

# Noise and Vibration

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## NAV.1 Description and Expectations

Noise has the potential to cause adverse effects, depending on a number of factors including frequency, timing, volume and the type of noise. Disturbance of sleep is often the greatest complaint in relation to noise, however other adverse effects include general nuisance, psychological and chronic health effects, interference with speech communication and interference with learning processes, thinking and education.

Excessive noise can detract from the character and amenity values associated with the local environment. Noise generating activities can also be restricted by noise 'sensitive' activities in proximity that seek a higher level of amenity (reverse sensitivity). In an urban sense noise is a significant issue (especially at night) in mixed use zones and in 'interface' areas where noise sensitive activities (e.g. residential uses) are located in close proximity to high noise emitting land uses (e.g. bars and panel beaters).

The Resource Management Act 1991 (RMA) addresses noise in two ways. First, under section 16 there is a duty on every occupier of land and every person carrying out an activity in, on, or under a water body or the coastal marine area to adopt the best practical option to not emit more than a reasonable level of noise. Section 16 of the Act states that a national environmental standard, plan or resource consent may prescribe noise emission standards. Section 16 therefore guides how district plans can address noise emissions.

The other way the RMA addresses noise is through the control of excessive noise. There are specific provisions in the Act to deal with excessive noise, which normally involves intermittent noise sources that require immediate attention, for example loud stereos associated with parties. The excessive noise provisions stand apart from district plan provisions.

Noise rules have been designed to provide an adequate level of protection from the potential effects of noise. The rules within this chapter provide certainty about the level of ambient sound permitted during

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specific time frames within each Environment and acknowledge that there will be some noise associated with activities. The rules aim to strike a balance between the need for land to be used for its intended purpose while ensuring that other land users are not exposed to unreasonable levels of noise.

Permitted noise levels are set at a limit that is consistent with the character and amenity values anticipated in each Environment. Differing noise limits are established in interface areas between Environments to ensure that reasonable noise limits can be maintained. Reasonable noise limits are established for other activities such as, construction and demolition, airport operation, temporary military training, use of explosives, helicopter landing areas, shooting ranges and wind turbines.

In certain areas noise sensitive activities are restricted in order to ensure the unhindered and continued operation of high noise generating activities. In other areas the provision of acoustic insulation requirements for buildings containing noise sensitive activities in high noise environments will allow various activities to co-exist in Environments anticipating mixed use. Guidance from the most recent New Zealand Standards will ensure that noise levels are measured and analysed in accordance with international best practice.

Vibration is generally only a concern adjacent to construction or demolition projects; where there is operation of mechanical plant near or attached to buildings / structures; or in relation to explosives use and blasting. Accordingly vibration limits have been provided to ensure that vibration from construction, demolition, fixed mechanical plant and use of explosives and blasting does not exceed reasonable levels. For construction, demolition and fixed mechanical plant, a simplified approach has been taken whereby single velocity limits have been specified. This approach is considered to be the least complicated and will ensure the required level of amenity if maintained. For explosives use and blasting a more flexible approach has been adopted to achieve operational efficiency and to ensure the required level of amenity is maintained.

## NAV.2 Eligibility

The following provisions shall apply district wide in addition to any other provisions in this District Plan applicable to the same area or site.

## NAV.3 Objectives

1. To enable a mix of activities to occur across a range of Environments, while ensuring that noise and vibration is managed within appropriate levels for the health and wellbeing of people and communities, and for the amenity and character of the local environment.
2. To ensure that activities that seek a high level of acoustic and vibration amenity do not unduly compromise the ability of other lawful activities to operate.

## NAV.4 Policies

1. To establish reasonable noise and vibration limits and controls that enable appropriate activities to operate while maintaining the characteristic amenity values of each Environment.
2. To avoid reverse sensitivity effects by:
  - a. Requiring suitable acoustic design standards for noise sensitive activities located in or adjacent to areas anticipating high noise levels.
  - b. Restricting noise sensitive activities in Environments where they could unduly compromise the continuing operation of appropriate business activities.
  - c. Considering the use of other mechanisms, such as noise control boundaries, buffer areas or building setbacks, as appropriate tools to protect existing or future activities.
3. To ensure that high noise generating activities located in noise sensitive areas maintain the characteristic amenity values of each Environment by:

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- a. Establishing noise limits that are consistent with anticipated noise and vibration levels in each Environment.
  - b. Requiring high noise generating activities to provide suitable mitigation measures to maintain appropriate noise levels for the health and wellbeing of people and communities, and for the amenity and character of the local environment.
4. To avoid restricting primary production activities by providing provisions that acknowledge their seasonal characteristics, transitory periods of noisiness and the effects of reverse sensitivity.
  5. To ensure that noise associated with activities in open spaces and on public recreational areas is appropriate to the amenity values anticipated in the surrounding environment.

