report?*

**“Acoustic Report”** a specialist report prepared by an Acoustic Consultant addressing noise and vibration emissions from or received by a development or site. An Acoustic Report may take a number of forms, however in a planning context will generally be in one of the following formats:

1. **“Noise Impact Assessment”**- a detailed Acoustic Report that shows how a noise sensitive development will be affected by nearby noise sources. This information is then used in designing a development to ensure that potential noise impacts are suitably attenuated to protect the amenity of occupants and ensure compliance with legislative standards. A Noise Impact Assessment may make recommendations on what measures could be considered for inclusion in a Noise Management Plan.
2. **“Noise Management Plan”**- an Acoustic Report that demonstrates how the noise levels will be attenuated or otherwise managed for a development to comply with the relevant standards. The Noise Management Plans may address noise emissions from the development, noise levels received by the development or both. A Noise Management Plan may either include a Noise Impact Assessment, or refer to a preceding Noise Impact Assessment.
3. **“Screening Assessment”** is a brief initial assessment conducted under SPP 5.4 to demonstrate whether outdoor noise levels from a transport source, when received at a development site, will comply with the Target Noise Levels. Where a screening assessment determines the Target Level for outdoor noise is likely to be exceeded, a detailed Noise Impact Assessment and Noise Management Plan are required.

**“Ambient Noise”** is sound emitted from the full complement of activities and land uses within an area that is not easily discernible and includes a combination of sound from sources such as traffic, wind, rustling trees, wildlife, pets, mechanical equipment and people.

**“Assigned Level”** has that same meaning given to it under the EPRs.



---

**“Breakout Noise”** is a clearly distinguishable sound emitted from local land use activities such as outdoor eating areas, public gathering areas and pedestrian routes, pubs, nightclubs and the like.

**“Core Area”** for Jandakot Airport has the same meaning as under SPP 5.3, being the area within the 20 ANEF Contour for Jandakot Airport, which may have a reduced level of residential amenity due to aircraft noise.

**“Development”** has the same meaning given to it under the P&D Act being: *“the development or use of any land, including —*

- 1. any demolition, erection, construction, alteration of or addition to any building or structure on the land;*
- 2. the carrying out on the land of any excavation or other works...”*

**“Development Application”** has the same meaning given to it under the P&D Act being: *“an application under a planning scheme, or under an interim development order, for approval of development.*

**“Environmental Noise”** in this guideline refers to a combination of all noise that exists and fluctuates within a location at any given time and it includes both ambient and breakout noise.

**“Essential Infrastructure”** has that same meaning given to it under Draft SPP 4.1.

**“Frame Area”** for Jandakot Airport has the same meaning as under SPP 5.3, being the area between the 20ANEF contour and Roe Highway, Ranford Road, Warton Road, Armadale Road and Kwinana Freeway, which may have a reduced level of residential amenity due to aircraft noise. The Frame Area is shown in Appendix A.

**“Limit Noise Level”** is the level of outdoor noise identified in SPP 5.4 as exceeding that appropriate for noise sensitive development.

**IMPORTANT NOTE:**

*Where a noise sensitive development is subject to the Limit Noise Level, noise mitigation measures must be implemented to provide suitable noise levels to indoor and outdoor living areas. SPP 5.4 states: “In most situations in which either the noise-sensitive land use or the major road or railway already exists, it should be practicable to achieve outdoor noise levels within this acceptable margin. In relation to greenfield sites, however, there is an expectation that the design of the proposal will be consistent with the target ultimately being achieved.”*

**“Margin”** the margin for compliance between the Target and the Limit under SPP 5.4. Within the Margin, noise mitigation measures are necessary to protect indoor and outdoor amenity, but the area is recognised as suitable for noise sensitive development.

---

**“Noise”** is defined as unwanted sound or vibration.

**“Noise-Sensitive Land Use” and “Noise-Sensitive Development”** have the same meaning as under SPP 5.4 and the EPRs, being premises occupied solely or mainly for residential or accommodation purposes, rural premises and premises including (but not limited to):

- (a) a caravan park or camping ground, a tavern, hotel or other premises that provide accommodation for the public;
- (b) a hospital, aged care facility, home or institution for the care of persons;
- (c) an education facility;
- (d) child care facility; and
- (e) places of worship.

