



**ENVIRONMENTAL MANAGEMENT SYSTEM**  
**Environmental Management Standard**  
**EMS/STD/46/004**

---

**CODE OF PRACTICE –  
RAILWAY NOISE MANAGEMENT**

---

<b>Version</b>	Version 2
<b>Version Date</b>	November 2007
<b>Review Date</b>	November 2012
<b>Lead Agent</b>	Manager Environmental Strategy

**Controlled Copy No.**

For further information on this Code of Practice contact the Manager, Environment Strategy. Phone Rail 81 1414 External (07) 3235 1414.

## Revision History

<b>Date</b>	<b>Version</b>	<b>Author</b>	<b>Description</b>
December 1999	Version 1	A. Ramsden	The Code of Practice for Railway Noise Management is this standard
November 2007	Version 2	A Ramsden	Incorporates 2 <sup>nd</sup> anniversary review comments



---

**CODE OF PRACTICE -  
RAILWAY NOISE MANAGEMENT**

---

<b>Version</b>	Version 2
<b>Version Date</b>	November 2007
<b>Review Date</b>	November 2012
<b>Lead Agent</b>	Manager Environmental Strategy

**Controlled Copy No.**

For further information on this Code of Practice for Railway Noise Management contact the Manager, Environmental Strategy, QR.

Phone (07) 3235 1414  
(Rail) 81 1414

## TABLE OF CONTENTS

1.	NATURE AND PURPOSE OF CODE OF PRACTICE	1
2.	SCOPE	1
3.	ROLE AND FUNCTION OF QR	2
4.	QR AND ENVIRONMENTAL MANAGEMENT	2
4.1	Noise Management – Policy and Direction	2
4.2	QR and the Environmental Protection (Noise) Policy 1997 ("EPP Noise") – Planning Levels	3
4.3	QR's Interim Levels	5
4.4	QR's Network Noise Management Plan ("NNMP")	5
5.	NOISE REDUCTION FOR EXISTING RAILWAY ACTIVITIES	8
5.1	Existing Rollingstock	11
5.2	New Rollingstock	11
5.3	Stations	12
5.4	Horns and Other Warning Devices	12
5.5	Fixed Facilities	13
6.	CHANGES TO EXISTING INFRASTRUCTURE OR OPERATIONS	15
6.1	Changes to Existing Infrastructure	15
6.2	Changes to Existing Operations	16
7.	NEW CORRIDORS AND FIXED FACILITIES	17
7.1	New Corridors	17
7.2	New Fixed Facilities	18
8.	CONSTRUCTION AND MAINTENANCE RAILWAY ACTIVITIES	20
8.1	Construction	20
8.2	Maintenance	21
9.	LAND USE PLANNING AROUND RAILWAYS	23
10.	COMPLAINTS AND DISPUTE RESOLUTION	25
11.	MONITORING AND REPORTING	26
12.	DEFINITIONS	26
	APPENDIX A (NETWORK NOISE MANAGEMENT PLAN PRIORITISATION PROCESS)	29

## **1. NATURE AND PURPOSE OF CODE OF PRACTICE**

A Code of Practice, in general terms, is a self-imposed set of rules for carrying out a specified activity. Under the Environmental Protection Act 1994, the Minister for Sustainability, Climate Change and Innovation may approve a Code of Practice as stating ways of achieving compliance with the General Environmental Duty for any activity that causes or is likely to cause Environmental Harm.

All Queenslanders have a General Environmental Duty to take all reasonable and practicable measures to prevent or minimise Environmental Harm. Essentially this means exercising appropriate due diligence. Compliance with the General Environmental Duty is a defence to any charge of unlawfully causing Environmental Harm under the Environmental Protection Act.

Environmental Harm is any adverse effect, or potential adverse effect, (whether temporary or permanent and of whatever magnitude, duration or frequency) on an Environmental Value and includes Environmental Nuisance.

An Environmental Value is a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety.

Noise can cause Environmental Harm, called Environmental Nuisance in the Environmental Protection Act. QR intends to meet its General Environmental Duty with respect to noise by implementing this Code of Practice.

The purpose of this Code of Practice is therefore to provide a means by which QR can demonstrate it is taking all reasonable and practicable measures to minimise unreasonable interference with the acoustic amenity of neighbouring noise-sensitive communities (“Unreasonable Noise”) from its Railways and Railway Activities and thereby achieve compliance with the General Environmental Duty under the Environmental Protection Act.

## **2. SCOPE**

It is intended this Code of Practice for Railway Noise Management (“the Code”) applies to all QR Railways and Railway Activities in Queensland. It is also intended to be available to third parties operating train services on QR infrastructure to the extent that its terms are reasonably applicable to those operators.

### **3. ROLE AND FUNCTION OF QR**

QR is a Company GOC (“GOC”) created and operated pursuant to the Government Owned Corporations Amendments Act 2007.

QR owns a range of above and below rail infrastructure in Queensland and undertakes various activities to support a number of freight and passenger transport operations throughout the State. This includes Corridors, Fixed Facilities and Environmentally Relevant Activities for which QR holds Development Approvals from time to time. QR Railway Activities are a 24 hour operation.