## ***NAV.5 Noise Measurement and Assessment***

Unless specified otherwise, noise shall be measured in accordance with New Zealand Standard NZS 6801:2008 “*Acoustics – Measurement of environmental sound*” and assessed in accordance with New Zealand Standard NZS6802:2008 “*Acoustics - Environmental Noise.*”

## ***NAV.6 Permitted Activities***

Unless specifically stated otherwise, any activity shall be a permitted activity provided it complies with all of the noise standards given in the following section(s) *NAV.6.1 – NAV.6.15* and all other relevant Environment and District Wide rules.

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## NAV.6.1 Noise Arising from Activities within Environments

The following noise limits shall apply within and between Environments:

Noise emitted from any site in the following Environment	Noise measured within the applicable boundary of any of the following Environments (refer to following table for applicable assessment location)	Daytime 0700 to 2200 hours	Night-time 2200 to 0700 hours		Notes <sup>8,9</sup>
		dB LAeq	dB LAeq	dB LAFmax	
Business 2	Living 1, 2, 3 Open Space Coastal Countryside Urban Transition Countryside Kamo Low/Medium Density Living	55	45	75	
Business 4 Marsden Point Port	Living 1, 2, 3 Urban Transition Countryside	55	45	75	
All Environments other than: -Business 2 -Business 4 -Marsden Point Port	Living 1, 2, 3 Coastal Countryside Urban Transition Kamo Low/Medium Density Living	50	40	70	1, 2, 3
	Countryside Open Space	55	40	70	1, 2, 3
All Environments	Business 1 Town Basin	60	55	80	4, 5
	Business 2 Airport Bulk Format Retail	65	60	80	
	Business 3 Kamo Activity Precinct	60	50	75	
	Business 4 Marsden Point Port	75	75	-	
	Port Nikau and Marsden Primary Centre - Noise Zone 1	65	65	70	3
	Port Nikau - Noise Zone 2	60	55	70	3
	Marsden Primary Centre – Noise Zone 2 and Noise Zone 2A	55	45	70	3
	Marsden Primary Centre - Town Centre	55	45	70	3
Mineral Extraction Areas	Any noise sensitive activity not owned or controlled by the quarry owner or operator	<b>Low noise Environment</b>			6, 7
		50	40	70	
		<b>High noise Environment</b>			
		55	45	75	

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The above noise rules shall apply within the relevant boundary assessment location as set out below:

Site boundary	Notional Boundary
<ul style="list-style-type: none"> <li>• Living 1, 2</li> <li>• Kamo Low / Medium Density Living</li> <li>• Bulk Format Retail</li> <li>• Kamo Activity Precinct</li> <li>• Open Space</li> <li>• Business 1, 2, 3, 4</li> <li>• Town Basin</li> <li>• Airport</li> <li>• Marsden Point Port</li> <li>• Port Nikau - Noise Zone 1 and 2</li> <li>• Marsden Primary Centre - Noise Zone 1 and 2</li> <li>• Marsden Primary Centre - Town Centre</li> </ul>	<ul style="list-style-type: none"> <li>• Living 3</li> <li>• Coastal Countryside</li> <li>• Urban Transition</li> <li>• Countryside</li> <li>• Any noise sensitive activity not owned or controlled by the quarry owner or operator in a mineral extraction area</li> </ul>

1. Normal residential activity occurring in Living Environments such as children’s play, spontaneous social activities, lawnmowing and home maintenance work undertaken by/for the occupier is excluded from compliance with the noise rules during the daytime provided such activity is reasonable in terms of duration and noise level and in the case of home maintenance does not exceed the rules for construction noise. This exclusion does not apply to non-residential land use within the Living Environments (such as childcare centres).

2. NAV. 6.1 shall not apply to mobile machinery used for a limited duration as part of agricultural or horticultural activities occurring in the Countryside, Coastal Countryside or Urban Transition Environments. Limited duration events are those activities normally associated with industry practice, of relatively short duration, and where no reasonable alternative is available. Any such activity shall be subject to Section 16 of the Resource Management Act.