**“Residential development”** has the same meaning as in the Residential Design Codes, being development of permanent accommodation for people, and may include all dwellings, the residential component of mixed-use development, and residential buildings proposing permanent accommodation.

**“Target Noise Level”** is the level of noise set by the SPP 5.4 as an acceptable level of outdoor noise for noise sensitive development in proximity to road and rail infrastructure. If a noise-sensitive development takes place in an area where outdoor noise levels meet the Noise Target, no attenuation measures are required.

---

## 3.0 ACOUSTIC REPORTS

The purpose of an Acoustic Report is to assess the noise environment either affecting a proposed development, or affected by a development. It may also demonstrate how the proposed development will be designed, constructed or otherwise managed, so as to minimise the effects of noise emissions from a development and/or noise intrusion upon a development.

### 3.1 Who can help me with preparing an Acoustic Report?

The report must be prepared by an Acoustic Consultant with relevant qualifications and experience. They or their organisation should be a member of one of the following professional bodies;

- Australian Acoustical Society – refer to the webpage: [www.acoustics.asn.au](http://www.acoustics.asn.au); or
- Association of Australian Acoustical Consultants – refer to the webpage: [www.aaac.org.au/](http://www.aaac.org.au/).

An Acoustic Report may not be accepted in the absence of proof of membership, at the City's discretion.

### 3.2 When must I submit an Acoustic Report?

The acoustic report must be submitted at the earliest planning stage for a development, in accordance with the City of Cockburn's Noise Attenuation Policy. Notwithstanding this, an Acoustic Report may be requested after initial assessment of a proposal by the City's Officers.

Further Acoustic Reports may be required as a condition of Development Approval to ensure that appropriate noise mitigation measures are implemented as the development proceeds, including prior to the submission of the Building Permit Application. Further supporting information may also be required to demonstrate that the completed development complies with the requirements of the Acoustic Report, with the Building Permit Application, the BA7 Building Completion Form or the BA15 Building Approval Certificate Strata.

*Applicants may contact the City for further clarification in determining whether an Acoustic Report is required, prior to the submission of a Development Application.*

### 3.3 What must the Acoustic Report contain?

The Acoustic Report must address all matters necessary to demonstrate that the outcomes for reporting have been achieved as detailed by these Guidelines, to the City's satisfaction.

The Acoustic Report should identify the name and qualification/experience of the person preparing the report and include a description of the project with a suitably detailed site map. Details of

---

noise measurements and predictions, as well as the criteria of the assessment and the assessed sources of noise should be clearly identified in the Acoustic Report. Proposed treatment solutions should be clearly identified.

### 3.4 What criteria should the Acoustic Report address?

The following minimum standards shall be applied as the relevant reference criteria upon which the Acoustic Report is to be prepared:

#### Noise Intrusion (Noise Sensitive Development)

1. Noise sensitive developments are to be designed to achieve the following sound levels:
  - (a)  $L_{eq}$  35 dB(A) in sleeping areas (bedrooms); and
  - (b)  $L_{eq}$  40 dB(A) in living/work areas and other habitable rooms.

**IMPORTANT NOTE:**

*The  $L_{eq}$  level should not be unduly biased toward the lower frequencies of the octave band spectrum. If lower frequencies are dominant in sound levels taken during the sampling phase of reporting (below 200Hz or a 15-20dB difference between  $L_A$  and  $L_C$  levels), the Acoustic Consultant shall discuss the findings with the City in developing appropriate solutions to ensure that low frequency noise is appropriately attenuated, prior to the submission of the final Acoustic Report.*

2. For all other developments, noise intrusion is to be controlled to achieve the indoor design sound levels for buildings as set out in *Australian Standard AS/NZS2107: "Acoustics - Recommended Design Sound Levels and Reverberation Times for Building Interiors"*.
3. For noise sensitive developments in close proximity to road and rail infrastructure, the report must address the requirements of SPP 5.4, including the requirement for a reasonable degree of acoustic amenity in at least one outdoor living area.
4. For noise sensitive developments in close proximity to freight rail infrastructure or other sources of vibration, the Acoustic Report should also address ground-borne vibration levels to ensure that occupants of the development are not exposed to an unacceptable level of vibration. The report should make reference to:
  - (a) Australian Standard 2670.2-1990 "*Evaluation of human exposure to whole-body vibration; Part 2: Continuous and shock induced vibration in buildings (1 to 80 Hz)*"
  - (b) ISO 2631-2:2003 "*Evaluation of human exposure to whole-body vibration Part 2: Vibration in buildings (1 Hz to 80 Hz)*";
  - (c) British Standard BS6472-2008: "*Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz)*".