As a GOC, QR is also subject to the Queensland Competition Authority Act 1997 and is required to provide access to its infrastructure by third party operators on agreed terms and conditions.

The Environmental Protection (Noise) Policy 1997 recognises a railway as a Beneficial Asset which is necessary for the community’s environmental, social and economic well-being.

### **4. QR AND ENVIRONMENTAL MANAGEMENT**

#### **4.1 Noise Management – Policy and Direction**

QR conducts various activities which are Environmentally Relevant Activities as defined by the Environmental Protection Regulation 1998 and for which it holds Development Approvals and operator registration certificates under the Integrated Planning Act 1998. In addition, QR is mindful of its environmental responsibilities imposed by other provisions of the Environmental Protection Act and Environmental Protection Policies created under that Act. QR’s policy on environmental responsibilities is to manage all activities and services to minimise the impact on the environment and to meet legal, social and moral obligations.

It is possible the policy may alter from time to time. However it will be implemented through a series of Environmental Objectives and Targets which address a range of areas. QR has an objective to minimise any unreasonable noise from our activities.

As with other major transport modes, railways are a source of environmental noise. The impact of this noise is most significant in areas where railways pass adjacent to residential and other noise sensitive properties. QR recognises that while its principal function is to provide an effective transport network, it also has obligations to its immediate neighbours and the local community to

do the best it reasonably can to control any Unreasonable Noise from its activities.

### 4.2 QR and the Environmental Protection (Noise) Policy 1997 (“EPP Noise”) – Planning Levels

The balancing of the community’s need for efficient transport systems with the need to manage the impacts of that system is given formal recognition in the EPP Noise in which a railway is described as a Beneficial Asset.

The EPP Noise recognises that:

*“Although the operation or use of Beneficial Assets may have significantly adverse effects on the Environmental Values, they are necessary for the community’s environmental, social and economic wellbeing.*

*However, it is intended that, so far as practicable, any significantly adverse effects from their use or operation be progressively reduced.”*

Generally, the EPP Noise provides guidance on the reduction of Unreasonable Noise

The EPP Noise nominates “Planning Levels” for a Beneficial Asset such as a railway which may be used as a guide in deciding a reasonable noise level for its use or operation. The EPP Noise recognises however that those levels may not be appropriate for an older railway. It envisages that it may be reasonable to apply the levels only in the long-term to allow time to progressively reduce any significantly adverse effects on the Environmental Values from its activities. The Planning Levels are as follows:

- 65dB(A), assessed as the 24 hour average equivalent continuous A-weighted sound pressure level
- 87dB(A) assessed as a Single Event Maximum Sound Pressure Level.

These levels are to be assessed 1 metre in front of the most exposed part of an affected Noise Sensitive Place.

### 4.3 QR's Interim Levels

Our Interim Levels play an important role in determining priorities for implementation under our Network Noise Management Plan (NNMP)

As Appendix A shows, the number of Noise Sensitive Places exceeding the Interim Levels are given higher weighting value than the number exceeding the Planning Levels for a given area. This further assists in providing fair and equitable priorities for noise reduction implementation across our network and activities

In areas where QR cannot achieve compliance with the Planning Levels, QR will strive to ensure compliance with at least, the Interim Levels at these particular Noise-Sensitive places as far as reasonably practicable. In these cases, QR will also endeavour to continue progressively working towards meeting the Planning Levels in the longer term.

QR's nominated Interim Levels are as follows:

- 70dB(A), assessed as the 24 hour average equivalent continuous A weighted sound pressure level;
- 95dB(A) assessed as a Single Event Maximum Sound Pressure Level.

These levels are to be assessed 1 metre in front of the most exposed part of an affected Noise Sensitive Place.

### 4.4 QR's Network Noise Management Plan ("NNMP")

#### Implementation

QR shall implement the NNMP via the detailed work schedules developed during Phase 4 of the NNMP methodology. Details on how the priorities for implementation contained in these detailed work schedules were determined have been described in Appendix A.

Prior to implementation of reduction measures at any site, QR shall:

- perform a complete review of base data and model assumptions to ensure the validity of the data and suitability of the proposed reduction technique;
- initiate a community consultation process with the residents likely to be affected by the proposed reduction measures;
- consider the issues raised during the consultation before finalising the treatment.

All designs of noise reduction measures shall be viewed as draft until all issues associated with the review of base data, model assumptions and community consultation have been finalised.

QR will investigate the feasibility of source-based reduction measures. Chapter 5 (Noise Reduction for Existing Railway Activities) outlines the principal measures QR will employ, where reasonable and practicable, as a means of managing noise from existing Railway Activities.

Due to operational and technical constraints, noise barriers are often used to manage noise from Railway Activities. QR recognises that the height of noise barriers needed to limit the noise levels to the planning levels may not be acceptable to all residents.

In such cases, QR will consider revising the design to accommodate as many needs as possible of directly affected residents. The objective would be to ensure compliance with legislative obligations in a manner which minimises adverse impacts on urban amenity.

The noise barrier structure (not including retaining walls, earth mounds etc.) will be a maximum of six metres in height.