“Limited duration activities” in this context include, but are not limited to:

- Spraying and harvesting of crops and/or weeds for horticultural or agricultural purposes e.g. topdressing or aerial spraying
- Primary forestry activities (not including milling or processing)

This exclusion does not apply to:

- static irrigation pumps;
- motorbikes that are being used for recreational purposes;

3. NAV.6.1 shall not apply if the activity under consideration is a mineral extraction activity included in the Appendix 14 Schedule of Existing Mineral Extraction Areas. Where this occurs the limits and stated timeframes in Appendix 14 shall apply.

4. Noise generated by temporary activities in the Town Basin Environment may exceed the noise rules in any Environment for 12 days every calendar year provided that noise does not exceed a level of 65 dB LAeq between 0900 and 2300 hours at the boundary of any Living Environment.

5. In the Business 1 Environment the “daytime” noise standard shall apply between 0700 and 0000 hours (midnight) on Fridays and Saturdays. The “night-time” noise standard shall apply between 0000 and 0700 hours on Saturday and Sunday mornings.

6. In Mineral Extraction Areas the “daytime” noise standard shall apply between 0630 and 2130 hours. The “night-time” noise standard shall apply between 2130 and 0630 hours.

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7. Except where an alternative noise limit is provided for the activity within the District Plan [See Appendix 14 – Schedule of Existing Mineral Extraction Areas] then the activity shall comply with the noise limit stated within the notional boundary of a noise sensitive activity not owned or controlled by the quarry owner or operator.
8. NAV.6.1 shall not apply to the following specific activities which are provided for elsewhere:
  - Construction activities. Refer to Section [NAV.6.2] for specific rule.
  - Wind turbines and wind farms. Refer to Section [NAV.6.3] for specific rule.
  - Shooting ranges. Refer to Section [NAV.6.4] for specific rule.
  - Helicopter and aircraft landing areas. Refer to Section [NAV.6.7] for specific rule.
  - Engine testing at the airport. Refer to Section [NAV.6.8] for specific rule.
  - Noise from explosives. Refer to Section [NAV.6.9] for specific rule.
  - Temporary military training activities. Refer to Section [NAV.6.10] for specific rule.
  - Bird Scaring devices. Refer to Section [NAV.6.11] for specific rule.
  - Road traffic noise. Refer to Section [NAV.6.12] for specific rule.
  - Frost fans. Refer to Section [NAV.6.13] for specific rule.
  - Emergency Generator Testing. Refer to Section [NAV.6.14] for specific rule.
9. The noise rules shall not apply to the following activities:
  - Level crossing warning devices.
  - The operation of emergency service vehicles or emergency callout sirens.
  - Noise from aircraft and helicopters when in flight.
  - Unamplified noise from sporting events in Open Space Environment where these occur for up to 20 hours per week between 0700 and 2100 hours.
  - Unamplified noise from standard school outdoor activities where this occurs between 0700 and 1800 hours Monday to Sunday.
  - Rail movements within Fonterra's Kauri Milk Processing site (the area encompassed within Scheduled Activity 15); excluding the loading and unloading of goods from trains within the site.
  - Emergency generators used to ensure the continued operation of network utilities. This exemption shall not include emergency generator testing which are required to comply with NAV.6.14.

## NAV.6.2 Construction Noise

Noise from demolition and construction, including that undertaken as part of temporary military training activities, shall comply with the guidelines and recommendations of NZS 6803: 1999 "*Acoustics - Construction Noise*". Noise levels shall be measured and assessed in accordance with New Zealand Standard NZS 6803: 1999 "*Acoustics - Construction Noise*". NAV.6.2 shall not apply to permitted maintenance or utility works undertaken within the road carriageway of a road where:

- a. It has been demonstrated to Council that these works cannot reasonably comply with the referenced noise guidelines at the time when they must be carried out; and

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- b. A construction noise and vibration management plan, as prepared by a Recognised Acoustician, has been provided to Council.

## NAV.6.3 Wind Turbines

Noise from wind turbines and wind farms shall comply with NZS6808:2010 “Acoustics – Wind farm noise”.

## NAV.6.4 Shooting Ranges

Where any new shooting range is established, or an existing shooting range or its use is altered or extended:

- a. Between 0900 and 1800 sound levels from the shooting range activity shall not exceed 50 dB  $L_{AFmax}$  from the notional boundary of any noise sensitive activity or visitor accommodation and;
- b. Between 1800 and 2200 and 0730 and 0900 sound levels from the shooting range activity shall not exceed 40 dB  $L_{AFmax}$  from the notional boundary of any noise sensitive activity or visitor accommodation and;
- c. No shooting shall occur between 2200 and 0730.

For the avoidance of doubt, in relation to alterations or extensions to an existing shooting range, compliance with items a, b and c is required for the altered or extended component of the activity.