- 
5. Residential developments are to be constructed to meet the requirements of the *National Construction Code* (as amended) and the *Building Code of Australia* Part F5 (as amended).

### **Noise Emissions (All Developments)**

6. Noise emissions from all developments including freight handling facilities, are to comply with the “Assigned Levels” as detailed in the Noise Regulations.
7. New road or rail infrastructure or proposed freight handling facilities subject to a Planning Approval by the City, must also address the relevant requirements of SPP 5.4.

### **3.5 What will happen if the Acoustic Report submitted does not follow these Guidelines?**

It is likely that delays will result in the Application Process (Development Application or Building Permit Application) until a report addressing the City’s concerns is submitted, or the City may refuse your application.

**IMPORTANT NOTE:**

*Acoustic Reports may be submitted by the City to the Department of Environment Regulation’s Noise Branch for comment or to another Acoustic Consultant for peer review, at the City’s discretion.*

---

## 4.0 NOISE SOURCE IDENTIFICATION

Acoustic reports must identify all noise sources relevant to a development, including those which may require detailed assessment at a later stage. Ambient environmental noise sources that are relevant within the City of Cockburn include the following:

### 4.1 Noise from Road, Rail and Freight Infrastructure

Major roads and railways contribute to the ambient environmental noise of an area, and can cause health and amenity impacts to noise sensitive receivers. The Applicant is to ensure that the Acoustic Report accompanying the Development Application demonstrates compliance with the requirements of SPP 5.4 and the associated Implementation Guidelines.

Appendix A shows some of the Major Roads (identified as Primary, District and Regional Distributor Roads in accordance with the Main Road WA's road hierarchy) and freight rail lines within the City of Cockburn. This may assist Applicants to identify roads in the vicinity of their development which may be a source of noise. Applicants should seek advice on future traffic counts of nearby major roads as well as seeking advice on future roads which may be proposed in the vicinity of the proposed development.

Acoustic reports must address the projected future traffic counts and freight rail movements under SPP 5.4. Future traffic counts for many of the City's Major Roads may be obtained from the City's Engineering Section or from Main Roads WA.

**IMPORTANT NOTE:**

*In relation to noise from freight rail lines, State Planning Policy 5.4 requires compliance with a  $L_{Aeq(night)}$  target of  $50dB_{(A)}$  for the 8 hours period between 10pm and 6am. It is however strongly recommended that a  $L_{Aeq}$  noise emission of a single train pass (for instance a  $L_{Aeq(120sec)}$  or similar) be used to determine noise attenuation requirements, in order to ensure that residential amenity is adequately protected, particularly with regard to sleeping areas*

Final details of proposed noise and vibration attenuation measures must be provided to the satisfaction of the City either:

1. PRIOR to the submission of the Building Permit Application for Development Applications; or
2. PRIOR to the determination of the Structure Plan, Subdivision Application or Subdivision Clearance.

Where ground borne vibration or low frequency noise are identified as a concern (such as in association with the freight rail lines) the Acoustic Report must clearly identify low frequency noise, ground borne vibration and air borne vibration levels.

---

**IMPORTANT NOTE:**

*Where a noise sensitive development is subject to the noise levels exceeding the Target, noise attenuation measures must be implemented to provide suitably attenuated indoor and outdoor living areas. SPP 5.4 identifies that the design of a development proposal should aim for external noise levels to achieve compliance with the target, and that a reasonable degree of acoustic amenity should be provided to at least one outdoor living area on each lot.*

*The City would further suggest that where land is found to be exposed to a noise level in excess of  $L_{Aeq}$  65dB, consideration should be given to the use of non-noise sensitive land uses, multiple dwellings or apartment developments to screen any noise sensitive development beyond. A combination of external noise mitigation such as screening developments, noise walls, earth berms and other development design solutions, may be necessary to ensure that external noise levels are effectively reduced.*

*An absence of external noise mitigation, where noise levels significantly exceed the Noise Limit imposed by SPP 5.4, can result in a significant cost burden to prospective home purchasers where Quiet House Design Treatment Packages are necessary to achieve compliance with the internal noise levels for noise sensitive areas.*

## **4.2 Breakout and Street Noise**

Developments that accommodate or are in close proximity to lifestyle uses such as marinas, cafes, restaurants, shops, hotels and entertainment venues such as small bars, nightclubs, are integral to the vitality and enjoyment of town centre and intense mixed use community areas. Outdoor eating areas associated with hotels, cafés and restaurants can also be a major source of breakout noise.

