

FREQUENTLY ASKED QUESTIONS

Warrell Creek to Nambucca Heads Pacific Highway upgrade Post Construction Operational Noise Report

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 Warrell Creek to Urunga Pacific Highway upgrade Environmental Assessment, which was released in January 2010.

This assessment included the development of a noise model that was used to identify residents expected to be affected by road traffic noise and determine those properties eligible for noise treatment based on the concept design of the new highway.

In 2015, an additional operational noise modelling assessment was carried out which looked specifically at predicted operational noise levels for the section from Warrell Creek to Nambucca Heads. This assessment was also based on the project concept design and the published report identified 154 residences to be considered for noise treatment.

In December 2017, the Operational Noise Management Report (ONMR) was released. This report reviewed the noise mitigation measures for the Warrell Creek to Nambucca Heads upgrade and, based on detailed design, the report identified whether further noise mitigation measures were required.

As part of the Planning Minister's Conditions of Approval for the project, a post-construction operational noise assessment must be completed after the project opens. This has been carried out and the outcomes are presented in the Post Construction Operational Noise Report which is now available online.

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 the project design.

The report verifies 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. Road traffic noise 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 model predicts road traffic noise levels 10 years on from the opening of the upgrade highway and is used to identify any areas of noise level exceedance where additional feasible and reasonable noise mitigation measures may be warranted

What are the results of the report?

The report found good correlation between actual noise levels and those predicted in the noise model developed during project design.

The report also found all properties (as identified in the 2015 Operational Noise and Modelling Assessment Report to be eligible for at-house noise treatment) have received the appropriate level of treatment, as determined by the maximum exceedance level above the traffic noise criteria.

Four additional properties have been identified for noise treatment. As part of the process of releasing the Operational Noise Report, these property owners will be contacted for further discussion about treatment options.

The report shows the project complies with the relevant environmental obligations relating to operational noise.

How does a property qualify for at-house noise treatment?

At-house noise treatment was identified for those properties that were predicted to exceed noise levels outlined in Table 1 (below).

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

Will my property receive at-house noise mitigation treatment?

Four new properties have been identified in the report as eligible for at-house noise treatment. These properties have not received treatment during project design or construction and property owners will be contacted individually to discuss the assessment and treatment options.

No properties that have already received at-house noise treatment require any further treatment.

Will other noise mitigation measures be introduced?

The report shows the project complies with the relevant environmental obligations in relation to operational noise and no other noise mitigation measures are required.

The mitigation measures used on this project are summarised below. More comprehensive information is available in the Operational Noise Management Report (ONMR), which can be accessed from the project website.

What noise mitigation measures were included in the design of the project?

A number of noise mitigation measures were used in the design and construction of the Warrell Creek to Nambucca Heads upgrade to reduce noise impacts to nearby properties including:

- Road alignment design – in suitable locations, lowering the alignment and gradient of the road resulted in reduced noise levels and various cuttings shield the road from residences
- Low noise pavements – surfaces used on the project include plain concrete pavement (PCP) and 30mm stone mastic asphalt (SMA). The main carriageway on the northern end of the project has concrete pavement. Only local and service roads were finished with dense graded asphalt (DGA)
- Noise barriers – are most feasible where residences are closely grouped, where barriers do not cause access difficulties to properties and where they are visually acceptable. Noise walls were installed in two locations along the alignment.

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

The NSW Environment Protection Authority (EPA) sets road traffic noise goals for NSW. The noise goals differ depending on whether the highway is redeveloped using the same alignment or if the highway is built on a new alignment. The Warrell Creek to Nambucca Heads upgrade redeveloped sections of existing highway and also built highway on a new alignment.

The road traffic noise criteria for the Warrell Creek to Nambucca Heads Pacific Highway upgrade is provided in the table below.

Table 1 – Noise Criteria for Residential Receivers

Type of development	Noise level criterion		Where the criteria are already exceeded
	Day (7am – 10pm)	Night (10pm – 7am)	
New highway/freeway or arterial road corridor	L _{Aeq,15hr} 55dBA	L _{Aeq,9hr} 50dBA	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 highway/ arterial road	L _{Aeq,15hr} 60dBA	L _{Aeq,9hr} 55dBA	The redevelopment should be designed so as not to increase existing road traffic noise levels by more than 2 decibels.

When and where was the noise monitoring done?

Road traffic noise monitoring was carried out over a minimum period of 10 days from 7 May to 5 June 2019 at 21 locations across the length of the project. These locations are a combination of monitoring locations previously used during the detailed design phase and locations adjacent to the new highway.

Unattended noise loggers were supplemented with attended measurements at the same locations and observations recorded to assist in quantifying the acoustical environment at each monitoring location.

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 10 days of noise monitoring were then compared against what was predicted by the post construction noise model, and this process is part of the noise model validation process.

The noise monitoring locations are shown in Appendix F of the Post Construction Operational Noise Report.

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

Low noise pavement was laid on the southern 13 kilometres of the Warrell Creek to Nambucca Heads project.

On the northern seven kilometres, unreinforced concrete pavement has joints cut in it to control cracking of the concrete and allow for small amounts of movement. If we placed a low noise surface such as asphalt over this type of concrete pavement the asphalt would crack and deteriorate over time under highway traffic. As asphalt deteriorates it generates more noise and would be ineffective as a low noise pavement.

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

The purpose of the Pacific Highway upgrade was to improve safety and increase traffic efficiency by delivering a 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 1.5 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 up to 5–6 decibels in the traffic noise level. It is not reasonable to upgrade a highway and then limit the speed to 50 to 60km/h.

Can anything be done to address 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.

Who approves the report?

The report is prepared by specialist noise consultants in line with EPA guidelines. The EPA and Department of Planning, Industry and Environment review the report to ensure its accuracy.

Where can I view the report or find out more information?

The Post Construction Operational Noise Report is available online at the project website: <https://www.pacifichighway.nsw.gov.au/portmacquarie-to-coffsharbour>.

Other reports, including the Warrell Creek to Urunga Environmental Assessment (2010), the Operational Noise Modelling & Assessment Report (2015) and the Operational Noise Management Report (2017) can also be accessed from the Pacific Highway website.

Other documents referenced in the Post Construction Operational Noise Report are available online. The Environmental Criteria for Road Traffic Noise (ECRTN) can be sourced from the EPA website and the Environmental Noise Management Manual (ENMM) can be viewed at www.rms.nsw.gov.au.



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