## NAV.6.5 Sound Insulation Requirements

1. Any noise sensitive activity established within a Business 1, 2, 3, Town Basin, Port Nikau Noise Zone 1 or 2, or Marsden Primary Centre Noise Zone 1 or 2A Environments shall be designed and constructed to ensure the following internal design noise levels:

Environment	Bedrooms and sleeping areas within dwellings or units 2200 – 0700 hours	Other habitable spaces within dwellings or units 0700 - 2200 hours	Teaching spaces, places of religious assembly, health and veterinary service buildings 0700 – 2200 hours
Business 1 Business 2 Business 3 Kamo Activity Precinct Town Basin	30 dB $L_{Aeq}$	40 dB $L_{Aeq}$	35 dB $L_{Aeq}$
Port Nikau and Marsden Primary Centre Noise Zone 1 and Noise Zone 2A	35 dB $L_{Aeq}$	45 dB $L_{Aeq}$	35 dB $L_{Aeq}$

2. For design purposes, the following external  $L_{eq}$  noise levels shall be used. These noise levels shall be assumed to be incident on the façade.

Environment	Design noise level (dB $L_{eq}$ ) - incident							
	63	125	250	500	1k	2k	4k	dBA
Bedrooms and Sleeping Areas	Hz	Hz	Hz	Hz	Hz	Hz	Hz	
Business 1 Town Basin	66	65	55	54	49	42	38	55

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Business 2 Port Nikau and Marsden Primary Centre Noise Zone 2A	67	64	61	58	55	52	49	60
Business 3	57	54	51	48	45	42	39	50
Port Nikau and Marsden Primary Centre Noise Zone 1	72	69	66	63	60	57	54	65
<b>Other Habitable Rooms</b>								
Business 1 Town Basin Business 3	71	70	60	59	54	47	43	60
Business 2 Port Nikau Noise Zones 1 and 2 Marsden Primary Centre Noise Zone 1 and Noise Zone 2A	72	69	66	63	60	57	54	65

**Note:** Where windows are required to be closed to achieve these sound levels the ventilation requirements of the New Zealand Building Code shall be achieved.

**Note:** A certificate from a Recognised Acoustician, confirming that the building accommodating the noise sensitive activity will achieve the minimum sound insulation requirements, is required to confirm compliance with NAV.6.5.

## **NAV.6.6 Activities Establishing near the Airport Environment**

1. *Within the Air Noise Margin:*
  - a. A minor addition or alteration to an existing building, which is not to be used as a habitable room, is a permitted activity.
  - b. The following are **controlled** activities within the Outer Control Boundary:
    - i. The addition of a habitable room;
    - ii. The construction of a new residential unit if:
      - The net site area associated with each residential unit is at least 1000m<sup>2</sup>.
      - The proposed construction is the first residential unit upon an allotment that is less than 1000m<sup>2</sup> and that allotment existed before 1 December 2005.
    - iii. Visitor's accommodation.
  - c. Control is reserved over:
    - i. The effect of aircraft noise on the living standard within buildings or habitable rooms. Whether the design and materials used in the construction achieves an internal design level of 40 dB L<sub>dn</sub> for noise within any habitable room.
  - d. Any activity that does not comply with the standard for a **permitted** or **controlled** activity is a **discretionary** activity. See NAV.7 for Discretionary activity criteria.
2. *Within the Air Noise Boundary:*
  - a. New noise sensitive activities are **prohibited** activities
  - b. Visitor Accommodation is a **discretionary** activity:

**Note 1 - Conditions of consent:** Any application for land use consent for a residential or other noise-sensitive activity in the Outer Control Boundary, will be required to have a notice registered against its title and included in the LIM report which alerts the owner that the property falls within a noise-sensitive area and can therefore expect noise levels higher than would normally be expected in that Environment.



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**Note 2 - Notification:** Council has identified reverse sensitivity effects that new noise-sensitive activities may have on the safe and efficient operation of the Whangarei Airport. It has also identified potential adverse effects of the Airport on noise-sensitive activities. Therefore, applications for resource consent may require the written approval of the Whangarei Airport as an affected party if such applications are to be considered on a non notified basis.

## NAV.6.7 Aircraft and Helicopter Landing Areas

Helicopter landing areas, including those used for military training activities, shall comply with and be measured and assessed in accordance with NZS 6807:1994 “*Noise Management and Land Use Planning for Helicopter Landing Areas*”. NAV.6.7 shall not apply to emergency helicopter movements. Noise from aircraft other than helicopters shall comply with NZS6805:1992 “*Airport Noise Management and Land Use Planning*.”