Urban locations containing a mix of lifestyle uses contribute to the vitality of an area and are characterised by increased levels of pedestrian activity. This noise may include movement to and from different establishments, persons getting into and out of parked cars, and occasional anti-social behaviour, and can contribute significantly to general ambient environmental noise (particularly when this occurs late at night), impacting on the amenity of residential premises.

The Applicant is to ensure that the Acoustic Report:

1. Identifies all breakout noise sources that are likely to impact on sound levels received at the subject property, and in particular those noise sources within a 100m radius;
2. Provides comment on the likely amenity impact of all localised street noise sources (factors such as proximity to local business districts, late night venues, setbacks from footpaths and proximity to schools which may be adversely affected by noise emissions shall be considered); and

- 
3. Specifies sound levels recorded at the property during time periods that correspond to related breakout noise sources or peak periods of street noise; for example:
    - a) Nightclubs to be monitored during hours of operation after 10.00pm at night on a Friday or Saturday;
    - b) Cafes and Outdoor Eating Areas to be monitored during peak trade periods;
    - c) Street and Background Noise to be monitored during peak periods;
    - d) Locations near sports grounds and stadiums are to be monitored during periods of normal use; particularly when used at capacity (where practicable).
  4. Addresses the character of noise sources in terms of frequency analysis, and in particular identifies whether low frequency noise is present (minimum of octave bands to be provided).
  5. Thereafter, provides comment on practical building design solutions to minimise the impact of such noise sources.
  6. For noise sensitive land uses, mixed use or multistorey residential developments within intense mixed use community areas such as Cockburn Coast, Port Coogee, Muriel Court, Cockburn Central Town Centre and Cockburn Central West (as identified in Appendix A), where potential sources of break out noise are not yet present, the applicant is to liaise with the City for guidance on determining potential noise sources, potential street and break out noise levels for the modelling of potential noise impacts.

**IMPORTANT NOTE:**

*Standardised theoretical sound level limits should not be used for calculation purposes, unless such use is absolutely necessary due to noise sources (to be modelled) occurring so infrequently that performing measurements on-site is impractical, or where potential noise sources are not yet present.*

### **4.3 Mechanical Plant and Equipment**

The mechanical plant associated with a development will vary widely from development to development. The Acoustic Report is to comment on:

1. the likely impact of mechanical plant and equipment noise sources (such as air conditioners, traffic gates, exhaust systems);
2. practical building design solutions that could be implemented to minimise the impact of existing mechanical plant and equipment noise sources; and
3. the proposed location of all mechanical plant and equipment at the development site; and provide details of how noise emissions from these sources will be contained, so as not to create unwanted sound at nearby properties.



---

**IMPORTANT NOTE:**

*Noise from mechanical equipment used in emergency situations which are an integral part of the development (for instance fire pumps, smoke exhaust fans and the like) must comply with the assigned levels.*

*Where it is determined that compliance may not be achieved, the Acoustic Consultant shall discuss the findings with the City in developing appropriate solutions and must be able to demonstrate that all practicable and reasonable measures will be implemented to minimise the noise impact onto nearby receivers to ensure that the noise is appropriately attenuated, prior to the submission of the final Acoustic Report. However, where regular testing of emergency plant is necessary in close proximity to noise sensitive developments, noise emissions associated with these testing requirements must comply with the relevant standards.*

Applicants for activities which may be a source of noise, are to detail anticipated noise levels from increased vehicular traffic as a result of the development (truck movements, reversing beepers, car doors slamming etc) as part of the development application. Where noise from an activity exceeds, or significantly contributes to, a noise level that exceeds the assigned levels, a Noise Management Plan must be provided demonstrating how noise levels will be suitably attenuated and any potential amenity impact minimised.

