Information Sheet

Northport noise management

Proposed changes to the way we measure and manage noise at the port.

We are working with the Whangārei District Council to incorporate the Port Noise Standards into the Whangārei District Plan. These changes are in line with the Government's National Planning Standards and are being introduced via the District Plan Review process.

The proposed changes make the District Plan more consistent with the rest of New Zealand and better provide for port growth, whilst providing greater long-term certainty for residents and landowners who may be affected by port noise, now and in the future.

It's important that we explain what is being proposed as clearly as possible, because depending on where your property is located, different mitigation measures and development rules may apply.

Northport
VISION FOR GROWTH

About port noise

Noise produced by Northport is divided into two types:

1. Port Hum

This is represented by the port noise contours. This includes the general 'hum' of the port – the ongoing rumbles and noises made by ships, vehicles and machinery at the port.

2. Bangs and Crashes

These are the bangs and clangs you hear when containers and logs are being moved around, or piles are being driven. These noises are managed by the Port Noise Management Plan, including through operator training, planning and timing of noisy activities.

How do we measure and manage the noise floor?

While bangs and clangs are relatively easy to pick out and measure, it's a little harder to reliably measure the ambient contributions from existing activities. This is because they are partly masked by other activities, including the refinery, local road traffic and coastal weather and wave noise.

Instead, experts have developed a standardised way to measure and predict the average noise for a given period of time.

For example, to create a five-day average noise level, noise is measured continuously for five days and nights. Then all the peaks and dips in the noise are levelled out to determine what the equivalent continuous level of noise would have been.

Once noise averages have been determined, experts use computer modelling to create lines on a map called noise contours.

These contour lines represent the boundaries where noise is predicted to be within a certain level. The experts model these contours for the current port situation, and for planned future developments. This helps us understand how the noise levels may change, and what measures need to be put in place to manage that noise.

Northport already incorporates best practise noise management in all parts of its operation, we buy quiet, modern equipment and keep it well maintained. We also specifically train our equipment operators on ways to reduce noise levels. These practices will continue under the new framework, with the following additional measures:

- Putting a planning framework in place that requires the port to meet the noise limits and manage noise well.
- Making sure residential buildings very close to the port have appropriate levels of noise insulation.

Daytime and night-time sounds are not considered equal!

When calculating noise averages, experts add 10dB to all sounds that occur at night, so they bring the average up. This is done because as we all know, sounds at night can be much more disturbing then sounds during the day. Partly because we are most likely trying to sleep and also because the lower noise floor level at night means any sounds stand out that much more.

Port noise control boundaries

What do the noise contours mean for you?

As you can see on the map, experts have marked out two key noise control boundaries – the inner control boundary (blue) and the outer control boundary (yellow). The contours that informed these control boundaries are not shown on the map.

The area between the inner control boundary and the outer control boundary is where the fve-day noise average falls between 55 – 58 dB.

Beyond the outer control boundary the five-day noise average is below 55 dB which means no mitigation measures or development rules are required. This approach aligns with the recommended controls in the Port Noise Standard NZS 6809:1999.

The area between the inner control boundary and the outer control boundary is where the five-day noise average falls between 55 – 58 dB.

There are currently 110 properties within this zone. Within this area the following development rules and acoustic mitigation is proposed:

- New homes, or additions to existing homes will have to be designed with the appropriate levels of noise insulation.
- Noise levels will be monitored as the port develops. If noise levels exceed 55dB Ldn (5 day), Northport will investigate the noise levels inside and outside affected residential dwellings. Northport will then work with the homeowner to put in place appropriate noise mitigation measures, such as a cooling and ventilation system to allow homes to be cooled and ventilated if windows need to be closed (to reduce noise).

Noise limits allowed

Location	Day-night (long term)	Night time (short term)
At any point on land at, or beyond, the inner control boundary	58 dB L_{dn} (5-day) 61 dB L_{dn} (1-day)	53 dB L_{Aeq} (9 hrs) 58 dB L_{Aeq} (15 min) 78 dB L_{AFmax}
At any point on land at, or beyond the inner noise boundary	55 dB L_{dn} (5-day) 58 dB L_{dn} (1-day)	50 dB L_{Aeq} (9 hrs) 55 dB L_{Aeq} (15 min) 75 dB L_{AFmax}

What's the difference between 50 dB and 60 dB?

One thing that is a little tricky to understand about noise is that it is measured on something called a logarithmic scale. This means that 60 dB is exponentially louder than 50 dB. So an increase that sounds like a small change can actually represent quite a significant jump in loudness.

Here are some examples of sound levels at each decibel level to help you imagine what the various levels sound like.

120 dB	— Ambulance siren
110 dB	— Car horn
100 dB	— Factory machinery
90 dB	— Train
80 dB	— Alarm clock
70 dB	— Washing machine
60 dB	— Electric toothbrush
50 dB	— Refrigerator
40 dB	— Quiet office
30 dB	— Whispering
20 dB	— Rustling leaves
10 dB	— Normal breathing
0 dB	— Hearing threshold

Doing our bit for our economy, our region and our neighbours too.

Northport is proud to be an essential piece of Kiwi infrastructure, contributing to the growth of our local and national economy. We are also committed to ensuring the wellbeing of those who live in our surrounding community.

Managing noise is very important to us and we are continually looking for ways to reduce and better manage the noise we make. We are confident that the proposed approach to noise management will mean we can more accurately predict the noise made by the port as we grow, and ensure the right measures are in place to mitigate noise effects.

Some helpful definitions

Ambient noise level

The 'hum' of general noise produced by ships, vehicles and machines at the port. This does not include intermittent bangs and clangs, such as when logs are being loaded or piles are being driven.

Decibel (dB)

A logarithmic unit used to measure sound level.

Noise modelling

The noise levels are calculated using computer modelling software in order to predict current and future noise levels. Modelled current noise levels are verified by making noise measurements. The future noise levels inform planning provisions.

L_{dn}

The average noise level over a 24-hour "day-night" period. The contribution between the hours of 10pm and 7am is penalised by 10 dB before averaging. This recognises that people find night time noise more disruptive to reflect heightened noise sensitivity at night.

L_{Aeq}

Commonly referred to as the average noise level, the L_{Aeq} is the single continuous noise level that would produce the same total sound energy over a period of time as all the noise level ups and downs that actually occur within that same period.

Noise Measurements

In-situ measurements of actual noise levels. Noise levels are usually measured continuously for a given period of time.

Noise Monitoring

Monitoring of noise levels to ensure compliance. This is done using a combination of calculated noise levels and actual noise measurements.