The use of aircraft and helicopters undertaking rural production activities on an intermittent and infrequent basis are exempt from compliance with NAV.6.7.

## NAV.6.8 Engine Testing

Aircraft engine testing in the Airport Environment is a permitted activity if:

- Between the hours of 0700 and 2300, the noise generated by aircraft engine testing, assessed at any point within the boundary of any Living Environment, does not exceed 55 dB  $L_{Aeq}$  (16 hours) and 65 dB  $L_{Aeq}$  (15 minutes);
- Between the hours of 2300 and 0700, noise generated by aircraft engine testing assessed at any point within the boundary of any Living Environment, does not exceed 45dB  $L_{Aeq}$  (8 hours) and 65 dB  $L_{AFmax}$ ;
- Between the hours of 2300 and 0700, for the purposes of essential, unscheduled maintenance and engine testing on a maximum of 15 occasions within any calendar year, noise generated within the boundary of any Living Environment does not exceed 55 dB  $L_{Aeq}$  (8 hours) and 70 dB  $L_{AFmax}$ . In these circumstances the noise limits set out in b. above shall not apply;
- The time, duration and other essential details of any testing undertaken in accordance with the requirements of c. above shall be recorded and advised to the Whangarei District Council within two weeks of any such event.

## NAV.6.9 Explosives Use

Peak noise levels from explosives, excluding those from Temporary Military Training Activities, use shall not exceed the following limits when measured within the notional boundary of any building set out in the following table:

Affected building type	Permitted blasting time window	Number of blasts per year	Max peak sound level applying to all blasts dB $L_{Cpeak}$
Occupied noise sensitive activity and visitor accommodation	0700 to 1900 hours	≤ 20	120
		>20	115
Occupied commercial and industrial buildings	All hours of occupation	All	125
Unoccupied buildings	All times	All	140

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## NAV.6.10 Temporary Military Training Activities

Temporary military training activities are permitted activities provided that they comply with the following rules:

1. *Weapons firing and/or the use of explosives*
  - a. Weapons firing and explosives use on any site shall not exceed a total of 31 days in any 365 day period.
  - b. Weapons firing and/or use of explosives shall comply with the following:

Table 1:

Activity	Time (Monday to Sunday)	Separation distance required between the boundary of the activity and the notional boundary to any building housing a noise sensitive activity
i. Live firing of weapons and single or multiple explosive events	0700 to 1900 hours	At least 1500m
	1900 to 0700 hours	At least 4500m
ii. Firing of blank ammunition	0700 to 1900 hours	At least 750m
	1900 to 0700 hours	At least 2250m

Table 2:

Rules to be complied with if minimum separation distances for sources NAV.6.10.1(i) and (ii) cannot be met:		
Rule	Time (Monday to Sunday)	Noise level at the notional boundary to an individual building housing a noise sensitive activity
(a)	0700-1900hrs	For the use of explosives: 120 dB $L_{Cpeak}$ For the use of small arms and pyrotechnics: 90 dB $L_{Cpeak}$ with one period in any 365 day period of up to five days consecutive use up to 120 dB $L_{Cpeak}$
(b)	1900-0700hrs	For the use of explosives: 90 dB $L_{Cpeak}$ For the use of small arms and pyrotechnics: 60 dB $L_{Cpeak}$ with one period in any 365 day period of up to five days consecutive use up to 90 dB $L_{Cpeak}$
(c)	<p>A Noise Management Plan prepared by a suitably qualified expert is provided to Council at least 15 working days prior to the activity taking place. The Noise Management Plan shall, as a minimum, contain:</p> <ul style="list-style-type: none"> <li>• A description of the site and activity including times, dates, and nature and location of the proposed training activities.</li> <li>• Methods to minimise the noise disturbance at noise sensitive receiver sites such as selection of location, orientation, timing of noisy activities to limit noise received at sensitive receiver sites.</li> <li>• A map showing potentially affected noise sensitive sites and predicted peak sound pressure levels for each of these locations.</li> <li>• A programme for notification and communication with the occupiers of affected noise sensitive sites prior to the activities commencing, including updates during the event.</li> <li>• A method for following up any complaints received during or after the event, and any proposed de-briefing meetings with Council.</li> </ul>	

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**Note:** “Small arms” include, but are not limited to, revolvers, self-loading pistols, rifles and carbines, assault rifles, submachine guns and light machine guns.