#### **4.4 Co-existing Land Uses**

Whilst it is important to ensure that a proposed development is designed to reasonably negate external/existing noise sources from impacting on noise sensitive areas within the proposed development, it is equally important that a development is designed to ensure that internal noise sources do not impact on surrounding existing or future land uses.

In some instances, pre-existing non-conforming uses may remain in close proximity to proposed noise sensitive development. Where a noise sensitive development is proposed in the vicinity of a pre-existing commercial or industrial land use, the Applicant must provide an Acoustic Report demonstrating noise attenuation suitable to achieve compliance with these Guidelines.

#### **4.5 Noise Sensitive Developments in Proximity to Jandakot Airport**

The Jandakot Airport is the principal general aviation airport in Western Australia. Aircraft training movements can have a substantial effect on the amenity of surrounding noise sensitive land uses, due to the frequency of noise events and the inability to screen aircraft noise emissions from reaching affected parties on the ground.

---

SPP 4.1, SPP 5.3 and Draft SPP 5.3 aim to address the amenity impacts associated with noise sensitive development in the vicinity of the Jandakot Airport and to protect the Airport from encroachment by incompatible development. Applicants for noise sensitive development within both the Core Area and Frame Area for Jandakot Airport (as identified in Appendix A), are to provide an Acoustic Report to the City addressing noise intrusion to residential developments.

In particular, the Acoustic Report is to address compliance with SPP 5.3 and Draft SPP 5.3. The Report should also address noise attenuation measures necessary to ensure that noise sensitive development complies with the requirements of the Western Australian Planning Commission publication "*Aircraft Noise Insulation for Residential Development in the Vicinity of Perth Airport*" 2004.

A condition requiring the Applicant to place a Notification under Section 165 of the Planning and Development Act on the Certificate of Title will be required for all noise sensitive development sites subject of a subdivision or development application within the Core and Frame areas. The wording of the Notification must be consistent with the wording provided in Draft SPP 5.3.

**IMPORTANT NOTE:**

*In relation to noise from general aviation aircraft movements from Jandakot Airport, much of the Frame area identified by State Planning Policy 5.3 falls within the area identified by the "Noise Above Contours" identified by the Jandakot Airport Master Plan corresponding with:*

- a. 20 or more daily events greater than 70 dB(A);
- b. 50 or more daily events of greater than 65 dB(A);
- c. 100 events or more daily events of greater than 60 dB(A); or
- d. 6 or more events of greater than 60 dB(A) between the hours of 11pm and 6 am

*Consideration of the noise impacts based on the Noise Above Contours is consistent with the Federal Department of Infrastructure and Regional Development's National Airports Safeguarding Framework.*

*Consideration should be given to noise attenuation for noise sensitive premises within the Frame area corresponding to the requirements of Western Australian Planning Commission publication "*Aircraft Noise Insulation for Residential Development in the Vicinity of Perth Airport*" 2004 (such as the installation of 6.38mm laminated glazing), in order to ensure that residential amenity is adequately protected within noise sensitive developments.*

---

## 5.0 NOISE TREATMENT SOLUTIONS

The aim of applying noise treatments is to provide appropriate opportunities for rest and respite within noise sensitive premises (where people rest and sleep) and to allow a multitude of diverse land uses to co-exist.

### 5.1 Development Planning and Design

After having identified all of the relevant noise sources outlined in Section 4.0, it will now be possible for the design team to informatively consider the use of design techniques to attenuate the noise sources identified. Seeking the advice of an acoustic consultant at the earliest planning stage provides opportunities for the applicant to accommodate a variety of potential noise solutions. The consideration of noise attenuation during design of a development can minimise or reduce construction costs associated with the application of noise attenuation methods.

When considering the land use planning strategies, the following hierarchy of controls is suggested:

1. Increasing the distance between noise sources and noise sensitive premises;
2. Using zoning mechanisms to limit the potential for land use conflict;
3. The use of buildings, barriers, walls and bunds as shields or similar acoustic design principals;
4. The use of quiet house design.

Obtaining suitable advice at the design stage can combine these strategies to take site specific features and characteristics into account at the initial design phase.