### Monitoring and Review

QR shall monitor and review the implementation of the NNMP by:

- representative testing that noise levels after the implementation of reduction measures are as predicted.
- reviewing Management Units that have experienced significant change since the original assessment (e.g. via a Major Upgrade or Change in Operations);
- performing periodic reviews (nominally 5 years) of all Management Units, base data and model; and
- reviewing the priority of Management Units.

### New Noise Sensitive Developments

In developing, implementing, monitoring and reviewing the NNMP, QR applies a test of reasonableness to its decisions, which generally considers the following issues:

- The level of noise that people are subject to in dB(A), relative to the single event maximum and  $L_{Aeq}$  (24 hour) planning levels;
- The change in noise levels over time;
- Noise reduction benefits;
- Effective life of noise management measures;
- Opinions of affected residents;
- The relative feasibility of management options;
- Effects on visual amenity;
- Cost effectiveness of proposed measures;
- Other social, economic, environmental, legal and technical factors;
- Date when noise sensitive development appeared near the rail corridor and;
- Whether the affected noise sensitive development has been assessed and managed through other regulatory approval processes (e.g. local government development approvals).

QR places greater priority on Existing Noise Sensitive Places. This is to be fair and equitable to those places that have been exposed to noise levels above Planning Levels for a decade or more.

Local governments and concurrence agencies have been and are progressively placing noise-related conditions on New Noise Sensitive Developments near rail lines in Queensland.

Such conditions are designed to ensure noise levels at New Noise Sensitive Developments meet or better the planning levels. Therefore if the New Noise Sensitive Development complies with their noise-related conditions, they will comply with QR's and EPP (Noise) Planning Levels. Consequently and all these things being equal, QR would not expect to consider these new developments in the NNMP program.

In the event it was found the New Noise Sensitive Developments were/are not appropriately conditioned, these developments may be considered in future programs and reviews. Due to the duration of noise exposure for New Noise Sensitive Development being relatively short compared to that of existing residents, these New Noise Sensitive Developments will be assigned the lowest priority for implementation in the NNMP program.

Practically, this means that any noise reduction measures that could be required to achieve the Planning Levels at a New Noise Sensitive Development are unlikely to be implemented in the current (typically, 6 years long) funded program.

### 5. NOISE REDUCTION FOR EXISTING RAILWAY ACTIVITIES

This chapter of the Code applies to all existing Railway Activities (including Environmentally Relevant Activities for which QR holds Development Approvals). The methodology outlined for the NNMP in Section 4.4 of the Code will apply to the assessment of all existing Railway Activities with the exception of stations, horns and other warning devices where reasonable and practical reduction measures will be addressed on a site by site basis.

It is acknowledged that the Interim and Planning Levels will not be achieved immediately for some areas of existing activities, notwithstanding the implementation of the reasonable and practical measures recommended in the NNMP. Where the NNMP has identified such cases, QR shall develop a noise management plan specific to the site and/or activity to manage its noise emissions where this is reasonable and practical.

The specific site noise management plan shall consider the implementation of one or more noise reduction measures outlined in this chapter for particular activities.

Even if implemented, it is possible from time to time that one single solution or reduction measure will not be sufficient to achieve the desired outcome of compliance with the EPP(Noise) planning levels. In such instances, QR will consider the need to implement other solutions/reduction measures in combination with the already implemented solution or reduction measure to progressively obtain the desired outcome.

Table 1 offers a list of such acceptable solutions/reduction measures QR intends to draw upon to progressively achieve the desired outcome for its existing operations.

However QR recognises this list is not exhaustive and will continue to investigate and if practical implement any new solutions that prove to be acceptable over time.

Desired Outcome	Acceptable Solutions
<p>Progressive achievement of EPP(Noise) planning levels (see Section 4.2) for existing Corridor operations (excluding railway stations)</p>	<p>Some of the below solutions will be progressively implemented as part of our NNMP (see Section 4.4 and Appendix A):</p> <ul style="list-style-type: none"> <li>• Track lubrication/greasing on tight radius curves where there is a higher potential for noise from wheel/rail interaction; and/or</li> <li>• Crossovers between tracks acting more like continuous welded rail (e.g. swing nose crossings);</li> <li>• Use of ballast deck bridges rather than open deck;</li> <li>• Noise barriers; and/or</li> <li>• Retrofitted existing Rollingstock (see Section 5.1); and/or</li> <li>• New Rollingstock (see Section 5.2).</li> </ul>
<p>Compliance with QR's safety and security policies/standards at railway stations with due consideration to surrounding Noise Sensitive areas</p>	<p>See Section 5.3</p>

Desired Outcome	Acceptable Solutions
<p>Horns and other warning devices that comply with QR’s safety standards ensuring the safety of public and employees</p>	<p>See Section 5.4</p>
<p>Progressive achievement of EPP(Noise) planning levels (see Section 4.2) for existing Fixed Facilities operations</p>	<p>Some of the below solutions will be progressively implemented as part of our NNMP (see Section 4.4 and Appendix A):</p> <ul style="list-style-type: none"> <li>• Noise barriers; and/or</li> <li>• Retrofitted existing Rollingstock (see Section 5.1); and/or</li> <li>• New Rollingstock (see Section 5.2)</li> </ul> <p>In addition to this, QR will encourage operational management strategies to reduce Fixed Facility noise. See Section 5.5</p>
<p>Construction and maintenance activities are undertaken to ensure the operational integrity of the rail network with due consideration to surrounding Noise Sensitive areas</p>	<p>See Section 8</p>

Sections 6 and 7 should be referred to about how QR shall assess and manage Unreasonable Noise from any change to its existing or new railway infrastructure or operations.