**Note:** “Explosives” include but are not limited to explosive charges, cannons, grenades, mortars and rockets.

## 2. *Mobile noise sources, excluding sources NAV.6.10.1(i) and (ii)*

- a. Activities shall comply with the “typical duration” noise limits set out in Tables 2 and 3 of *NZS6803:1999 Acoustics – Construction Noise* (with reference to ‘construction noise’ taken to refer to other, mobile noise sources) provided that no building housing a noise sensitive activity is exposed to noise above 35 dB  $L_{AFmax}$  from a Temporary Military Activity mobile source for more than a total of 31 days in any 365 day period.
- b. Activities that do not comply with the duration limit in NAV.6.10.2(a) shall comply with the noise limits in NAV.6.10.3. Fixed (stationary noise sources).

**Note:** mobile noise sources (other than firing of weapons) include sources such as personnel, light and heavy vehicles, self-propelled equipment, earthmoving equipment.

## 3. *Fixed (stationary) noise sources, excluding sources NAV.6.10.1(i) and (ii)*

Time (Monday to Sunday)	Noise level at the notional boundary to any building housing a noise sensitive activity *	
0700 to 1900 hours	55 dB $L_{Aeq}$ (15 min)	n.a.
1900 to 2200 hours	50 dB $L_{Aeq}$ (15 min)	
2200 to 0700 hours the next day	45 dB $L_{Aeq}$ (15 min)	75 dB $L_{AFmax}$

**Note:** fixed (stationary) noise sources (other than firing of weapons and explosives) include noise sources such as power generation, heating, ventilation or air conditioning systems, or water or wastewater pumping/treatment systems.

## 4. *Helicopter landing areas*

Helicopter landing areas shall comply with noise limits set out in *NZS6807:1994 Noise Management and Land Use Planning for Helicopter Landing Areas*.

## 5. *Restricted Discretionary Activities*

Any activity that does not comply with rules NAV.6.10.1 – NAV.6.10.4 shall be a Restricted Discretionary Activity. Discretion is restricted to those matters listed in NAV.7.1(a) – (m).

## **NAV.6.11 Bird Scaring Devices**

The use of bird scaring devices is a **permitted** activity in the Countryside or Coastal Countryside Environments if:

- a. Bird scaring devices do not operate between half an hour after sunset and half an hour before sunrise.
- b. Each device operates at not more than 6 “events” per hour where an “event” includes clusters of up to three shots from gas operated devices or three individual shots from a firearm in quick succession. (This rule does not apply to bird scaring devices that generate a noise level of less than 55 dB  $L_{AE}$  within the notional boundary of any noise sensitive activity not owned by the operator of the device).

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- c. The sound level from any event does not exceed 65 dB  $L_{Ae}$  within the notional boundary of any noise sensitive activity not owned by the operator of the device.
- d. The bird scaring device is only operated when a crop is at risk from bird damage.

The use of bird scaring devices in other Environments is a **discretionary** activity.

**Advice Note:** Existing use rights may apply where a bird scaring device has been lawfully established prior to the operative date [insert operative date] of the NAV chapter.

## NAV.6.12 Road Traffic

- a. Noise from any new or altered road shall be assessed in accordance with and meet the provisions of New Zealand Standard NZS 6806:2010 “Acoustics - Road-traffic noise - New and altered roads.”
- b. The installation and operation of Audio-Tactile pedestrian call buttons at traffic signal controlled intersections and pedestrian crossings is a permitted activity. Installations shall comply with Australian Standard AS2353: 1999 Pedestrian Push- button Assemblies.

## NAV.6.13 Frost Fans

The use of frost fans is a **permitted** activity in the Countryside or Coastal Countryside Environments if:

- a. Noise generated by single or multiple frost fans on a site does not exceed 55 dB  $L_{Aeq}$  (10 minute) at any time when assessed at the notional boundary of any noise sensitive activity on a separate site under different ownership.
 

**Note:** The noise rule includes a correction for the special audible characteristics of frost control fans and no further penalty shall be applied to measured noise levels.
- b. Operation of frost fans during the night period shall be for protection of crops from frost only. Any other operation, such as for the purposes of maintenance, shall be undertaken during the day period.
- c. A legible notice shall be fixed to the road frontage of the property on which the frost fan is being used giving the name, address and telephone number of the person responsible for its operation.

The use of frost fans in any other Environment is a **discretionary** activity.

**Advice Note:** Existing use rights may apply where a frost fan has been lawfully established prior to the operative date 24 May 2016 of the NAV chapter.

