Noise and Vibration

Issues

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 Resource Management Act 1991 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 Resource Management Act 1991 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 specific time frames within each Zone 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 Zone. Differing noise limits are established in interface areas between Zones 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 Zones 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* or *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.

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*.

Objectives

NAV-O1 Objective 1

To enable a mix of activities to occur across a range of zones, 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.

NAV-O2 Objective 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.

Policies

NAV-P1 Policy 1

To establish reasonable noise and vibration limits and controls that enable appropriate activities to operate while maintaining the characteristic *amenity values* of each zone.

NAV-P2 Policy 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 zones 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 setback*s, as appropriate tools to protect existing or future activities.

NAV-P3 Policy 3

To ensure that high noise generating activities located in noise sensitive areas maintain the characteristic *amenity values* of each zone by:

a. Establishing noise limits that are consistent with anticipated noise and vibration levels in each zone.

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 zone.

NAV-P4 Policy 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*.

NAV-P5 Policy 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.

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.*"

Rules

NAV-R1 Permitted Activities

Unless specifically stated otherwise, any activity shall be a permitted activity provided it complies with all of the noise standards given in sections NAV-R2 – NAV-R18 and all other relevant zone and District-Wide rules.

NAV-R2 Noise Arising from Activities within Zones

1. The noise limits that shall apply within and between Zones are set out in Tables NAV 1A and NAV 1B below.

   Note:

   1. *Except that where noise is generated from the Fonterra Kauri Milk Processing Site, the noise rules shall apply at the Fonterra Kauri Milk Processing Site – Noise Control Boundary as shown on the Planning Maps.*

2. The noise rules set out in Tables NAV 1A and NAV 1B shall apply within the relevant boundary assessment location as set out in Table NAV 2.

Table NAV 1A. Noise Limits within and between zones

Noise emitted from any site in the following Zone	Noise measured within the applicable boundary of any of the following Zones (refer to Table NAV 2 for applicable assessment location)	Daytime 07:00 to 22:00 hours	Night-time 22:00 to 07:00 hours	Notes (8,9)
• Light Industrial Zone • Commercial Zone • Sport and Active Recreation Zone	• Residential Zones • Neighbourhood Centre Zone • Natural Open Space Zone • Open Space Zone • Rural Production Zone • Rural Lifestyle Zone • Settlement Zone • Future Urban Zone • PNDA – Areas A, B and C	55dB L_{Aeq}	45dB L_{Aeq} 75dB L_{AFmax}	-
• Port Zone • Settlement Zone Industrial Sub-Zone • Heavy Industrial Zone	• Residential Zones • Neighbourhood Centre Zone • Natural Open Space Zone • Open Space Zone • Rural Production Zone • Rural Lifestyle Zone • Settlement Zone • Future Urban Zone • PNDA – Areas A, B and C	55dB L_{Aeq}	45dB L_{Aeq} 75dB L_{AFmax}	-

Noise emitted from any site in the following Zone	Noise measured within the applicable boundary of any of the following Zones (refer to Table NAV 2 for applicable assessment location)	Daytime 07:00 to 22:00 hours	Night-time 22:00 to 07:00 hours	Notes (8,9)
All Zones other than: • Heavy Industrial Zone • Light Industrial Zone • Commercial Zone • Sport and Active Recreation Zone • Settlement Zone Industrial Sub-Zone • Strategic Rural Industries Zone [All SIRZ]	• Residential Zones • Neighbourhood Centre Zone • Rural Lifestyle Zone • Settlement Zone • Future Urban Zone • PNDA – Areas A, B and C	50dB L_{Aeq}	40dB L_{Aeq} 70dB L_{AFmax}	1, 2, 3
All Zones other than: • Heavy Industrial Zone • Light Industrial Zone • Commercial Zone • Sport and Active Recreation Zone • Settlement Zone Industrial Sub-Zone • Strategic Rural Industries Zone [All SIRZ]	• Open Space Zone • Natural Open Space Zone • Rural Production Zone	55dB L_{Aeq}	40dB L_{Aeq} 70dB L_{AFmax}	1, 2, 3