*Where final lot levels have not been determined at the time of a Subdivision Application, a draft Noise Management Plan based on estimated or existing lot levels must be provided to demonstrate that compliance with the relevant requirements can be achieved.*

To effectively implement a Noise Management Plan, a Local Development Plan may be necessary to control construction materials and methods for individual lots. Arrangements should be made to ensure that prospective purchasers are made aware of noise attenuation requirements. The use of a Notification under Section 165 of the Planning and Development Act on the Certificate of Title may also be necessary to inform prospective purchasers of noise requirements and potential amenity impacts.

It is suggested that the following factors to be considered in the design of a development:

1. the noise sources identified in Section 4;

- 
2. development orientation and layout, considering existing/potential noise sources;
  3. the location where practicable of bedrooms, habitable rooms, balconies and windows away from external noise sources;
  4. the location and size of windows - all windows must comply with the requirements of the National Construction Code and the Building Code of Australia (as amended) by being a minimum of 10% of the floor area of the room, with 5% floor area for ventilation, or other methods accepted under the National Construction Code);
  5. the use of building design elements to reduce the noise impact on windows;
  6. Fire Management Plan requirements – Consider whether the development is subject to Bushfire Management requirements under the *National Construction Code*, local planning or other legislation. Design requirements imposed under AS 3959-2009 for the appropriate Bushfire Attack Level should also be considered in the development design.

The Applicant is to ensure that the Acoustic Consultant's recommendations have been incorporated into the development design and documentation.

## 5.2 Construction Methods and Materials

Prior to submission of the Building Permit Application, the Acoustic Report detailing all relevant sources of noise, and final design specifications and structural methods by which noise will be attenuated to comply with the relevant standards must be submitted to the City.

### **IMPORTANT NOTE:**

All buildings and structures are to comply with the relevant fire rating and noise attenuation requirements as set out in the *National Construction Code* (as amended) and the *Building Code of Australia* (as amended). Acoustic attenuation methods shall not compromise the safety or structural integrity of the development.

### **Noise Insulation (Protection against noise intrusion)**

- **Windows:** consider window size and location; selection of fixed panels or operable windows; use of heavyweight or thicker glass, double glazing and laminated glazing; window frame type and window seal construction; and specific acoustic performance requirements.
- **Walls:** consider construction/product detail for walls requiring higher acoustic performance (brick, stud, concrete tilt panel, rammed earth); acoustic attenuation for exhaust vents, conduits and piping through walls; and requirements for external doors, including the door construction (solid timber, laminated glazing or double glazing), frame construction and application of door seals.

---

**IMPORTANT NOTE:**

*Where stud wall construction is proposed, evidence should be provided to demonstrate that low frequency sound, regenerated noise, airborne and ground borne vibration will be suitably attenuated. Detail of the recommended construction façade is to demonstrate suitable attenuation where these characteristics are identified, by favouring solutions with high  $Rw+Ctr$  acoustic rating in lieu of construction with high  $Rw$  only*

- **Roof and Ceiling:** consider the selection of roof; specific acoustic requirements for sealing of roof (such as use of sark or anticon insulation); upgraded acoustic performance for ceilings; closing, sealing or elimination of eaves; and insulation of ceiling voids.
- **Ventilation:** consider the potential for noise intrusion from ventilation services (such as service ducts or commercial exhaust systems) to enter into noise sensitive areas through walls and ceilings; attenuation of service ducts and all air paths, such as through ducts to the exterior, suitably attenuate low frequency noise and vibration.

**Noise Emission Mitigation Measures**

- The “assigned levels” detailed in the EPRs must be complied with in relation to noise generated/emitted from the premises. Applicants are encouraged to consider design and construction measures that are tailored specific to the problematic noise characteristics identified with that development.

## 6.0 DOCUMENT REQUIREMENTS FOR ACOUSTIC COMPLIANCE

**IMPORTANT NOTE:**

*The earlier in the development process that sound attenuation/treatment solutions are considered, the better the outcomes will likely be, from a cost and effectiveness perspective*

