



Australian Government

**BUILDING OUR FUTURE**



May 2018

## Oxley Highway to Kempsey Pacific Highway upgrade

### Operational Noise - Frequently asked questions

#### What are the 'road traffic noise goals' for this project?

The project was approved by the Department of Planning and Environment (DPE) in February 2012. The Conditions of Approval required operational noise levels be established in accordance with the *Environmental Criteria for Road Traffic Noise (ECRTN)* (EPA, 1999). According to the ECRTN, the project is considered to be:

- A 'new arterial road corridor' where the route differs substantially from the (old) Pacific Highway; and
- A 'redevelopment of an existing arterial road' where the route follows the alignment of the (old) Pacific Highway.

This means the relevant road traffic noise criteria for the project area according to the ECRTN is:

Type of development	Road traffic noise criteria, decibels (dB(A))		Where criteria are already exceeded
	Day	Night	
New freeway or arterial road corridor	55 decibels LAeq(15hr)	50 decibels LAeq(9hr)	The new road should be designed so as not to increase existing road traffic noise levels by more than 0.5 decibels
Redevelopment of existing freeway/arterial road	60 decibels LAeq(15hr)	55 decibels LAeq(9hr)	The new road should be designed so as not to increase existing road traffic noise levels by more than 2 decibels

Noise models were developed for this project based on the Calculation of Road Traffic Noise (CORTN) model. It is a mathematical model that has been specifically validated under Australian conditions and is accepted as the industry standard by the NSW Government. This modelling considers traffic volumes, highway route, surrounding landscape (topography), traffic speed, percentage of heavy vehicles, road surface, the distance and height of surrounding buildings and weather.

The solutions to reduce road traffic noise were identified and developed during the design phase of the project in accordance with the *Environmental Noise Management Manual (ENMM)* (RTA 2001), the ECRTN, and the projects Conditions of Approval. These solutions include:

- low noise pavement
- at-house noise treatments.

These are summarised in the Operational Noise Management Reports (ONMR) available at: <http://www.rms.nsw.gov.au/projects/northern-nsw/oxley-highway-to-kempsey/project-documents.html>

See below for further details on how monitoring data collected in the field is used in validating the noise model.

#### **How do we know if the 'road traffic noise goals' are being met?**

In accordance with the project's Conditions of Approval, Roads and Maritime is required to carry out operational noise monitoring within 12 months of the project fully opening to traffic. This monitoring and associated report will determine if the road traffic noise modelling carried out during the detailed design phase of the project was accurate and acceptable to predict road traffic noise. It is completed in accordance with Environment Protection Authority (EPA) and industry guidelines and will undergo independent review by the EPA and the DPE prior to publication. This report will show the results of the monitoring of road traffic noise and compare it to the predicted noise model.

#### **When is noise monitoring taking place?**

Road traffic noise monitoring will be done once finishing work is complete and the speed limit is increased to 110 km/h. As the road is targeting to be open around the end of 2017, the monitoring is expected to be undertaken in mid-2018.

#### **Why is it not starting until then?**

The new highway needs to be fully operational so that the noise testing accurately represents normal operating conditions.

#### **How long will the monitoring last?**

We must carry out road traffic noise monitoring for at least one week to get sufficient data. Monitoring will be carried out in strict accordance with the Australian Standards as prescribed in the ECRTN. We will conduct noise monitoring for an adequate amount of time to allow for some unacceptable weather conditions and ensure we get all the data we require.

#### **Why are school holiday periods not monitored?**

Road traffic noise modelling considers an average day. School holiday periods are not considered 'average' as they may result in unusual traffic movements. For example, while there may be an increase in domestic vehicles travel during the holiday period, there may also be a reduction in freight movements. This is the reason why school holiday periods are excluded from the monitoring.

#### **Where will the monitoring be done?**

The noise consultant will carry out monitoring at representative locations across the project. Generally, these locations are expected to be the same monitoring locations that were used for the road traffic noise monitoring in the detailed design phase of the project. While it is not practical to monitor at every house, it is important to note the assessment considers all properties regardless as to whether the property has had individual noise monitoring carried

out. The results from the noise monitoring will be compared against what is being predicted by the noise model as part of the noise model validation process.

### **Can monitoring be done at my house?**

The project team from Roads and Maritime will liaise with the noise consultant to determine the most suitable locations. Roads and Maritime is aware of the areas where concerns have been raised about road traffic noise has been reported and will endeavour to monitor at as many of those as reasonably possible.

### **Why is some noise excluded from the monitoring data?**

Road traffic noise modelling only models noise from traffic and considers an average day. Measurements affected by noise not directly associated with the project are excluded from the overall road traffic noise monitoring results. For example, noise such as animals, insects, strong wind or rain. This is in line with the relevant Australian Standards and EPA guidelines and policies.