Noise emitted from any site in the following Zone	Noise measured within the applicable boundary of any of the following Zones (refer to Table NAV 2 for applicable assessment location)	Daytime 07:00 to 22:00 hours	Night-time 22:00 to 07:00 hours	Notes (8,9)
All Zones other than: • Strategic Rural Industries Zone [All SIRZ]	• City Centre Zone • Waterfront Zone	60dB L_{Aeq}	55 dB L_{Aeq} 80dB L_{AFmax}	4, 5
All Zones other than: • Strategic Rural Industries Zone [All SIRZ]	• Light Industrial Zone • Commercial Zone • Sport and Active Recreation Zone • Shopping Centre Zone • *Hospital* Zone • Airport Zone	65dB L_{Aeq}	60 dB L_{Aeq} 80dB L_{AFmax}	-
All Zones other than: • Strategic Rural Industries Zone [All SIRZ]	• Mixed Use Zone • Local Centre Zone • Settlement Zone Centre Sub-Zone • Town Centre Zone • PNDA – Area D	60dB L_{Aeq}	50dB L_{Aeq} 75dB L_{AFmax}	-
All Zones other than: • Strategic Rural Industries Zone [All SIRZ]	• Heavy Industrial Zone • Settlement Zone Industrial Sub-Zone • Strategic Rural Industrial Zone [All SIRZ]	75dB L_{Aeq}	75dB L_{Aeq}	-
• Kauri Strategic Rural Industries	• At the Kauri Milk Processing Site – Noise Control Boundary • Outer	55dB L_{Aeq}	45dB L_{Aeq} 75dB L_{AFmax}	9

Table NAV 1B. Noise Limits within and between Mineral Extraction areas and any noise sensitive activity not owned or controlled by the quarry owner or operator

Noise emitted from any site in the following Area	Noise measured within the boundary of the following (refer to Table NAV 2 for applicable assessment location)	Daytime 07:00 to 22:00 hours	Night-time 22:00 to 07:00 hours	Notes (8,9)
Mineral Extraction Areas	Any *noise sensitive activity* not owned or controlled by the *quarry* owner or operator	Low noise Environment: • 50 dB L_{Aeq} High noise Environment: • 55 dB L_{Aeq}	Low noise Environment: • 40 dB L_{Aeq} • 70 dB L_{AFmax} High noise Environment: • 45 dB L_{Aeq} • 75 dB L_{AFmax}	6, 7

Notes:

1. *Normal residential activity occurring in any zone 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 Residential Zones and PNDA Areas A, B and C (such as childcare centres).*

2. *NAV-R2 shall not apply to mobile machinery used for a limited duration as part of agricultural or horticultural activities occurring in the Rural Production Zone, Rural Lifestyle Zone, Future Urban Zone or Large Lot Residential Zones. 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:*

    a. *Spraying and harvesting of crops and/or weeds for horticultural or agricultural purposes e.g. topdressing or Aerial spraying*

    b. *Primary plantation forestry activities (not including milling or processing). This exclusion does not apply to:*

        i. *Static irrigation pumps;*

        ii. *Motorbikes that are being used for recreational purposes.*

3. *NAV-R2 shall not apply if the activity under consideration is a mineral extraction activity included in MIN-QRA Appendix 1 of the Minerals Chapter. Where this occurs the limits and stated timeframes in MIN-QRA Appendix 1 shall apply.*

4. *Noise generated by temporary activities in the Waterfront Zone, Open Space Zone, or Sport and Active Recreation Zone may exceed the noise rules in any Zone for 12 days every calendar year provided that noise does not exceed a level of 65 dB LAeq between 09:00 and 23:00 hours at the notional boundary of any Residential Zone, Rural Production Zone, Rural Lifestyle Zone, Settlement Zone Sub-Zone 1, or PNDA Areas A, B and C.*

5. *In the City Centre Zone the "daytime" noise standard shall apply between 07:00 and 00:00 hours (midnight) on Fridays and Saturdays. The "night-time" noise standard shall apply between 00:00 and 07:00 hours on Saturday and Sunday mornings.*

6. *In Mineral Extraction Areas the "daytime" noise standard shall apply between 06:30 and 21:30 hours. The "night-time" noise standard shall apply between 21:30 and 06:30 hours.*