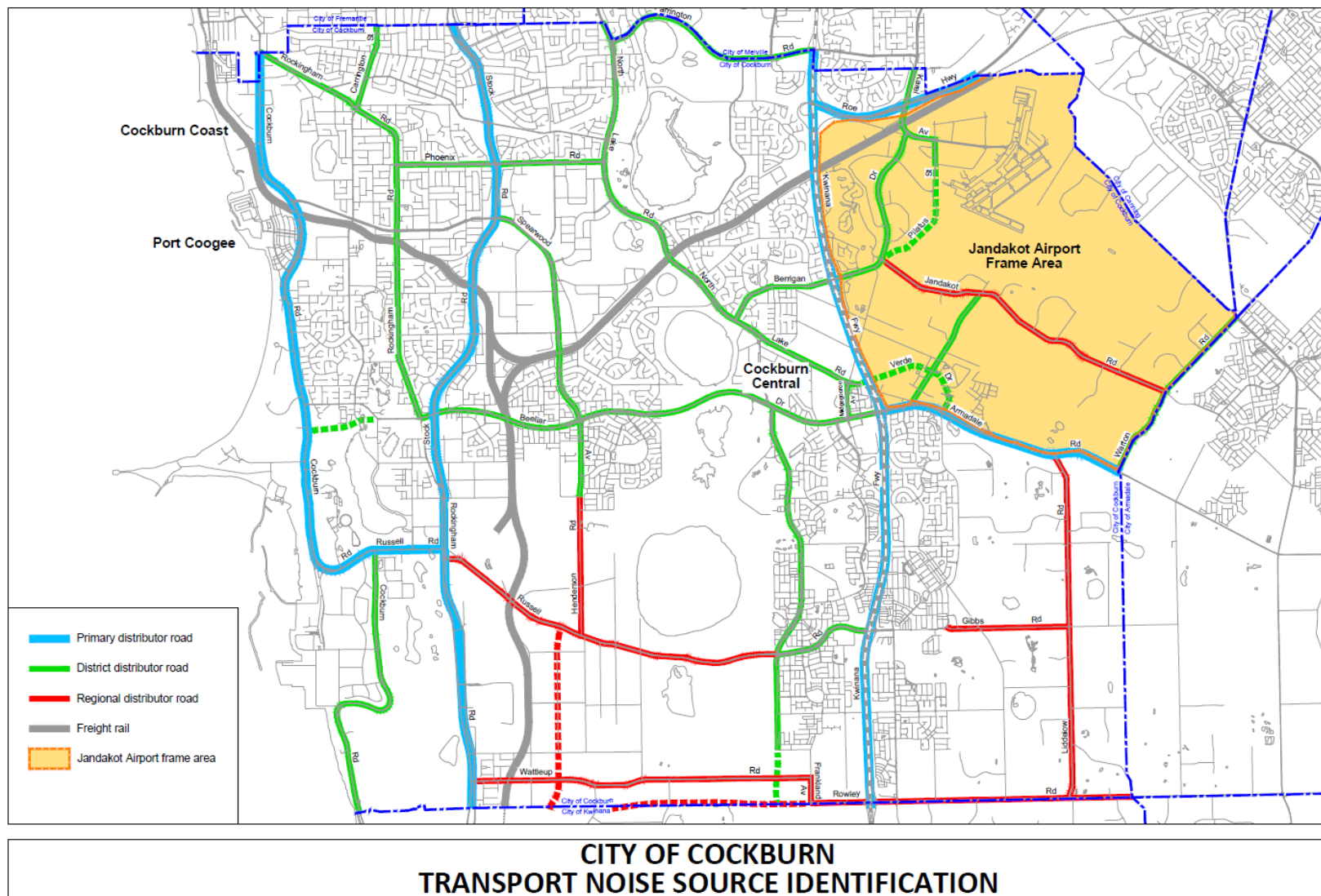
Where a planning application is received for which there has been no prior Noise Impact Assessment conducted, it should be supported by an acoustic report which also addresses the requirements of the preceding stage. Similarly, where a Noise Impact Assessment of sufficient detail has been provided at an earlier stage, it may be used at the stages following until a Noise Management Plan is required in the final subdivision and development application stages.