We recognise that weather can have an effect on traffic noise levels under some conditions and this is taken into account to some extent through the use of noise monitoring data in validating the noise model. However, our modelling criteria must comply with the relevant Australian Standards for measuring road traffic noise and periods of high wind (greater than 5 metres per second) and periods of rainfall will be excluded from noise monitoring data. Weather stations located on the project will be used to correlate weather information with the noise monitoring periods.

### **When will we receive the results from the monitoring?**

It is a requirement of the projects Conditions of Approval that monitoring is conducted within 12 months of the upgrade fully opening to traffic. It takes a few months to analyse the data, update the model and seek endorsement from the various regulatory agencies before we publish the report to the community. The report will be made available to the community and will be placed on the project website for viewing.

### **Why does it take so long?**

The monitoring cannot start until the highway is operating at 110 km/h. It is important to allow the traffic to settle in to an average day pattern prior to monitoring. Following completion of the monitoring, complex computer modelling and data validation is undertaken then the report is prepared and undergoes independent review by the EPA and the DPE prior to publication. The community will continue to be kept informed as the process continues.

### **Will my property receive road traffic noise treatment?**

The Operational Noise Management Reports, that were prepared at the detailed design stages of the project, provided guidance as to which properties met the criteria to be assessed for noise treatments. If results from the post opening monitoring exceeds the goals or limits set out by the DPE and the EPA, noise mitigation measures will be reviewed to determine if further noise treatment is reasonable and feasible. If your property is eligible for road traffic noise mitigation you will be contacted by Roads and Maritime.

### **What does 'reasonable and feasible' mean in relation to road traffic noise mitigation measures?**

Road traffic noise mitigation is feasible if it is practical and capable of being put in place. For example, a road traffic noise mitigation measure is feasible if it can be engineered and is practical to build, considering issues such as safety, access and maintenance.

Selecting reasonable road traffic noise mitigation measures involves considering the overall road traffic noise reduction benefit delivered by different mitigation measures and the overall

economic cost of achieving that benefit. Costs of different mitigation measures vary greatly and not every measure that is possible to build is cost effective in every situation. For example, in densely populated areas located close to a road, a noise wall or mound may prove to be a reasonable solution as many sensitive receivers will be benefited. However, in low density rural or residential areas where sensitive receivers may be located some distance from a new road or each other, a noise wall or mound may not be reasonable due to the prohibitive cost of building a wall or mound long enough, or high enough, to deliver any significant noise reduction benefit. In this situation, architectural building treatment may be a reasonable solution.

### **What if my property already has received road traffic noise treatment?**

The building treatments installed at your property were developed considering the predictions of road traffic noise modelling carried out during the design phase of the project and are generally capable of reducing higher levels of road traffic noise than those predicted at your property.

If the modelled predictions of operational road traffic noise at your house exceed the predictions of road traffic noise made during the design phase of the project by more than two decibels then you will be contacted by Roads and Maritime. Most people can't detect a change of one or two decibels in the noise level.

### **Engine brake noise**

Engine brakes are fitted to slow down heavy vehicles. Engine brakes improve vehicle safety by reducing the load on brakes during a steep descent. They can also extend the life of the vehicle brakes and reduce maintenance costs. However, it is this compression brake design that often creates the engine break 'bark' and causes annoyances to the community.

In response to community concerns there are a number of initiatives being carried out by the NSW Government to help with investigation and action on this issue. They include:

- Working on a range of education and enforcement measures to reduce noise from freight vehicles
- Developing and trialling noise cameras to detect vehicles with excessive engine compression brake noise
- Working closely with other states, territories and the National Transport Commission to implement a national standard for engine brakes. This standard was approved by the Australian Transport Council in 2007 and reviewed by the National Transport Commission in May 2013.

If the National Transport Commission prepares amendments to the National Heavy Vehicle Legislation to provide for regulation of engine brake noise, it may provide an opportunity to assist in enforcement. The NSW Government is following this process closely.

### **Can road speed limits be changed to reduce road traffic noise levels?**

The purpose of the Oxley Highway to Kempsey Pacific Highway upgrade is to improve safety and increase traffic efficiency, by delivering a total of 37 kilometres of four-lane divided road with a speed of 110 km/h.

Lowering speed limits to reduce traffic noise is generally not effective or preferred. Lowering traffic speed from 100 km/h to 80 km/h reduces traffic noise by about 1.5 decibels, if the traffic volume remains the same. Most people can't detect a change of one or two decibels in the noise level. Substantial speed reductions would be necessary to achieve substantial noise reductions.

On high-speed roads such as motorways, halving the average speed leads to a reduction of about 5–6 decibels in the road traffic noise level. Such a drastic reduction would negate part of the original purpose and objectives of the upgraded highway.

**Can low noise pavement be added to some sections of the highway?**

No. The unreinforced concrete pavement laid on the Oxley Highway to Kempsey project has joints cut in it and there is an ongoing small movement at each joint. If we placed low noise asphalt wearing surface over this type of concrete pavement it would crack at each joint in the concrete pavement. The cracks in the asphalt would then deteriorate under highway traffic conditions, rendering it ineffective as a low noise pavement.