7. *Except where an alternative noise limit is provided for the activity within the District Plan (see MIN-QRA Appendix 1 of the Minerals Chapter) 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-R2 shall not apply to the following specific activities which are provided for elsewhere:*

    a. *Construction activities. Refer to Section NAV-R3 for specific rule.*

    b. *Wind turbines and wind farms. Refer to Section NAV-R4 for specific rule.*

    c. *Shooting ranges. Refer to Section NAV-R5 for specific rule.*

    d. *Helicopter and aircraft landing areas. Refer to Section NAV-R10 for specific rule.*

    e. *Engine testing at the airport. Refer to Section NAV-R11 for specific rule.*

    f. *Noise from explosives. Refer to Section NAV-R12 for specific rule.*

    g. *Temporary military training activities. Refer to Section NAV-R13 for specific rule.*

    h. *Bird Scaring devices. Refer to Section NAV-R14 for specific rule.*

    i. *Road traffic noise. Refer to Section NAV-R15 for specific rule.*

    j. *Frost fans. Refer to Section NAV-R16 for specific rule.*

    k. *Emergency Generator Testing. Refer to Section NAV-R17 for specific rule.*

9. *The noise rules shall not apply to the following activities:*

    a. *Level crossing warning devices.*

b. *The operation of emergency service vehicles or emergency callout sirens.*

c. *Noise from aircraft and helicopters when in flight.*

d. *Unamplified noise from sporting events in Open Space and Sport and Active Recreation Zone where these occur for up to 20 hours per week between 07:00 and 21:00 hours.*

e. *Unamplified noise from standard school outdoor activities where this occurs between 07:00 and 18:00 hours Monday to Sunday.*

f. *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.*

g. *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-R17.*

10. *The noise limits do not apply to noise generated within the Marsden Point Energy Precinct when measured within a Conservation or Open Space zone.*

Table NAV 2. Boundary Assessment Locations

Site Boundary	Notional Boundary
• Open Space Zone • Airport Zone • Port Zone • Town Centre Zone • City Centre Zone • Mixed Use Zone • Commercial Zone • Local Centre Zone • Shopping Centre Zone • Light Industrial Zone • Heavy Industrial Zone • Sport and Active Recreation Zone • Waterfront Zone • Medium Density Residential Zone • General Residential Zone • Neighbourhood Centre Zone • *Hospital* Zone • Settlement Zone • PNDA Areas A, B, C and D	• Any *noise sensitive activity* not owned or controlled by the *quarry* owner or operator in a Quarrying Resource Area • Rural Production Zone • Rural Lifestyle Zone • Future Urban Zone • Low Density Residential Zone • Large Lot Residential Zone • Natural Open Space Zone

NAV-R3 Construction Noise

1. 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-

R3 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

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

NAV-R4 Wind Turbines

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

NAV-R5 Shooting Ranges

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

   a. Between 09:00 and 18:00 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 18:00 and 22:00 and 07:30 and 09:00 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 22:00 and 07:30.

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

NAV-R6 Sound Insulation Requirements

1. Any *noise sensitive activity* established within a City Centre Zone, Mixed Use Zone, Commercial Zone, Waterfront Zone, Local Centre Zone, Sport and Active Recreation Zone, Settlement Zone Centre Sub-Zone, PNDA Area D, or Town Centre Zone, or within the Fonterra Kauri Milk Processing Site – Noise Control Boundary shall be designed and constructed to ensure the internal design noise levels set out in Table NAV 3.

2. For design purposes, the external L_{eq} noise levels set out in Tables NAV 4A and NAV 4B shall be used. These noise levels shall be assumed to be incident on the façade.

3. Where any activity listed in Tables NAV 5A to NAV 5D is located partly or wholly within the State Highway Noise Control Boundary or the Rail Noise Control Boundary, the entire room or space shall be designed, constructed and maintained to achieve the indoor design noise levels set out in Tables NAV 5A to NAV 5D.

4. NAV-R6.3 does not apply where any of NAV-R6.4(a) – (f) apply:

    a. The nearest exterior façade of the *building* accommodating the activity listed in Tables NAV 5A to NAV 5D is at least 50m from the formed carriageway of the state highway and 50m from the formed railway track and there is a solid *building*, fence, wall or landform that blocks the line of sight from all parts of all windows and doors to that activity to:

        i. All parts of the formed carriageway of the state highway.