## **5.1 Existing Rollingstock**

Application of new noise controls to existing Rollingstock can be extremely costly. In addition, noise control technology may not be available for some existing Rollingstock.

However, QR shall investigate the application of noise controls to Rollingstock with the highest noise levels and/or greatest potential for noise reduction. Rollingstock with the longest remaining service life shall receive the highest priority. Rollingstock scheduled to be decommissioned within 5 years shall receive the lowest priority. Possible controls may include wheel damping, friction modifiers, wheel profiling, coupler slack adjustment, loco silencers and friction modifiers to bogey pivot points.

## **5.2 New Rollingstock**

New Rollingstock will be purchased against strict noise specifications designed to enable the Planning Levels to be achieved over a period of time as contemplated by the EPP Noise and as older Rollingstock is upgraded or phased out.

Specifications for new Rollingstock will require all external noise testing of new Rollingstock to be in accordance with the procedures outlined in AS2377. The specifications will seek to limit external noise from a moving vehicle to the Planning Levels when measured at a distance of 15 metres (refer AS2377).

However, QR will not be limited in its purchase of new Rollingstock where that Rollingstock, having regard to specific operational requirements is not able to achieve the Planning Levels. For example, operational requirements such as locomotive hauling capacity and dimensional requirements will dictate the identification of locomotives that may not have suitable noise reduction technologies.

### 5.3 Stations

At railway stations, noise from public address (“PA”) systems has potential to cause annoyance. However, this annoyance can be minimised by appropriate design of the PA systems.

QR has undertaken a survey of Metropolitan Area stations to determine appropriate levels of service for each individual station’s PA systems. Appropriate level of service will be determined in accordance with any relevant QR safety and/or station security policies/standards. This level of service is determined with due consideration to the noise level of the passing trains, ambient noise levels typical of that station and the noise sensitivity of surrounding areas.

QR has installed directional platform speakers at all Metropolitan Area stations. They have been spaced at intervals appropriate for the level of service at that station (generally, not more than 15 metres apart). Building-mounted horn speakers shall be aimed downwards at approximately 30° to the horizontal.

For safety and security reasons, noise barriers will not be built at or near stations.

### 5.4 Horns and Other Warning Devices

Horns and sirens are used within QR as warning devices to protect the safety of both employees and the public. Unfortunately, noise from these devices may cause annoyance to some residents from time to time.

In general, public and employee safety must be satisfactorily protected and hence it is not appropriate to apply any particular noise criteria to these warning devices (including the Interim and Planning Levels). Where specific complaints are received, responsible Managers will consider whether there is sufficient justification to change standing orders on the use of horns or to nominate alternative warning devices.

In considering what constitutes “sufficient justification”, responsible Managers will have regard to any relevant QR Safety Management System documents.

QR shall ensure driver training will include appropriate use of horns and warning devices.

### 5.5 Fixed Facilities

Noise is a natural feature of activities carried out at Fixed Facilities. The use of machinery including forklifts, power and air tools and other plant and equipment cannot be avoided. Shunting and coupling operations is also a feature of Fixed Facilities. Many of the Fixed Facilities operations involve noise from metal contacting other metal objects.

These operations can vary in scope, location and duration from time to time depending on operational requirements. Hence, it is more cost effective and efficient to control such noise sources through operational control measures as listed in this section rather than through fixed control measures (e.g. noise barriers).

Whether noise from these facilities is causing Unreasonable Noise or not will depend upon the levels and characteristics of noise from them and the proximity of the facility to Noise Sensitive Places.

To reduce noise from these facilities and to seek to achieve the QR Interim Levels and ultimately the Planning Levels, QR shall implement the following measures including:

- avoiding unnecessary revving or idling of engines and tools;
- subject to safety constraints, turning off locomotives if idling is likely to continue for more than 15 minutes;
- ensuring no loose shunting is carried out;
- avoiding the dropping of containers onto trays of transport trucks, especially at night;
- improving driving techniques associated with shunting and coupler slack where appropriate;
- improving transport operations to and from the Fixed Facility where appropriate;
- installing absorptive surface finishes to ceilings to reduce reverberation within Fixed Facilities where it is practicable and safe to do so;
- installing absorptive floor materials in areas where it is appropriate, practicable and safe to do so;
- installing mufflers on equipment where it is practicable and feasible to do so;
- ensure purchases of new equipment meet desirable noise criteria.

## **QR Code of Practice for Railway Noise Management**

---

QR shall also conduct employee and operator training to improve awareness of the need to minimise excessive noise in work practices through implementation of measures such as those listed above. Depending on its NNMP priority, such operational control measures may or may not be documented in the form of a site – specific noise management plan.

