1 Te whakahaere i te haruru me te wiri
Managing noise and vibration

Noise and vibration are an inevitable consequence of the construction, maintenance and use of the state highway network.

Waka Kotahi NZ Transport Agency aims to be a good neighbour, taking our social and environmental responsibility seriously. This includes managing noise and vibration to minimise disturbance to people.

For any project, we undertake monitoring to understand the baseline noise and vibration environment and we assess the potential effects of both construction and the operation of the road. Acoustic specialists measure and predict noise and vibration across the project and determine appropriate mitigations, adhering to independent standards produced by Standards New Zealand.

How we manage noise and vibration

Waka Kotahi draws on a range of methods to manage noise and vibration created by road traffic, construction and maintenance.

Most traffic noise is generated from tyre contact with the road. To mitigate it, we can employ low-noise road surfaces, noise barriers such as walls and fences (primarily in urban areas) and landscaping methods.

We also use design approaches such as road gradient, intersection layout and designing the road to be driven at a certain speed.

Mitigation for traffic noise follows a 'best practicable option' approach. Noise specialists work with the design team and other specialists to recommend mitigation measures.

Road construction and maintenance can consist of many activities that cause noise and vibration, such as earthworks, rock blasting, drilling and heavy vehicle movements.

While many of these effects are unavoidable, as much as possible Waka Kotahi aims to reduce any disturbance to communities through early communication, timing of activities and best practice techniques.

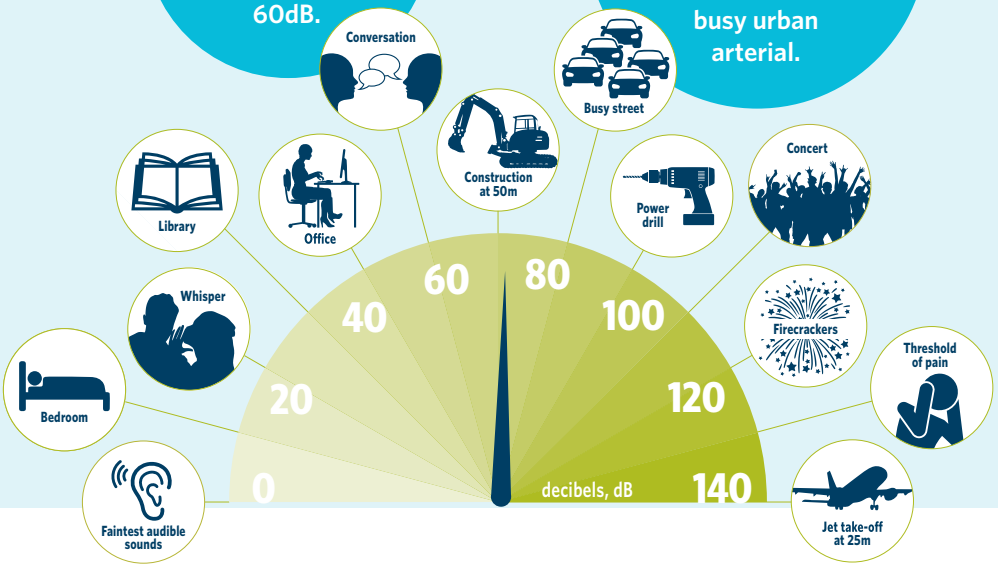
Typical sound levels

Traffic volume, traffic speed, the number of large freight vehicles and the road surface are all key factors contributing to the noise level.

Sound sources cause changes in air pressure which can be detected by our ears and can also be measured by a sound level meter.

A vacuum cleaner at 70dB is about twice as loud as a normal conversation at 60dB.

Road noise ranges from a daily average level of about 50dB for a quiet suburban street to about 75dB for a busy urban arterial.



The SH1 Whangārei to Port Marsden Highway project

The emerging preferred corridor for the Whangārei to Port Marsden Highway project mostly follows the existing SH1 route, with some sections built on a new alignment to straighten out curves. The road will be upgraded to a four-lane highway. As part of the planning and design phase, Waka Kotahi will work to understand the environment, ground conditions and potential impact of the project on properties and communities along the route. We will do this by conducting technical investigations and by engaging with people affected by, or interested in, the project.

Noise monitoring will be carried out at various locations along the emerging preferred corridor to provide a baseline. Assessments will be made that consider existing noise levels, potential changes to noise levels that the project might create and future noise levels. Methods to mitigate potential adverse noise effects will be identified.

We will also propose relevant designation conditions to monitor and manage noise and vibration during construction and operation as part of our resource consent applications.

Types of surfacing

A smooth surface of open graded porous asphalt (OGPA) contains voids that provide paths for air to escape from beneath rolling vehicle tyres, which reduces the amount of sound generated. This surface is 4 to 6 dB quieter than chipseal.

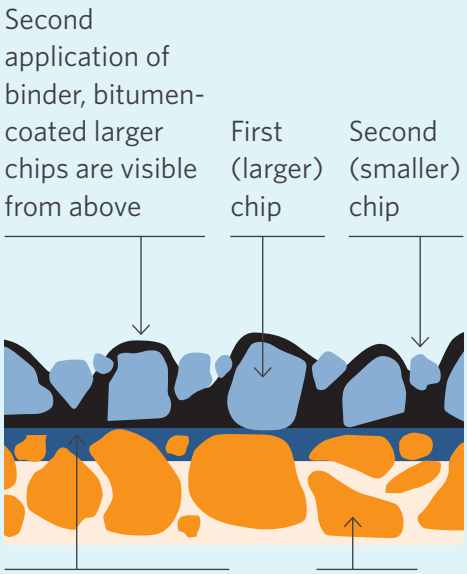
Did you know?

While the road surface can have a significant effect on traffic noise this can also be impacted by:

- surface features or how smooth the ride is for vehicles using it
- joints where a road has been patched or resurfaced and joins with an existing road
- whether the road is wet
- the speed traffic is travelling at
- types of traffic.

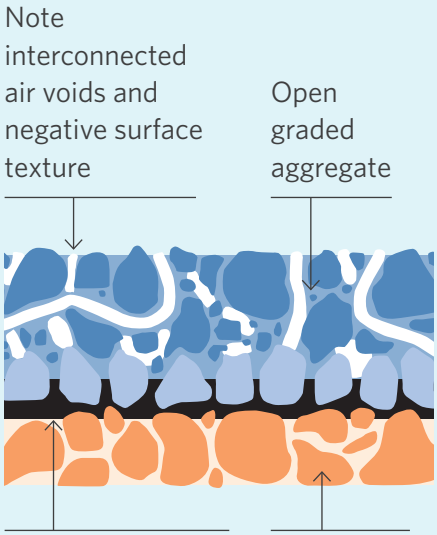
Two-coat seal

A two-coat chipseal has two applications of binder and two applications of chip, the second smaller in size to the first. The smaller chip of the second coat locks and supports the larger chip of the first coat.



Open graded porous asphalt (OGPA)

OGPA has fewer fine aggregates than other asphalt surfaces, and typically has between 15 and 25% voids.



For more information, visit the project webpage or contact the project team

www.nzta.govt.nz/w2pmh **w2pmh@nzta.govt.nz** **0800 948 342**

Kei te kaha mātou ki te mahi me ō mātou hapori katoa. Ki te hiahia koe i ēnei mōhiohio i whakamāoritia ki te reo Māori, whakapā mai i konei: **w2pmh@nzta.govt.nz**

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WAKA KOTAHI NZ TRANSPORT AGENCY

Whangārei to Port Marsden Highway / New Zealand Upgrade Programme

New Zealand Government