        ii. All points 3.8m directly above the formed railway track; or

    b. It can be demonstrated by way of prediction or measurement by a *Recognised Acoustician* that the noise at all exterior façades of the listed activity is no more than 15 dB above the relevant noise levels in Tables NAV 5A to NAV 5D; or

    c. An *alteration* or extension to an existing *building* other than a *residential unit* does not increase the *gross floor area* of an activity listed in Tables NAV 5A to NAV 5D within the State Highway Noise Control Boundary or the Rail Noise Control Boundary; or

    d. An external *alteration* or extension to an existing *residential unit* does not increase the *gross floor area* of an activity listed in Tables NAV 5A to NAV 5D within the State Highway Noise Control Boundary or the Rail Noise Control Boundary; or

    e. An internal *alteration* to an existing *residential unit* does not increase the total *gross floor area* of activities listed in Tables NAV 5A to NAV 5D by more than $5m^2$ within each 10-year period from 18 January 2023 within the State Highway Noise Control Boundary or the Rail Noise Control Boundary; or

    f. The activity is designed, constructed and maintained in accordance with the construction schedule in NAV Appendix 1 and meets the ventilation requirements at NAV-R6.5.

5. Where windows are required to be closed to achieve the sound levels in NAV-R6.1– R6.3, the room or space shall be designed, constructed and maintained to:

    a. Provide mechanical ventilation that satisfies clause G4 of the New Zealand Building Code and is adjustable by the occupant to control the ventilation rate in increments up to a high air flow setting that provides at least 6 air changes per hour; and

    b. Provide relief for equivalent volumes of spill air; and

    c. Provide cooling and heating that is controllable by the occupant and that can maintain the inside temperature of the room or space between 18°C and 25°C; and

    d. Ensure that where a ventilation or cooling system is used that it does not generate more than 35dB L_{Aeq} when measured 1m away from any grille or diffuser at the minimum level required to achieve the temperatures in NAV-R6.5(c).

6. Any activity which does not comply with NAV-R6.3 is a Restricted Discretionary activity. Discretion is restricted to:

    a. The effects on people's health and internal residential amenity, including effects on future residents and effects from future levels of noise anticipated when the application is being assessed.

    b. Whether activity listed in Tables NAV 5A to NAV 5D could be designed or located to achieve compliance with the rules.

    c. The extent to which non-compliance with the rules could unduly compromise the continuing operation of the state highway corridor, or railway corridor as enabled within Designations KRH-1 and KRH-2.

    d. Any natural or built features of the *site* or surrounding area which will mitigate noise effects.

    e. The outcome of any consultation undertaken with Waka Kotahi or KiwiRail.

Notes:

1. *NAV-R6.4(d) and (e) apply where an existing building continues to be used as a residential unit.*
2. *NAV-R6.4(e) provides for:*

    a. *alterations that partition, combine, or re-allocate space between, habitable rooms.*

    b. *the incorporation of a maximum of 5m^2 of non-habitable space into habitable rooms.*

Compliance Standards:

1. *A certificate from a Recognised Acoustician is required to confirm compliance with the acoustic requirements of NAV-R6. When confirming compliance with NAV-R6.3 and NAV-R6.4(b):*

    a. *Railway noise is assumed to:*

        i. *be 70 dB L_{Aeq} (1h) at a distance of 12m from the track; and*

        ii. *reduce at a rate of 3 dB per doubling of distance of up to 40m and 6 dB per doubling of distance beyond 40m.*

    b. *Road noise is based on measured or predicted noise levels plus 3 dB.*

2. *Where more than one standard within NAV-R6 applies that requires insulation of a noise sensitive activity or a noise sensitive space from an external noise source, each of those standards must be complied with.*

Notification:

1. *Any restricted discretionary activity under NAV-R6.6 shall not be notified or limited notified unless Waka Kotahi or KiwiRail (as relevant) is determined to be an affected person in accordance with section 95B of the Resource Management Act 1991 or Council decides that special circumstances exist under section 94A(4) of the Resource Management Act 1991.*

Table NAV 3. Internal Design Noise Levels

Zones	**Bedrooms and sleeping areas within dwellings or units 22:00 – 07:00 hours**	**Other habitable spaces within dwellings or units 07:00 – 22:00 hours**	**Teaching spaces, places of religious assembly, health and veterinary service buildings 07:00 – 22:00 hours**
City Centre Zone Sport and Active Recreation Zone Mixed Use Zone Local Centre Zone Waterfront Zone PNDA Area D Settlement Zone Centre Sub-Zone Town Centre Zone Fonterra Kauri Milk Processing Site	30 dB L_{Aeq}	40 dB L_{Aeq}	35 dB L_{Aeq}