### 6. CHANGES TO EXISTING INFRASTRUCTURE OR OPERATIONS

#### 6.1 Changes to Existing Infrastructure

This section of the Code addresses cases where there are changes in any infrastructure associated with existing Corridors and Fixed Facilities. Prior to introducing such changes to existing Corridors and Fixed Facilities (e.g. changes in signal locations and/or crossover sidings), QR will:

- undertake an investigation of the likely acoustic impacts of the proposed change to infrastructure on the occupiers of adjoining Noise Sensitive Places, incorporating reasonable and practicable noise reduction considerations and measures into the location, design and construction of proposed changes to existing infrastructure. Some of the reduction measures could include one or more of the suggested acceptable solutions nominated in Table 1, Section 5;
- design Major Upgrades to comply with the Planning Levels where possible subject to existing Corridor restrictions such as limited available buffer space. A “Major Upgrade” is an upgrade which is expected to increase the existing LAeq noise level by more than 3 dBA across the majority of noise-sensitive places in any affected Management Unit;
- assess the implications of the Major Upgrade on any affected NNMP’s Management Unit.

Following completion and commissioning of any Major Upgrade, undertake noise monitoring to determine the accuracy of predicted acoustic impacts of the Major Upgrade and effectiveness of any noise reduction measures taken in connection with the Major Upgrade.

If noise levels after the noise reduction measures are implemented as part of Major Upgrades are not as predicted, QR will consider what further measures may be reasonably available.

QR will only carry out noise assessments for Existing Noise Sensitive Places, that is, those constructed at the time of such investigations and not considered to be New Noise Sensitive Developments.

The State land use planning framework is now in place around Railways outlined in Section 9. The intent of this process is to assign the responsibility of achieving Planning Levels at New Noise Sensitive Development (and/or yet to be constructed Noise Sensitive Places) on the organisation making the change in the area, that is the developer.

Any Noise Sensitive Places constructed after the time of assessment will be assigned the lowest priority for implementation in the NNMP program.

Practically, this means that any noise reduction measures that could be required at Noise Sensitive Places to achieve the Planning Levels are unlikely to be implemented in the current (typically 6 year long) funded program.

### **6.2 Changes to Existing Operations**

In some instances, operational changes such as altered timetables or increased train movements may result in increased noise levels. A “Significant Change” is an operational change that increases the existing LAeq noise level by more than 3 dB(A) within a recognised planning horizon (nominally 5 years).

Where reasonable and practical, QR will endeavour to progressively schedule such changes within operational constraints to minimise any such increase in LAeq level over nominally a 12 month period.

Where a Significant Change occurs, QR shall review the impact of such operational changes on the NNMP as per the processes outlined in Section 4.4 of this Code, subsection entitled ‘Monitoring and Review’.

### **7. NEW CORRIDORS AND FIXED FACILITIES**

#### **7.1 New Corridors**

QR has obligations under the Transport Infrastructure Act 1994 where it is involved in the investigation of potential new Corridors. In addition to those obligations, in any investigation of potential new Corridors, QR will:

- evaluate and assess the likely impact of noise from expected rail traffic in proposed Corridors on adjoining Noise Sensitive Places and consider alternatives or reduction measures if noise impacts are likely to exceed the Planning Levels.
- design new Corridors (i.e. new rail lines) in residential areas, to achieve as far as reasonably possible the Planning Levels;
- construct new Corridor track with continuously welded rail wherever feasible;
- design all new bridges near residential areas with ballasted or vibration isolated track;
- design of new Corridors based on the projected traffic density a minimum of 5 years after the opening of the line unless reliable predictions of traffic density are available further into the future.

Following completion and commissioning of any new Corridor, QR will undertake noise monitoring to determine the accuracy of predicted acoustic impacts of the new Corridor and effectiveness of any noise reduction measures taken in connection with the new Corridor.

If noise levels after the noise reduction measures are implemented as part of New Corridors are not as predicted, QR will consider what further measures may be reasonably available.

QR will only carry out noise assessments for Existing Noise Sensitive Places, that is, those constructed at the time of such investigations and not considered to be New Noise Sensitive Developments.

The State land use planning framework is now in place around Railways outlined in Section 9. The intent of this process is to assign the responsibility of achieving Planning Levels at New Noise Sensitive Development (and/or yet to be constructed Noise Sensitive Places) on the organisation making the change in the area, that is the developer.

Any Noise Sensitive Place constructed after the time of investigation will be assigned the lowest priority for implementation in the NNMP program.

Practically, this means that any noise reduction measures that could be required at such locations to achieve the Planning Levels are unlikely to be implemented in the current (typically, 6 year long) funded program.

