Construction vibration and noise

As with most major construction projects, there will be a certain amount of vibration and noise as the Takitimu North Link project progresses. We will do our best to ensure we can minimise disruption as much as possible. If you are concerned about vibration or noise related to the project, please contact us 0800 865 776 or info@takitimunorthlink.co.nz

What are the causes of vibration?

Excavators, vibrating rollers, drillers, piling machines and heavy vehicles and machinery are the most common causes of vibration on our sites. While we use the latest technology equipment there is still an element of vibration that is unavoidable.

What are the effects?

The effect of vibration will vary depending on how close you are to the source. Our bodies are sensitive to vibration and we will feel vibration at much lower levels than that which will cause damage to buildings (see diagram overleaf).

Our limits

Our conditions to carry out the work on the Takitimu North Link project includes vibration limits based on the Waka Kotahi Vibration Standards that are set at very conservative levels to avoid damage to nearby buildings. If we are likely to exceed these levels the conditions require us to consult and manage the effects with the receivers and prepare a site-specific noise and vibration schedule to determine the best option to monitor and minimise the effects of the vibration.

How is vibration measured?

Vibration is measured using a geophone that can be attached to the building foundations or in the ground. These monitors pick up vibration being experienced and is measured in terms of peak particle velocity (PPV), which measures how fast the ground moves. Units of measurement are in millimetres per second (mm/s).

What we are doing to manage vibration

We use the most advanced equipment available to minimise vibration, but some vibration is inevitable even with the best equipment. We take care to work within our condition levels which are set well below those that can cause damage to buildings, even if the vibration may be unpleasant to people.

Vibration reduces rapidly with increased distance from the source and is influenced by the type of machinery used, construction methods and ground conditions encountered. We will review our construction activity and make changes where possible if we find specific cases of higher-than-expected vibration.

What does this mean for you?

- While vibration may feel significant, it may not exceed the amenity and damage limits in the standards.
- Low vibration levels can result in the movement of small objects on hard surfaces, however vibration levels which may cause building damage much higher than this. As such, we recommend that any fragile/valuable items be secured to prevent breakage.

There are many variables that affect the amount of vibration received within your property and its potential effect on structures. Research in New Zealand* and internationally** has demonstrated that construction equipment vibration is well below levels that can cause damage to buildings.

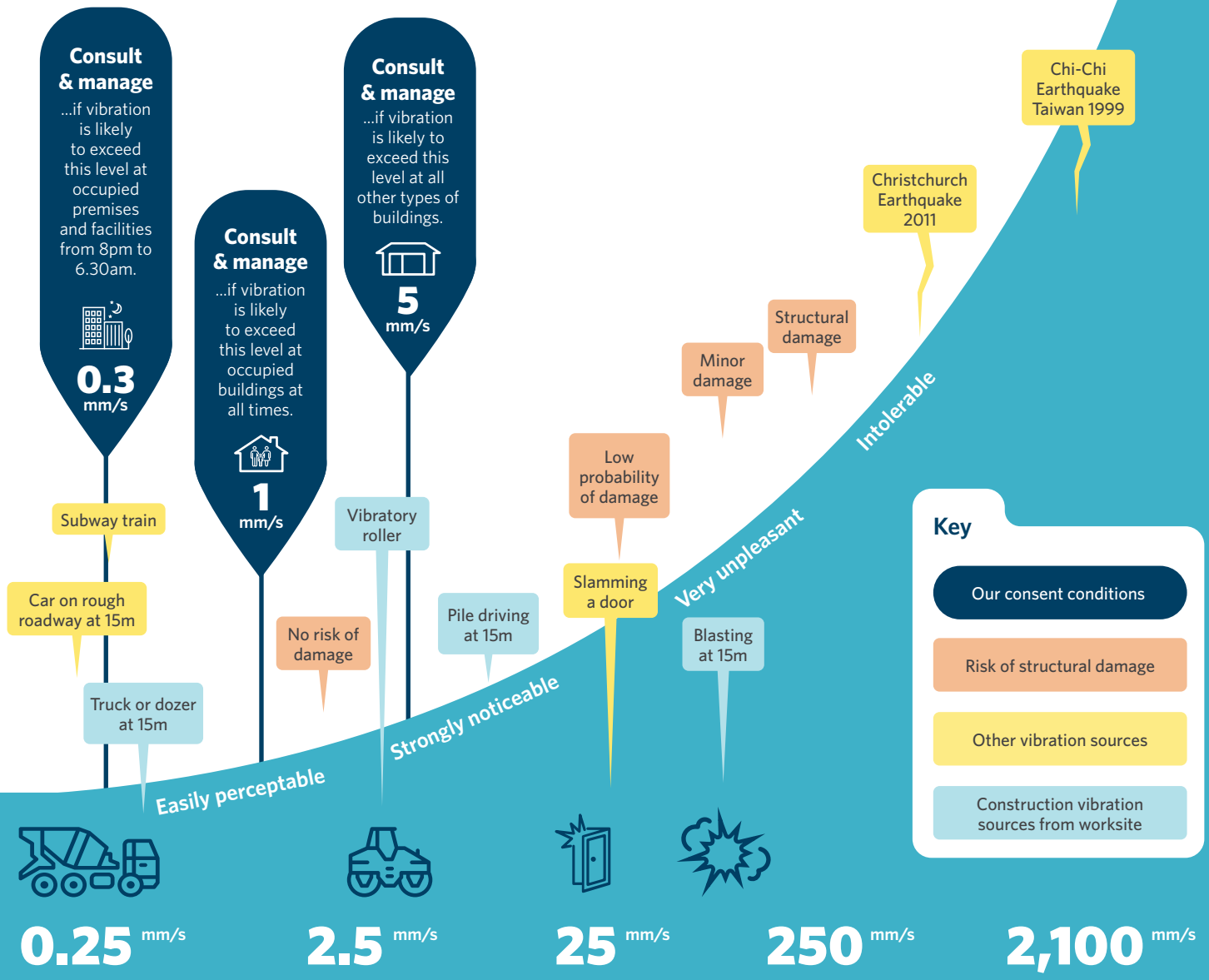
If we think you will experience high levels of vibration for upcoming works, we will be in touch ahead of time to arrange monitoring and explain what type of construction activities will be occurring.

** NZTA Research Report 485 – Ground vibration from road construction – May 2012*

***New Hampshire Department of Transport – Ground Vibrations emanating from construction equipment – 2012*

How will the vibrations affect me?

(All values are measured in millimetres per second)



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Managing noise

Our plans set out how we'll manage noise on site, the noise criteria and limits we're working within, the types of construction activities likely to generate noise and how we may mitigate and minimise the noise.

We will monitor noise during construction, to make sure we're staying within the limits and not generating unreasonable levels.

We focus on minimising noise at the source first. Some examples of these are below:

- Managing working hours around sensitive receivers.
- Training staff.
- Ensuring all equipment is well maintained.
- Choosing quieter equipment where possible.

If you are concerned by vibration or noise please get in touch with us.

info@takitimunorthlink.co.nz
0800 865 776
www.nzta.govt.nz/takitimunorth

NZ TRANSPORT AGENCY
WAKA KOTAHI