Table NAV 4A. Bedrooms and sleeping areas Leq noise levels for design purposes by zone

Bedrooms and sleeping areas design noise level (dB Leq) – incident								
Zone	**63 Hz**	**125 Hz**	**250 Hz**	**500 Hz**	**1k Hz**	**2k Hz**	**4k Hz**	**dBA**
Waterfront Zone	66	65	55	54	49	42	38	55
City Centre Zone **Sport and Active Recreation Zone**	67	64	61	58	55	52	49	60
Mixed Use Zone **Local Centre Zone** **Town Centre Zone** **PNDA Area D**	57	54	51	48	45	42	39	50
Fonterra Kauri Milk Processing Site – Noise Control Boundary	65	60	53	45	40	38	35	50

Table NAV 4B. Other habitable room Leq noise levels for design purposes by zone

Other habitable room design noise level (dB Leq) – incident								
Zone	**63 Hz**	**125 Hz**	**250 Hz**	**500 Hz**	**1k Hz**	**2k Hz**	**4k Hz**	**dBA**
City Centre Zone **Waterfront Zone** **Mixed Use Zone** **Local Centre Zone** **Town Centre Zone** **PNDA Area D**	71	70	60	59	54	47	43	60
Sport and Active Recreation Zone	72	69	66	63	60	57	54	65
Fonterra Kauri Milk Processing Site – Noise Control Boundary	65	60	54	45	40	38	35	50

Table NAV 5A: Indoor Design Noise Levels – Residential Activity

Activity	State Highway Noise Control Boundary	Rail Noise Control Boundary
Residential	**L_{Aeq}(24h) from state highway noise**	**L_{Aeq}(1h) from railway corridor noise**
Bedrooms	40 dB	35 dB
All other *habitable rooms*	40 dB	40 dB

Table NAV 5B: Indoor Design Noise Levels – Educational Activity

Activity	State Highway Noise Control Boundary	Rail Noise Control Boundary
Educational	**L_{Aeq}(24h) from state highway noise**	**L_{Aeq}(1h) from railway corridor noise**
Lecture rooms / theatres, music studios, assembly halls	35 dB	35 dB
Teaching areas, conference rooms and drama studios,	40 dB	40 dB
Libraries	45 dB	45 dB
Designated sleeping rooms for children aged 6 years or younger	40 dB	40 dB

Table NAV 5C: Indoor Design Noise Levels – Hospital Activity

Activity	State Highway Noise Control Boundary	Rail Noise Control Boundary
Hospitals	**L_{Aeq}(24h) from state highway noise**	**L_{Aeq}(1h) from railway corridor noise**
Overnight medical care, wards	40 dB	40 dB
Clinics, consulting rooms, theatres, nurses' stations	45 dB	45 dB

Table NAV 5D: Indoor Design Noise Levels – Place of Assembly Activity

Activity	State Highway Noise Control Boundary	Rail Noise Control Boundary
Place of Assembly	**L_{Aeq}(24h) from state highway noise**	**L_{Aeq}(1h) from railway corridor noise**
Church, place of worship, marae	35 dB	35 dB

NAV-R7 Activities within the Rail Noise Alert Area

1. Within the Rail Noise Alert Area any activity is a permitted activity where:

    a. Resource consent is not required under any rule of the District Plan.

    b. The activity is not prohibited under any rule of the District Plan.

Note:

1. The Rail Noise Alert Area identifies the noise-sensitive area within a 53 dB rail noise contour each side of the rail corridor. Properties within this area may experience rail noise. No specific district plan rules or notification requirements apply as a result of this Rail Noise Alert Area.

NAV-R8 Activities within the Rail Vibration Alert Area

1. Within the Rail Vibration Alert Area any activity is a permitted activity where:

    a. Resource consent is not required under any rule of the District Plan.

    b. The activity is not prohibited under any rule of the District Plan.

Note:

1. The Rail Vibration Alert Area identifies the vibration-sensitive area within 60m each side of the rail corridor. Properties within this area may experience rail vibration. No specific district plan rules or notification requirements apply as a result of this Rail Vibration Alert Area.

NAV-R9 Activities Establishing near the Airport Zone

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:

            a) The *net site area* associated with each *residential unit* is at least 1,000m^2.

            b) The proposed construction is the first *residential unit* upon a *site* that is less than 1,000m^2 and that *site* 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_{dn} 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-R19 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.