### **7.2 New Fixed Facilities**

In the selection of sites for, and in the construction of new Fixed Facilities, QR will:

- ensure due regard is had to the potential impacts of noise from the proposed Fixed Facility on nearby Noise Sensitive Places;
- incorporate noise reduction considerations and measures in the design, construction and operation of such new Fixed Facilities. Such noise reduction measures could include one or more of the measures referred to in Table 1, Section 5 for Fixed Facilities

Following completion and commissioning of any new Fixed Facility, QR will undertake noise monitoring to determine the accuracy of predicted acoustic impacts of the new Fixed Facility and effectiveness of any noise reduction measures taken in connection with the new Fixed Facility.

If noise levels after the noise reduction measures are implemented as part of New Fixed Facilities are not as predicted, QR will investigate what further measures may be reasonably available.

QR will only carry out noise assessments for Existing Noise Sensitive Places, that is, those constructed at the time of such investigations and not considered to be New Noise Sensitive Developments.

## **QR Code of Practice for Railway Noise Management**

---

The State land use planning framework is now in place around Railways outlined in Section 9. The intent of this process is to assign the responsibility of achieving Planning Levels at New Noise Sensitive Development (and/or yet to be constructed Noise Sensitive Places) on the organisation making the change in the area, that is the developer.

Any Noise Sensitive Place constructed after the time of assessments will be assigned the lowest priority for implementation in the NNMP program.

Practically, this means that any noise reduction measures that could be required at such locations to achieve the Planning Levels are unlikely to be implemented in the current (typically, 6 year long) funded program.

### 8 CONSTRUCTION AND MAINTENANCE RAILWAY ACTIVITIES

Temporary Railway Activities of construction and/or maintenance have the potential to cause Unreasonable Noise.

This chapter describes reasonable and practical measures that should be considered in developing ways to minimise the potential of Unreasonable Noise. The reasonable and practical measures recommended in this chapter generally follow the following noise reduction principles:

- substitution by alternative process;
- silencing;
- placement of equipment (location, duration and distance from noise-sensitive communities);
- enclosures;
- screening.

In cases where it is necessary for such activities to be carried out outside standard day-time working hours, a community notification program (e.g. letter-drop) shall be carried out in advance of the activities (at least, 2 days before). The purpose of the community notification program to nearby affected noise-sensitive places (within a minimum distance of 150 metres) shall be to outline the following:

- the schedule of construction and maintenance activities (the proposed times);
- the reasons for construction and maintenance activities being carried out outside standard day-time working hours;
- likely timeframes of construction and maintenance activities (the proposed dates);
- nature of construction and maintenance activities.

#### 8.1 Construction

Construction activities generating noise that affects neighbouring noise-sensitive places should, wherever possible and practicable, be confined to “standard day-time working hours”. These are as follows:

- 07:00 – 18:00 hours, Monday to Friday;
- 07:00 – 13:00 hours, Saturday.

Having due consideration to operational requirements and safety constraints, construction activities outside these hours will be minimised as far as practical.

QR will consider implementing the following measures to assist in the reduction of Unreasonable Noise from its construction activities:

- locate mobile plant (compressors, generators, etc) as far as practicable away from neighbouring noise-sensitive places;
- direct principal noise sources (e.g. exhausts) away from noise-sensitive places as far as possible.
- utilisation of quietest available equipment within stock currently owned by QR;
- fitting of equipment with effective and properly maintained noise suppression equipment consistent with the requirements of the activity, where possible;
- ensure equipment utilised is maintained and operated as per manufacturers' specifications;
- minimise the use of warning devices to within operational health and safety constraints;
- co-ordination of loading/unloading of material activities to be within standard day-time working hours wherever practicably possible;
- encourage construction operators to have equipment that include noise performance as a selection criterion at the time of purchase.

### **8.2 Maintenance**

Maintenance activities do sometimes unavoidably cause Unreasonable Noise for noise-sensitive communities. All relevant personnel shall be made aware of this fact and must endeavour to minimise such noise.

In addition to the above list of measures for construction activities, QR will consider implementing the following measures to assist in the reduction of Unreasonable Noise from its maintenance activities:

- direct employees to conduct conversations with due regard of the adjoining noise-sensitive places;
- new equipment and machines when purchased shall be required to meet applicable noise emission specifications for those aspects of noise emission to be minimised (e.g. engine noise). Applicable noise emission specifications means those specified by industry standards. It is however recognised that it is difficult to minimise noise from the principal operations of those machines (e.g. tamping, grinding, ballast screening, etc);
- locate mobile plant (compressors, generators, etc) as far as practicable away from neighbouring noise-sensitive places;
- direct principal noise sources (e.g. exhausts) away from noise-sensitive places as far as possible.

Operating hours of maintenance activities are usually constrained to night-time periods due to operational and safety requirements outlined in QR Safety Management System (SMS).

QR shall however ensure that night-time maintenance activities are not carried out at any location where a noise-sensitive place is within 500 metres of the activity for more than two (2) consecutive nights. Authorisation from the General Group Manager Network Access will be required for any works scheduled to be greater than two (2) consecutive nights due to track possession restrictions. An example of such works would be Track Section Renewal.

In accordance with this authorisation process, a noise management plan identifying noise sources from associated work activities and proposed reduction measures shall be submitted to the General Group Manager Network Access before any work commences. Such proposed reduction measures could include one or more of the reduction measures mentioned earlier in this section.