## NAV.6.14 Emergency Generator Testing

The testing of emergency generators is a permitted activity in all Environments if:

- a. The duration of testing does not exceed 12 hours total per annum;
- b. Testing occurs between 0900 and 1700 hours only;
- c. Noise levels do not exceed the following:
  - i. 60 dB  $L_{Aeq(15\ min)}$  within the relevant boundary assessment location of any Marsden Primary Centre – Town Centre Living, Open Space, Coastal Countryside, Urban Transition or Countryside Environments.
  - ii. 65 dB  $L_{Aeq(15\ min)}$  within the site boundary of any Business 1, 3, Town Basin, Port Nikau Noise Zone 2, Marsden Primary Centre Noise Zone 2 .

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- iii. 70 dB  $L_{Aeq(15 \text{ min})}$  within the site boundary of any Business 2, Airport, Port Nikau Noise Zone 1, Marsden Primary Centre Noise Zone 1 Environment.
- iv. 85 dB  $L_{Aeq(15 \text{ min})}$  within the site boundary of any Business 4 or Marsden Point Port Environment.

## NAV.6.15 Vibration

### 1. Continuous Vibration from Stationary Machinery

Vibration from building services is a permitted activity if vibrating, reciprocating and rotating machinery and all piping, ducting and other equipment attached to such machinery is installed and maintained so that any resulting vibration does not exceed the levels in the following table when measured in adjacent buildings or areas of buildings under different ownership from the source of vibration:

Affected occupied building type	Time	Maximum vibration level in mm/s rms between 8 and 80 Hz
Industrial	All	0.8
Commercial	All	0.4
Noise sensitive activity	0700 to 2200 hours	0.2
	2200 to 0700 hours	0.14
Surgery rooms of healthcare facilities	All	0.1

### 2. Construction Vibration

Vibration from construction and demolition activity is a permitted activity if it does not exceed the following levels when measured at the point of effect.

- a. For human annoyance, vibration should be assessed at the location of the affected person inside the building, typically on the appropriate floor. Vibration should be measured in three orthogonal directions orientated to the axes of the building and assessed in the single axis in which vibration is greatest.
- b. For building damage, vibration should be assessed at the horizontal plane of the highest floor of the building. Vibration should be measured in two horizontal orthogonal directions orientated to the axes of the building and assessed in the single axis in which vibration is greatest. Note that for the building damage criteria in NAV 6.15.2 Note 2 an alternative measurement location is defined.

Effect	Affected occupied building	Activity	Time	Maximum vibration level mm/s ppv	Notes
Annoyance	Occupied noise sensitive activity or visitor accommodation in any Environment	General construction activity	2200 to 0700	0.3	1
			0700 to 2200	1	1
	Occupied commercial or industrial activity in any Environment	General construction activity	2200 to 0700	5	
			0700 to 2200	1	

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Building damage	Unclassified structures of great intrinsic value such as historic buildings	All activity	All times	2.5	
	Non-occupied dwellings and buildings of similar design	All activity	All times	5	
	Non-occupied commercial and industrial buildings	All activity	All times	10	

- 1 Except that in surgery rooms of hospital facilities, maximum vibration levels from construction and demolition activities shall not exceed 0.1mm/s rms between 8 and 80Hz.
- 2 NAV.6.15.2 shall not apply to permitted maintenance or utility works undertaken within the road carriageway where the following levels are achieved:

Table 1

Effect	Receiver	Location	Details	Maximum vibration level (mm/s PPV)
Annoyance and building damage	Occupied noise sensitive activity or visitor accommodation building in any Environment	As set out in NAV.6.15.2 above	2000 to 0630 hours	1
			0630 to 2000 hours	5
	Occupied commercial or industrial activity building in any Environment	Inside the building	0630 to 2000 hours	5
Building damage	Unoccupied buildings	Base of building on side of building facing vibration source or, where this is not practicable, on the ground outside the building	Vibration – transient (including blasting)	Refer to table 2 below
			Vibration – continuous	Refer to table 2 below - 50% of Table 2 Values

Table 2

Type of building	Peak component velocity (PPV) in frequency range of predominant pulse	
	4 to 15 Hz	15 Hz and above
Reinforced or framed structures Industrial and heavy commercial buildings	50 mm/s	50 mm/s
Unreinforced or light framed structures Residential and light commercial buildings	15 mm/s at 4Hz increasing to 2 0mm/s at 15 Hz	20 mm/s at 15Hz increasing to 50 mm/s at 40 Hz

**Notes:**

- All values referred to in table 2 are at the base of the building

# Noise and Vibration

- For unreinforced or light framed structures and residential and light commercial buildings at frequencies below 4 Hz a maximum displacement of 0.6mm (zero to peak) is not to be exceeded.