Notes:

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 Zone.*

2. *Notification: Council has identified reverse sensitivity effects that new noise sensitive activities may have on the safe and efficient operation of the Whangārei 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 Whangārei Airport as an affected party if such applications are to be considered on a non notified basis.*

NAV-R10 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-R10 shall not apply to *emergency services* helicopter movements. Noise from aircraft other than helicopters shall comply with NZS6805:1992 *"Airport Noise Management and Land Use Planning."*

Compliance Standard:

1. *The use of aircraft and helicopters undertaking rural production activities on an intermittent and infrequent basis are exempt from compliance with NAV-R10.*

NAV-R11 Engine Testing

1. Aircraft engine testing in the Airport Zone is a permitted activity if:

    a. Between the hours of 07:00 and 23:00, the noise generated by aircraft engine testing, assessed at any point within the boundary of any Residential Zone or PNDA Areas A, B or C, does not exceed 55 dB L_{Aeq} (16 hours) and 65 dB L_{Aeq} (15 minutes);

    b. Between the hours of 23:00 and 07:00, noise generated by aircraft engine testing assessed at any point within the boundary of any Residential Zone or PNDA Areas A, B or C, does not exceed 45 dB L_{Aeq} (8 hours) and 65 dB L_{AFmax};

    c. Between the hours of 23:00 and 07:00, 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 Residential Zone or PNDA Areas A, B or C, 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;

    d. 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-R12 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 Table NAV 6.

Table NAV 6. Peak Noise Levels from Explosives

Affected building type	Permitted blasting time window	Number of blasts per year	Max peak sound level applying to all blastsdB Lpeak
Occupied *noise sensitive activity* and *visitor accommodation*	07:00 to 19:00 hours	≤ 20 >20	120 115
Occupied commercial and industrial *buildings*	All hours of occupation	All	125
Unoccupied *buildings*	All times	All	140

NAV-R13 Temporary Military Training Activities

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

1. For *temporary military training activities* involving weapons firing and/or the use of explosives:
    a. Weapon firing and/or the use of explosives on any site shall not exceed a total of 31 *days* in any 365-day period; and
    b. Notice is provided to the Council at least 5 working *days* prior to the commencement of the activity; and
    c. The activity complies with the following minimum separation distances:
        i. Between 07:00 to 19:00 hours: 500m from the *notional boundary* of a *building* containing a *noise sensitive activity* in the Rural Production Zone and 500m from the site boundary of a *building* containing a *noise sensitive activity* in any other zone.
        ii. Between 19:00 to 07:00 hours: 1,251m from the façade of a *building* containing a *noise sensitive activity* in any zone; and
    d. Where the minimum separation distances specified in NAV-R13.1(c) cannot be met, the activity complies with the following peak sound pressure level:
        i. 07:00 to 19:00 hours: 95 L_{Cpeak} when measured at the *notional boundary* of a *building* containing a *noise sensitive activity* in the Rural Production Zone or at the site boundary of a *building* containing a *noise sensitive activity* in any other zone.
        ii. 19:00 to 07:00 hours: 85 L_{Cpeak} when measured 1m from the façade of a *building* containing a *noise sensitive activity* in any zone.
2. For *temporary military training activities* not involving weapons firing and/or the use of explosives, the activity complies with the following noise limits when measured at the *notional boundary* of any *building* containing a *noise sensitive activity*:
    a. Between 07:00 to 19:00 hours: 55 dB L_{Aeq}(15 min)
    b. Between 19:00 to 07:00 hours: 45 dB L_{Aeq}(15 min) and 75 dB L_{AFmax}
3. Any activity that does not comply with rules NAV-R13.1 – NAV-R13.2 shall be a Restricted Discretionary Activity. Discretion is restricted to those matters listed in NAV-R19.1(a)-(m).

NAV-R14 Bird Scaring Devices

1. The use of *bird scaring device*s is a permitted activity in the Rural Production Zone if:

    a. *Bird scaring device*s 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 device*s 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.

    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.

2. The use of *bird scaring device*s in other Zones is a discretionary activity.

Note:

1. Existing use rights may apply where a bird scaring device has been lawfully established prior to the operative date 24 May 2016 of the NAV chapter.