### 9. LAND USE PLANNING FRAMEWORK AROUND RAILWAYS

New or upgraded residential development or other noise sensitive development (New Noise Sensitive Developments) adjoining or near railway Corridors can adversely affect and constrain the operation of Railway Activities. Most new development of this type will require a Development Permit pursuant to the Integrated Planning Act 1997 (IPA).

Under its legislative framework, the IPA identifies certain state agencies as “concurrency agencies” so as to ensure that State agencies may preserve their interests when new developments are proposed (eg one such interest is to ensure the safety and operational integrity of railways).

Under the IPA framework, a concurrence agency’s relevant conditions on such New Noise Sensitive Developments must be incorporated into any development permit issued by the relevant local government.

For all railway matters in Queensland, Queensland Transport (the State Department of Transport) is nominated as the relevant concurrence agency. As a GOC, QR has limited grounds to act in the capacity of a concurrence agency under this framework. QT works closely with QR when assessing development applications with rail noise issues/implications.

The Integrated Planning Regulation defines the triggers or areas of interest which are relevant to Queensland Transport including for railways. Further, Queensland Transport has identified the outcomes it is seeking to achieve when assessing development proposals.

The outcomes QT seeks to achieve when assessing development referrals may be found on the QT website as follows:

[http://www.transport.qld.gov.au/Home/Projects\\_and\\_initiatives/initiatives/Integrated\\_development\\_assessment\\_system/ldas\\_checklist\\_for\\_corridors](http://www.transport.qld.gov.au/Home/Projects_and_initiatives/initiatives/Integrated_development_assessment_system/ldas_checklist_for_corridors).

Avoiding *reverse amenity* due to noise from rail corridors is nominated as one such matter. Queensland Transport has also prepared a policy explaining its State interests with respect to development and rail noise in order to assist local governments when preparing their planning schemes.

This policy (called Queensland Transport's Interest in Planning Schemes No. 3 – Planning for Rail Noise) is publicly available on the Queensland Transport website at: [http://www.transport.qld.gov.au/Home/Projects\\_and\\_initiatives/Plans/Queensland\\_transports\\_interests\\_in\\_planning\\_schemes/Planning\\_for\\_rail\\_noise/](http://www.transport.qld.gov.au/Home/Projects_and_initiatives/Plans/Queensland_transports_interests_in_planning_schemes/Planning_for_rail_noise/)).

This policy nominates:

- criteria to be achieved by the New Noise Sensitive Development that are consistent with legislative target levels;
- guidance on how to assess the noise against such criteria; and
- possible practical solutions to reduce noise to within this criteria (e.g. noise buffers, barriers, considering noise in the siting/layout of sensitive buildings).

### 10. COMPLAINTS AND DISPUTE RESOLUTION

It is QR's corporate commitment to act towards its neighbours in a considerate and responsible manner. This good neighbour commitment assumes a reasonable degree of tolerance from neighbours and a commitment by QR to take action where appropriate.

Where complaints are received by QR about noise from Railway Activities for which QR may be responsible, QR will respond to and maintain records of those complaints in accordance with its Environmental Management Standard for Environmental Complaint Management, EMS/STD/43/001 and associated procedure, EMS/PRO/43/001 for Environmental Complaints Management. QR's response shall be based on investigations undertaken in accordance with Part 2A of the Environmental Protection Regulations 1998 and that outlined in these Environmental Management Standards. They may be altered from time to time.

Where a complainant remains dissatisfied with the response of QR to a complaint, QR will, if requested by the complainant convene a complaint conference in relation to the complaint.

The purpose of the complaints conference will be to review the complaints procedure applied to the initial complaint.

The complaints conference is to be presided over by an officer of QR who must not be an officer who is involved in addressing the initial complaint.

Where a complainant remains dissatisfied with the outcome of a complaints conference, QR will notify the complainant that it is willing to participate in mediation with respect to the complaint. The exception to this is if QR reasonably believes no further resolution of the complaint is possible beyond that achieved through application of the above procedures. This qualification is necessary as some complaints may be incapable of being resolved to the satisfaction of a complainant in the short term given the nature of Railway Activities.

### 11. MONITORING AND REPORTING

QR will:

- ensure appropriate QR staff are made fully aware of the Code and its purpose;
- develop and implement the Network Noise Management Plan for noise management in existing Corridors;
- receive and respond to complaints;
- undertake a regular review of compliance with the Code by all QR business groups;
- report to the QR Senior Management on a regular basis in relation to compliance with the Code;
- record and report on any desirable changes to the Code;
- QR will review the Code on its fifth anniversary and every five years thereafter in association with the Environmental Protection Agency.

### 12. DEFINITIONS

“**Beneficial Asset**” has the same meaning it has in the Environmental Protection (Noise) Policy 1997.

“**Corridor**” means any operations of mainline and branchline haul trains, multiple unit passenger trains, non-terminal railway stations and any infrastructure necessary for these operations.

“**Development Approval**” has the same meaning as it has in the Integrated Planning Act 1998, particularly relating to Environmentally Relevant Activities (ERAs).

“**Educational Institution**” has the same meaning as it has in the Environmental Protection Regulations 1998.

