

Kundabung to Kempsey Pacific Highway upgrade Post-Construction Operational Noise frequently asked questions

What has been the operational noise process up to this point?

The effect of road traffic noise on residents as a result of the upgraded highway was first examined in the Environmental Assessment, which was released in 2010. This assessment identified residents affected by road traffic noise and those eligible for noise treatment based on the concept design of the new highway.

In 2015 the Operational Noise Management Report (ONMR) was released. This report reviewed the noise mitigation measures for the detailed design of the upgrade to determine if further noise mitigation measures were required. The majority of the properties found eligible for at-residence noise mitigation have now been treated.

As part of the Minister's Conditions of Approval for the project, a post-construction operational noise report must be completed after the project opens. This report has recently been published.

What is the purpose of the Post-Construction Operational Noise Report?

The Post-construction Operational Noise Report compares actual road traffic noise levels from the highway upgrade against the predicted road traffic noise levels used in project design. The report determines 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. 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 report has been prepared by specialist noise consultants in accordance with industry guidelines and has been reviewed and approved by both the EPA and the Department of Planning and the Environment (DP&E) prior to publication.

The noise model used on this project is 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.

What are the results of the report?

The assessment found that the noise levels on the project are generally lower than what was predicted in the ONMR. The report shows that the project has met its noise goals as required by the Minister's Conditions of Approval for the upgrade.

As part of this assessment, four properties have been identified for further noise mitigation treatment and Roads and Maritime is in the process of discussing noise mitigation options with these property owners.

Will my property receive at-residence noise mitigation treatment?

The assessment found that properties previously treated do not require further treatment.

Four additional properties will receive at house road noise treatments. The owners of these properties will be contacted directly to discuss noise mitigation options.

Will other noise mitigation measures be introduced?

No. The report shows that the project has met its noise goals as required by the Minister's Conditions of Approval for the upgrade. Consequently, no other noise mitigation measures are required.

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

The project road traffic noise goals (Environment Criteria for Road Traffic Noise (ECRTN)) are set and developed by the NSW Environment Protection Agency (EPA). According to the EPA guidelines, the project is considered to be:

- A 'redevelopment of an existing arterial road' where the route follows the alignment of the (old) Pacific Highway; and
- Where the route differs substantially from the (old) Pacific Highway (such as the Telegraph Point bypass), it is considered to be a 'new arterial road corridor'.

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

Type of development	Noise level criterion		Where the criteria are already exceeded
	Day (7am – 10pm)	Night (10pm – 7am)	
Redevelopment of existing Highway/arterial road	$L_{Aeq,15hr}$ 60dBA	$L_{Aeq,9hr}$ 55dBA	In all cases, the redevelopment should be designed so as not to increase existing noise levels by more than 2 dBA. Where feasible and reasonable, noise levels from existing roads should be reduced to meet the noise criteria. In many instances this may be achievable only through long-term strategies such as improved planning, design and construction of adjoining land use developments; reduced vehicle emission levels through new vehicle standards and regulation of in-service vehicles; greater use of public transport; and alternative methods of freight haulage.

The solutions to reduce road traffic noise are 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 project Conditions of Approval. These solutions can include:

- Low noise pavement
- Noise walls and mounds
- At house noise treatments.

The mitigation measures used on this project are summarised in the Operational Noise Management Report (ONMR), which was published in 2015, and is available on the project website.

How does a property qualify for at house noise treatment?

As per the above table, noise levels for the redeveloped section of the highway should be below $L_{Aeq, 15hr}$ 60dBA during the day and $L_{Aeq, 9hr}$ 55dBA at night.

Criteria for treatment is based on predicted noise levels 10 years after opening, meaning that if noise at a property is expected to exceed the criteria contained in the ECRTN in 2028, that property would be eligible for at house noise treatment.

When did noise monitoring take place?

Road traffic noise monitoring was done over 12 days during August 2018.

Where was the noise monitoring done?

The noise consultant conducted monitoring at 10 locations across the length of the project. These locations included some of the same monitoring locations that were used for the road traffic noise monitoring in the detailed design phase of the project. While it wasn't practical to monitor at every house, sufficient locations were monitored to validate the noise model. The noise model considers all properties regardless of whether the property was one of the noise monitoring locations.

The results from the 12 day noise monitoring (August 2018) were then compared against what was predicted by the post construction noise model, and this process is part of the noise model validation process.

Who was responsible for providing at house noise treatment?

Roads and Maritime is responsible for providing treatment to eligible properties. An eligible property was any property identified in the ONMR which exceeded the road traffic noise criteria and had Development Application approval prior to the project's approval in February 2012.

Properties which received development approval after the project's approval are required to install their own road traffic noise treatment measures.

How many houses were identified for treatment and how many additional houses require treatment?

A total of 49 properties across the length of the project were identified in the ONMR to receive at house noise treatment. Four additional properties were identified for treatment during the post-construction operational noise assessment.

How are road traffic noise mitigation measures determined?

Roads and Maritime uses a test of 'reasonable' and 'feasible' to determine road traffic noise 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 or feasible 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.

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 \$230 million Kundabung to Kempsey Pacific Highway upgrade was to improve safety and increase traffic efficiency by delivering about 14km of four-lane, divided road with a speed of 110km/h.

Lowering speed limits to reduce traffic noise is generally not effective or preferred. Lowering traffic speed from 100km/h to 80km/h reduces traffic noise by roughly 1.5dB (A), 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 up to 5–6 dB (A) in the traffic Leq noise level. Such a drastic reduction would negate part of the original purpose and objectives of the project.

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

No. The concrete pavement laid on Kundabung to Kempsey project has joints cut in it and there is an ongoing small movement at each joint. If we placed a low noise surface such as Stone Mastic Asphalt (SMA) over this type of concrete pavement it would crack at each joint in the concrete pavement. The cracks in the SMA would then deteriorate under highway traffic conditions, rendering it very ineffective as a low noise pavement.



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