Australian Government

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NSW GOVERNMENT

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Warrell Creek to Nambucca Heads project

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) as the second stage of the Warrell Creek to Urunga Project in July 2011. The Conditions of Approval required operational noise levels be assessed in accordance with the NSW Government's *Environmental Criteria for Road Traffic Noise* (*ECRTN*) developed by the Environment Protection Authority (EPA). 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 7 a.m.–10 p.m.	**Night** 10 p.m.–7 a.m.	
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 EPA. 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 as part of the Environmental Assessment for the project and further refined during the detailed design phase in accordance with the NSW Government's *Environmental Noise Management Manual (ENMM)*, the ECRTN, and the projects Conditions of Approval. These solutions include:

- low-noise pavement
- noise barriers
- at-house noise treatments
- road alignment design.

These are summarised in the Operational Noise Management Report (ONMR) available at: **http://www.rms.nsw.gov.au/documents/projects/northern-nsw/warrell-creek-to-nambucca-heads/wc2nh-operational-noise-management-report-dec-17.pdf**

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 an assessment of the operational noise predictions made in the detailed design phase within 12 months of the project fully opening to traffic. During this time representative noise receivers (houses) will be monitored and the data used to compare predictions made in the Operational Noise Management Report to 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. A detailed Operational Noise Report will be prepared and made available to the public following independent review by the NSW EPA and DPE. The Operational Noise Report will be completed in accordance with EPA and industry guidelines.

When is noise monitoring taking place?
Road traffic noise monitoring will be done once finishing work for the whole of the project is complete and the speed limit is increased to 110 kilometres/hour. As the road is targeting to be open around early to mid-2018, the monitoring is expected to be undertaken by the end of 2018 with the Operational Noise Report completed by mid-2019.

Why is it not starting until then?
The full length of 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. If there are unacceptable weather conditions during the monitoring period we will allow additional time to ensure we get a full week of noise data for the report.

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 travelling during the holiday period, there may also be a reduction in freight movements and heavy vehicles. 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 of whether the property has had individual noise monitoring carried out. As part of the noise model validation process the results from the noise monitoring will be compared against what is being predicted by the noise model.

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 for monitoring. We will endeavour to monitor at as many locations as reasonably possible where concerns have been raised about road traffic noise.

Why is some noise excluded from the monitoring data?
Road traffic noise modelling only models noise from traffic and considers an average day. Noise measurements 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 but our modelling criteria must comply with the relevant Australian Standards for measuring road traffic noise so we will exclude noise monitoring data from periods of high wind (greater than five metres per second) and periods of rainfall.

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. When complete, the report will be made available to the community and will be placed on the Roads and Maritime project website.

Why does it take so long?
The monitoring cannot start until the highway is operating at 110 kilometres/hour. It is important to allow the traffic to settle in to an average day pattern before monitoring starts. When noise monitoring is complete complex computer modelling and data validation is done, the Operational Noise Report is prepared and then independently reviewed by the EPA and DPE before publication. We will keep the community informed during the process.

Will my property receive road traffic noise treatment?
The Operational Noise Management Report, that was prepared at the detailed design stages of the project, provided guidance on which properties met the assessment criteria for noise treatments. If results from the post opening noise 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. We will contact you if your property is eligible for road traffic noise treatment.

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 benefit. However, in low density rural or rural-residential areas where sensitive receivers may be located some distance from a new road or from each other a noise wall or mound may not be reasonable due to the cost of building a wall or mound long enough, or high enough, to deliver any significant noise reduction benefit. In this situation, architectural building treatments may be a more 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.

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 cannot 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 but compression brake design often creates an engine break 'bark' that can be annoying.

In response to community concerns there are a number of initiatives being carried out by the NSW Government to help investigate and action this issue, including:

- 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. The standard was approved by the Australian Transport Council in 2007 and reviewed by the National Transport Commission in May 2013.

The NSW Government is closely following any amendments the National Transport Commission makes to the National Heavy Vehicle Legislation about regulating engine brake noise and enforcing the standard.

Can road speed limits be changed to reduce road traffic noise levels?
The purpose of the Warrell Creek to Nambucca Heads Pacific Highway upgrade is to improve safety and increase traffic efficiency by delivering a total of 20 kilometres of four-lane divided road with a signposted speed limit of 110 kilometres/hour.

Lowering speed limits to reduce traffic noise is generally not effective or preferred. Lowering traffic speed from 100 kilometres/hour to 80 kilometres/hour reduces traffic noise by about 1.5 decibels if the traffic volume stays the same. Most people cannot detect a change of one or two decibels so substantial speed reductions would be necessary to achieve a noticeable noise reduction.

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

Can low noise pavement be added to some sections of the highway?
Low noise pavement will be laid on the southern 13 kilometres of the Warrell Creek to Nambucca Heads project.

The unreinforced concrete pavement laid on the northern seven kilometres of the project has joints cut in it and there is an ongoing small movement at each joint. If we placed a 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 and it would be ineffective as a low noise pavement.