### 3. *Vibration from Explosives Use and Blasting*

Vibration from explosive use and blasting from activity other than provided for in NAV.6.15.2 is a permitted activity if it does not exceed the levels set out in the following table, when measured in general accordance with the provisions of Australian Standard AS2187.2: 2006 Explosives – Storage and use – Use of explosives.

Category	Type of blasting operations	Peak component particle velocity (mm/s)
Occupied noise sensitive activities and visitor accommodation	Operations lasting longer than 12 months or more than 20 blasts per year	5 mm/s for 95% blasts per year 10 mm/s maximum unless agreement is reached with the occupier that a higher limit may apply
Occupied noise sensitive activities and visitor accommodation	Operations lasting less than 12 months or less than 20 blasts per year	10 mm/s unless agreement is reached with the occupier that a higher limit may apply
Occupied non-sensitive site, such as factories and commercial premises	All blasting	25 mm/s unless agreement is reached with the occupier that a higher limit may apply

## NAV.7 Discretionary Activities

### 1. *Assessment of Discretionary Activities for NAV.6.1 – NAV.6.15*

Unless specifically stated otherwise, any activity shall be a discretionary activity where it does not comply with all of the permitted noise and vibration provisions given in the previous sections NAV.6.1 – NAV.1.6.15. When assessing discretionary applications pursuant to these sections, the assessment shall include (but is not limited to):

- The level of sound likely to be received
- The existing ambient sound levels
- The nature and frequency of the noise including the presence of any special audible characteristics
- The effect on noise sensitive activities within the environment
- The likely time when noise will be audible and the extent of the exceedance of the noise rule at that time
- Whether the level and character of the noise is below recognised guidelines or standards for the preservation of amenity
- The potential for cumulative effects to result in an adverse outcome for receivers of noise
- The effects of noise on recreation or conservation areas within the Open Space Environment.
- The value and nature of the noise generating activity and the benefit to the wider community having regard to the frequency of noise intrusion and the practicality of mitigating noise or using alternative sites.

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- j. Any proposed measures to avoid, remedy or mitigate noise received off-site
  - k. The potential for any reverse sensitivity effects
  - l. The level of involvement of a Recognised Acoustician in the assessment of potential noise effects and/or mitigation options to reduce noise.
  - m. The ability of noise sensitive activities to unduly compromise the continuing operation or future development of other lawful activities
2. *Assessment of Discretionary Activities for NAV.6.6 Activities Establishing Near the Airport Environment*

When assessing discretionary applications pursuant to section NAV.6.6, the assessment shall include (but is not limited to):

- a. Consideration of the proposed location of the noise-sensitive activity in relation to airport activities;
- b. Effects, or potential effects arising from the proximity of the airport, aircraft approach/takeoff paths, lead-in lighting, navigational aids; and the potential of buildings or structures to create glare, electromagnetic interference, smoke, mechanical turbulence or other adverse effects;
- c. The effect, or potential effect of the noise-sensitive activity on the operation of Whangarei Airport; particularly having regard to helicopter TLOF and hover points and the runway centreline alignments, requirements for aircraft on approach, and aircraft utilising navigational aids/lighting.
- d. The effect, or potential effect of airport operations, in particular noise, and health/safety effects from low flying aircraft, on the noise-sensitive activity, given low ground clearances for aircraft on approach/ takeoff over this area, and high single event noise levels and average daily noise levels;
- e. The effect of topographical characteristics of the land in relation to shielding of airport noise;
- f. Relevant objectives and policies, as they relate to the protection of a regionally significant transportation resource;
- g. Any remedial measures to avoid, remedy or mitigate potential conflict with the safe and efficient operation of the airport;
- h. Whether there has been adequate and meaningful consultation with the Airport Authority with respect to the current or potential effects associated with the operation of the airport resource, whether any issues have been resolved and any mitigation measures that have been proposed.



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## Revision and Sign-off Sheet

Date Approved	Editor	Paragraph	Change Reference	Decision Date	Approved By
11 May 2016	TB	New Chapter	Plan Change 110 – addition of new chapter to the District Plan.	Operative Date 24 May 2016 TRIM 16/52692	MM
25 August 2017	AM	NAV.6.11 – Bird Scaring Devices	Correction of Minor Error	Clause 20 A Minor Amendment – Scheduled Activities DSTPLN-659943184-106	MM
19 October 2017	AM	Whole Chapter	Approved Plan Change 135 – GNLC Ltd	Operative Date 1 November 2017	MM

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