“**Environmental Authority**” has the same meaning as it has in the Environmental Protection Act 1994.

“**Environmental Value**” has the same meaning it has in the Environment Protection Act 1994.

“**Environmental Harm**” has the same meaning it has in the Environmental Protection Act 1994.

“**Environmental Nuisance**” has the same meaning it has in the Environmental Protection Act 1994.

**“Environmentally Relevant Activity”** has the same meaning as it has in the Environmental Protection Act 1994 and as identified in the Environmental Protection Regulation 1998.

**“Existing Noise Sensitive Places”** are noise sensitive places that have not been subject to any development conditions on railway noise.

**“Fixed Facility”** means any Railway infrastructure and/or operations that is not Corridor (e.g. railway freight terminals, depots, workshops, shunting/marshalling yards and those sidings used for loading and unloading).

**“General Environmental Duty”** has the same meaning it has in the Environmental Protection Act 1994.

**“Interim Levels”** are the noise criteria identified by QR as its interim noise level targets and referred to in Part 4 of this Code of Practice.

**“LAeq”** has the same meaning as “Leq” has in the Environmental Protection (Noise) Policy 1997.

**“Major Upgrade”** means any change in infrastructure that is expected to increase the existing LAeq noise level by more than 3 dB(A) across the majority of noise-sensitive places in any affected Management Unit.

**“Management Unit”** is a section of Corridor or Facilities by which NNMP priorities for implementation are determined. They are often defined by fixed geographical features (e.g. stations, watercourses).

**“Metropolitan Areas”** is any urban centre with a population of more than 20,000.

**“New Noise Sensitive Developments”** are any noise sensitive places that have been subject to any development conditions on rail noise. These conditions require the owners of the development to reduce noise levels to at least the Planning Levels.

**“Noise Sensitive Place”** has the same meaning it has in the Environmental Protection (Noise) Policy 1997.

**“Planning Levels”** has the same meaning it has in the Environmental Protection (Noise) Policy 1997.

**“Railway”** means all Corridors and Fixed Facilities connected with or appurtenant to a railway (including all Environmental Relevant Activities associated with a railway).

**“Railway Activities”** has the same meaning “railway works” has in Schedule 3 of the Transport Infrastructure Act 1994.

**“Rollingstock”** has the same meaning “rollingstock” has in Schedule 3 of the Transport Infrastructure Act 1994.

**“Significant Change”** means an operational change that increases the existing LAeq noise level by more than 3 dB(A) within a recognised planning horizon (nominally 5 years).

**“Single Event Maximum Sound Pressure Level”** means the arithmetic average of maximum levels from the highest 15 single events over a given 24 hour period.

**“Unreasonable Noise”** means unreasonable interference with the acoustic amenity of neighbouring noise-sensitive communities.

**APPENDIX A –**

**NETWORK NOISE MANAGEMENT PLAN (NNMP)**

**PRIORITISATION PROCESS**

A Management Unit's priority for implementation has been scientifically and objectively determined based upon:

- the number of Noise Sensitive Places with current predicted noise levels in excess of both QR's Interim Levels (see Section 4.3) and/or the EPP(Noise) Planning Levels (see Section 4.2); and
- the cost of proposed reduction measures or acceptable solutions averaged over the number of Noise Sensitive Places that exceed current noise levels; and
- whether or not the Management Unit has previously had owners of a Noise Sensitive Place express dissatisfaction about the level of railway noise. Note this is not dependent on the number of locations expressing their dissatisfaction.

To demonstrate how QR's NNMP priorities for implementation have been determined, the following table offers an example for hypothetical Management Units:

AREA ID	WHERE ON NNMP PRIORITY LIST? (1 being the highest priority)	PRIORITY VALUE <sup>#</sup>	BARRIER LENGTH (km)	NUMBER OF PLACES ABOVE EPP(Noise) PLANNING LEVELS		NUMBER OF PLACES ABOVE QR INTERIM LEVELS	
				(Column i) 87 – 95 dB(A) Maximum	(Column ii) 65 – 70 dB(A) Average 24 hr Energy	(Column iii) > 95 dB(A) Maximum	(Column iv) > 70 dB(A) Average 24 hr Energy
A	1	15.1	1.2	80	10	2	0
B	2	12.8	0.8	78	2	3	0
C	3	11.3	0.7	70	5	0	0
C	4	11.2	0.7	62	6	4	0
D	5	9.2	0.5	50	8	2	0
E	6	8.3	0.5	50	5	0	0
F	7	8.1	0.5	47	5	1	0
G	8	5.6	0.3	35	2	0	0
H	9	3.5	0.1	20	2	0	0
I	10	1.7	0.1	10	0	0	0

**Notes:**

# NNMP Priority Values are calculated via the following formula:

$$\text{Priority} = 0.15 * (\text{Column i}) + 0.15 * (\text{Column ii}) + 0.25 * (\text{Column iii}) + 0.25 * (\text{Column iv}) + 0.1 * (100,000 / \text{Average Cost of Barrier per Place}) + 0.1 * \text{Complaints (Yes=1, No=0)}$$