Development Stage	Type of Acoustic Report
<b>STRUCTURE PLANNING</b>	
District Structure Plan or Local Structure Plan	<ul style="list-style-type: none"> <li>• A Structure Plan must be supported by either a Screening Assessment or a detailed Noise Impact Assessment where it is affected by proximity to road or rail infrastructure, Jandakot Airport or an existing commercial or industrial zoning, as identified in Section 3 of these Guidelines.</li> <li>• The Noise Impact Assessment should include sufficient detail to demonstrate that the design of the proposed development can comply with the relevant requirements to protect proposed noise sensitive premises from excessive noise. Modelling of existing and/or future noise levels is required with detail of the anticipated noise management measures.</li> </ul>
<b>SUBDIVISION</b>	
Subdivision Application	<ul style="list-style-type: none"> <li>• <i>Where a previous Noise Impact Assessment has been approved by the City:</i> The Subdivision Application must be supported by a Noise Management Plan demonstrating how the design of the proposed development will protect the proposed noise sensitive premises from excessive noise.</li> <li>or</li> <li>• <i>Where there has been no prior Noise Impact Assessment approved by the City:</i> The Subdivision Application should be supported by either a Screening Noise Assessment (to demonstrate compliance with the Target levels imposed under SPP 5.4) or a Noise Impact Assessment including a Noise Management Plan.</li> <li>• Where it is not possible for modelling to reference the final</li> </ul>

Development Stage	Type of Acoustic Report
	lot levels, the City would request that a draft Noise Management Plan be provided (or included within the Noise Impact Assessment) referencing the existing or estimated ground levels. This must then be confirmed by a final Noise Management Plan addressing finished lot levels and confirming final noise attenuation requirements for the development.
Local Development Plan	<ul style="list-style-type: none"> <li>This should implement the requirements of the Noise Management Plan for the development.</li> </ul>
Subdivision (Clearance)	<ul style="list-style-type: none"> <li>Compliance with all recommendations of the Noise Management Plan must be demonstrated and measures implemented to enable the City to apply requirements to future land holders, for a condition requiring compliance with a Noise Management Plan to be cleared by the City.</li> </ul>
<b>DEVELOPMENT</b>	
Development Application– including Joint Development Assessment Panels	<ul style="list-style-type: none"> <li>Development Applications for which there are concerns regarding potential noise impacts as a result of proximity to road or rail infrastructure, Jandakot Airport or an existing commercial or industrial zoning as identified in Section 3 of these Guidelines, must be supported by a Noise Management Plan. or</li> <li>Where a Development Application is required within a subdivision for which there was an earlier Acoustic Report and the Development Application proposes to either: <ul style="list-style-type: none"> <li>Vary the requirements of the preceding Acoustic Report; or</li> <li>The preceding Acoustic Report was/is not suitably detailed;</li> </ul> the Development Application must be accompanied by a new Noise Management Plan for that development.</li> </ul>
<p><b>NOTE:</b>  <i>All buildings and structures are to comply with the relevant fire rating and Building Code of Australia requirements. Acoustic attenuation methods shall not compromise the safety or structural integrity of the development.</i></p>	
<b>CONSTRUCTION</b>	
Prior to the Building Permit Application being submitted (as a condition of Development Approval)	<ul style="list-style-type: none"> <li>Where required by the Development Approval, an Acoustic Report is to be provided PRIOR to submission of the Building Permit Application. The Acoustic Report is to detail final design specifications and structural methods by which noise will be attenuated to comply with the relevant requirements.</li> </ul>

Development Stage	Type of Acoustic Report
Building Permit Application	<ul style="list-style-type: none"> <li>The Building Permit Application is to be accompanied by written confirmation that the plans and supporting documents comply with the relevant Acoustic Report(s).</li> </ul>
Building Permit Application <i>(subject to compliance with a DAP)</i>	<ul style="list-style-type: none"> <li>The Plans accompanying the Building Permit Application are to clearly demonstrate that all Noise Management requirements imposed by the Local Development Plan have been included in the structure of the dwelling, including the provision of mechanical ventilation/air conditioning where required.</li> </ul>
Building Occupancy or Strata Approval Certificates	<ul style="list-style-type: none"> <li>The Form BA7 Notice of Completion or Form BA15 Building Approval Certificate Strata should be accompanied by written confirmation from the Builder to demonstrate that all requirements of the relevant Acoustic Report(s) were incorporated into the completed development. or</li> <li>Where required by a Condition of Development Approval, the City may require the Builder to provide with the Form BA7 Notice of Completion written confirmation from an acoustic consultant that the building complies with the requirements of the acoustic report or that a final assessment of the completed development has been completed.</li> </ul>





Transport Noise Source Identification as at April 2015