NAV-R15 Road Traffic

1. 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.”*

2. 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-R16 Frost Fans

1. The use of frost fans is a permitted activity in the Rural Production Zone 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.

    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.

2. The use of frost fans in any other Zone is a discretionary activity.

Note:

1. *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.*

2. *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-R17 Emergency Generator Testing

1. The testing of emergency generators is a permitted activity in all Zones if:

   a. The duration of testing does not exceed 12 hours total per annum;

   b. Testing occurs between 09:00 and 17:00 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 Open Space, Natural Open Space, Rural Production, Settlement Zone Residential or *Residential Zones*.

      ii. 65 dB L_{Aeq}(15 min) within the *site boundary* of any City Centre, Mixed Use, Local Centre, Neighbourhood Centre, Waterfront, Town Centre Zones, or Settlement Zone Centre or PNDA Area D.

      iii. 70 dB L_{Aeq}(15 min) within the *site boundary* of any Light Industrial, Commercial, Sport and Active Recreation, *Hospital* or Airport Zone.

      iv. 85 dB L_{Aeq} (15 min) within the *site boundary* of any Heavy Industrial, Strategic Rural Industries, Port Zones, or Settlement Zone Industry.

NAV-R18 Vibration

1. 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 Table NAV 7 when measured in adjacent *buildings* or areas of *building*s under different ownership from the source of vibration.

2. Vibration from construction and demolition activity is a permitted activity if it does not exceed the levels set out in Table NAV 8 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. For the *building* damage criteria in Table NAV 8, an alternative measurement location is defined in Note 2 below.

3. Vibration from explosive use and blasting from activity other than provided for in NAV-R18(2) is a permitted activity if it does not exceed the levels set out in Table NAV 11, when measured in general accordance with the provisions of Australian Standard AS2187.2: 2006 Explosives – *Storage* and use – Use of explosives.

Table NAV 7. Maximum continuous vibration level from stationary machinery

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	07:00 to 22:00 hours	0.2
Noise sensitive activity	22:00 to 07:00 hours	0.14
Surgery rooms of healthcare facilities	All	0.1

Table NAV 8. Maximum vibration levels for construction and demolition activities

Effect	Affected occupied building	Activity and Time	Maximum vibration level mm/s ppv	Notes
Annoyance	Occupied *noise sensitive activity* or *visitor accommodation* in any Zone	General construction activity - 22:00 to 07:00	0.3	1
Annoyance	Occupied *noise sensitive activity* or *visitor accommodation* in any Zone	General construction activity - 07:00 to 22:00	1	1
Annoyance	Occupied commercial or *industrial activity* in any Zone	General construction activity – 22:00 to 07:00	5	-
Annoyance	Occupied commercial or *industrial activity* in any Zone	General construction activity - 07:00 to 22:00	1	-
Building Damage	Unclassified *structures* of great intrinsic value such as historic *buildings*	All activity - all times	2.5	-
Building Damage	Non-occupied dwellings and *buildings* of similar design	All activity - all times	5	-
Building Damage	Non-occupied commercial and industrial *buildings*	All activity - all times	10	-

Note:

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-R18.2 shall not apply to permitted maintenance or utility works undertaken within the road carriageway where the levels in Table NAV 9 and NAV 10 are achieved.*

Table NAV 9. Alternative measurement location for permitted maintenance or utility works undertaken within the road carriageway

Effect	Receiver	Location	Details	Maximum vibration level (mm/s PPV)
Annoyance and *building* damage	Occupied *noise sensitive activity* or *visitor accommodation building* in any Zone	As set out in NAV-R18(2)	20:00 to 06:30 hours	1
Annoyance and *building* damage	Occupied *noise sensitive activity* or *visitor accommodation building* in any Zone	As set out in NAV-R18(2)	06:30 to 20:00 hours	5
Annoyance and *building* damage	Occupied commercial or *industrial activity building* in any Zone	Inside the *building*	06:30 to 20:00 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 NAV 10
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 – continuous	Refer to Table NAV 10 - 50% of Table NAV 10 values

Table NAV 10. Peak component velocity in frequency range of predominant pulse

Peak component velocity (PPV) in frequency range of predominant pulse		
Type of building	**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:

1. *All values referred to in Table NAV 10 are at the base of the building.*
2. *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.*

Table NAV 11. Vibration from explosive use and blasting

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-R19 Discretionary Activities

1. 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-R2 to NAV-R18. When assessing discretionary applications pursuant to these sections, the assessment shall include (but is not limited to):

a. The level of sound likely to be received.

b. The existing ambient sound levels.

c. The nature and frequency of the noise including the presence of any *special audible characteristics*.

d. The effect on *noise sensitive activities* within the environment.

e. The likely time when noise will be audible and the extent of the exceedance of the noise rule at that time.

f. Whether the level and character of the noise is below recognised guidelines or standards for the preservation of amenity.

g. The potential for cumulative effects to result in an adverse outcome for receivers of noise.

h. The effects of noise on recreation or conservation areas within the Natural Open Space Zone.

i. 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.

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. When assessing discretionary applications pursuant to section NAV-R9, 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 Whangārei 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.

NAV Appendix 1 - Alternative Construction Schedule for Road and Rail Noise Control

Table NAV 12 sets out an alternative construction schedule for *road* and rail nose control as referenced in Rule NAV-R6.4(f).

Table NAV 12. Alternative Construction Schedule for Road and Rail Noise Control

Minimum construction for noise control in addition to the requirements of the New Zealand Building Code			
Exterior Walls	**Roof / Ceiling**	**Glazed Areas**	**Exterior Doors**
Wall cavity infill of fibrous insulation, batts or similar (minimum density of 9 kg/m^3)	Ceiling cavity infill of fibrous insulation, batts or similar (minimum density of 7 kg/m^3)	Aluminium frames with full compression seals on opening panes	Exterior door: within the state highway noise control boundary with a line-of-sight to any part of the state highway road surface; or within the railway corridor noise control boundary with a line-of-sight to any point 3.8m directly above the formed railway track. • Solid core exterior door, minimum surface mass 24 kg/m^2, with edge and threshold compression seals; or other doorset with minimum performance of Rw 30 dB

Minimum construction for noise control in addition to the requirements of the New Zealand Building Code			
Cladding and internal wall lining complying with either Options A, B or C below.	Ceiling penetrations, such as for recessed lighting or ventilation, shall not allow additional noise break-in.	Glazed areas shall be less than 35% of each room's *gross floor area*	Exterior door outside of the state highway noise control boundary and railway corridor noise control boundary, or with no line-of-sight to any part of the state highway road surface or to any point 3.8m directly above the formed railway track. • Exterior door with edge and threshold compression seals

Minimum construction for noise control in addition to the requirements of the New Zealand Building Code			

Option A:
 	
Light cladding: timber weatherboard or sheet materials with surface mass between 8 kg/m^2 and 30 kg/m^2 of wall cladding
 	
• Internal lining of minimum 17 kg/m^2 plasterboard, such as two layers of 10 mm thick high-density plasterboard, on resilient/ isolating mountings
	Roof type and internal ceiling lining complying with either Options A, B or C below.	Either:
		
		• double-glazing with:
		
		  • a laminated pane of glass at least 6 mm thick;
		
		  • a cavity between the two panes of glass at least 12 mm deep; and
		
		  • a second pane of glass at least 4 mm thick; Or
		
		• any other glazing with a minimum performance of Rw 33 dB
			-

Minimum construction for noise control in addition to the requirements of the New Zealand Building Code			
Option B: Medium cladding: surface mass between 30 kg/m^2 and 80 kg/m^2 of wall cladding • Internal lining of minimum 17 kg/m^2 plasterboard, such as two layers of 10 mm thick high-density plasterboard	Option A: Skillion roof with light cladding: surface mass up to 20 kg/m^2 of roof cladding • Internal lining of minimum 25 kg/m^2 plasterboard, such as two layers of 13 mm thick high-density plasterboard	-	-
Option C: Heavy cladding: surface mass between 80 kg/m^2 and 220 kg/m^2 of wall cladding • No requirements additional to New Zealand Building Code	Option B: Pitched roof with light cladding: surface mass up to 20 kg/m^2 of roof cladding. • Internal lining of minimum 17 kg/m^2 plasterboard, such as two layers of 10 mm thick high-density plasterboard	-	-

Minimum construction for noise control in addition to the requirements of the New Zealand Building Code			
-	Option C: Roof with heavy cladding: surface mass between 20 kg/m^2 and 60 kg/m^2 of roof cladding • No requirements additional to New Zealand Building Code	-	-