

The Proposed Auckland Unitary Plan (notified 30 September 2013)

6.2 Noise and vibration

1. Land use controls

1.1 Noise arising from activities within zones

Residential zones

1. Except where other more specific controls apply, the $L_{Aeq(15\text{ min})}$ noise level and maximum noise level (L_{AFmax}) arising from any activity in the residential zones measured at or within the boundary of a property in the residential zones must not exceed the following levels.

Table 1

Monday to Saturday 7am-10pm	50dB $L_{Aeq(15\text{ min})}$
Sunday 9am-6pm	
All other times	40dB $L_{Aeq(15\text{ min})}$ 70dB L_{AFmax}

2. These levels may be exceeded by intermittent noise associated with normal household activities, such as lawn mowing or home handyman work, during the daytime hours specified above for reasonable periods.

Residential zones – care centres and educational facilities

3. The noise arising from a care centre or educational facility in a residential zone when measured at or within the boundary of any adjacent property in the residential zones must not exceed the following levels.

Table 2

Monday to Friday 7am-6pm	55dB $L_{Aeq(15\text{ min})}$
All other times	45dB $L_{Aeq(15\text{ min})}$ 75dB L_{AFmax}

4. These levels do not apply to the noise from normal recreational activities occurring at a care centre or educational facility site in a residential zone between 8am-6pm on Monday to Friday and 9am-1pm on Saturday.

Rural zones

5. The $L_{Aeq(15\text{ min})}$ noise level and maximum noise level (L_{AFmax}) arising from any activity in the rural zones measured at or within the notional boundary of any rural dwelling on another property in the rural zones must not exceed the following levels
 - a. when measured on a property in a Rural Conservation zone or Countryside Living zone

Table 3

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Monday to Saturday 7am-10pm	50dB LAeq(15 min)
Sunday 9am-6pm	
All other times	40dB LAeq(15 min) 75dB LAFmax

- i. when measured on a property in the Rural Production zone, Mixed Rural zone or Rural Coastal zone

Table 4

Monday to Saturday 7am-10pm	55dB LAeq(15 min)
Sunday 9am-6pm	
All other times	45dB LAeq(15 min) 75dB LAFmax

6. Clauses (a) and (b) above do not apply to:
- a. animal noise on farms unless they are confined within a building on a permanent or semi-permanent basis
 - b. the use of mobile agricultural vehicles or machinery, or other mobile or portable agricultural, horticultural or silvicultural equipment. Note: the operator of such vehicles or machinery is required by the RMA to ensure that noise emissions do not exceed a reasonable level, which will depend on the time they are used, how loud they are, how long it is used for and how often it is used near rural dwellings.
7. Bird scaring devices in rural zones
- a. bird scaring or bird repelling devices must not operate:
 - i. between the hours of sunset and sunrise
 - ii. at a frequency of more than six times in any 60-minute period (up to three shots in rapid succession)
 - iii. so that the noise level measured at the notional boundary of any adjacent dwelling does not exceed 85dB Lzpeak.
 - b. this rule does not apply to bird scaring devices that generate a noise level less than Lzpeak 70 dB.
 - c. this rule does not apply at a boundary if the owner of the affected property agrees and notifies the council of the agreement in writing.
8. Wind turbines and wind farms
- a. At any wind speed, the (LA90 (10min)) sound level from a wind turbine generator or wind farm must not exceed the background sound level by more than 5dB, or a level of 40dB LA90 (10min) whichever is the greater when measured at the notational boundary of any adjacent property which is a noise sensitive location as defined in New Zealand Standard on Acoustics – Wind Farm Noise (NZS 6808: 2010). The sound level of a wind turbine generator or wind farm must be measured and assessed to the requirements of New Zealand Standard on Acoustics – Wind Farm Noise (NZS 6808: 2010)
 - b. Wind turbine sound levels with special audible characteristics, such as tonality, impulsiveness, or amplitude modulation, must be adjusted by arithmetically adding up to +6dB to the measured level at the notional boundary. The assessment of special audible characteristics must be

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conducted in accordance with Appendix B of New Zealand Standard on Acoustics – Wind Farm Noise (NZS 6808: 2010).

9. Electricity generators
- a. The $L_{Aeq(15\text{ min})}$ noise level and maximum noise level (L_{AFmax}) arising from the use of any petrol or diesel-powered electricity generator measured at the notional boundary of an adjacent dwelling must not exceed the following levels.

Table 5

7am to 10pm	55dB $L_{Aeq(15\text{ min})}$
10pm to 7am	45dB $L_{Aeq(15\text{ min})}$
	75dB L_{AFmax}

- b. Noise levels must be measured in accordance with the New Zealand Standard on Acoustics - Measurement of Environmental Sound (NZS 6801: 2008) and assessed in accordance with the New Zealand Standard on Acoustic - Environmental Noise (NZS 6802: 2008).

Industrial, General Business and Business Park zones

10. The $L_{Aeq(15\text{ min})}$ noise level and maximum noise level (L_{AFmax}) arising from an activity in the Industrial, General Business and Business Park zones measured at or within the boundary of any other property in those zones must not exceed the following levels.

Table 6

	Business Park	General Business and Light Industry Zones	Heavy Industry
All times	60dB $L_{Aeq(15\text{ min})}$	65dB $L_{Aeq(15\text{ min})}$	70dB $L_{Aeq(15\text{ min})}$

Centres and Mixed Use zones

11. The $L_{Aeq(15\text{ min})}$ noise level and maximum noise level (L_{AFmax}) arising from activity in the centres or mixed use zones measured at the façade of any other property in the centres or mixed use zones must not exceed the following levels.

Table 7

Zone which noise effects		
	Local Centre and Neighbourhood Centre zones	City Centre, Metropolitan Centre, Town Centre and Mixed Use zones
7am-10pm	60dB $L_{Aeq(15\text{ min})}$	65 dB $L_{Aeq(15\text{ min})}$
	65db at 63Hz $L_{eq(15\text{ min})}$	70dB at 63Hz $L_{eq(15\text{ min})}$
	60dB at 125 Hz $L_{eq(15\text{ min})}$	65dB at 125Hz $L_{eq(15\text{ min})}$

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10pm-7am	50dB LAeq (15 min) 60dB at 63 Hz Leq (15 min) 55dB at 125 Hz Leq(15 min) 75dB LAFmax	55dB LAeq(15 min) 65dB at 63 Hz Leq(15 min) 60dB at 125 Hz Leq(15 min) 75dB LAFmax
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- a. A facade correction must be applied to these levels.
- b. In situations where common building elements such as floors and walls are shared by two different occupiers in centres and mixed use zones, the noise level arising from an activity measured in an adjacent occupied room under a different occupancy must not exceed the following levels.

Table 8

Occupancy affected	Centres and mixed use zones
In all occupancies except those containing activities sensitive to noise - at all times	50dB LAeq(15 min) 60dB at 63 Hz Leq(15 min) 55dB at 125 Hz Leq(15 min)
In occupancies containing activities sensitive to noise - at all times	35dB LAeq(15 min) in bedrooms and sleeping areas 45dB LAeq(15 min) in other habitable spaces or classrooms 55dB at 63 Hz Leq(15 min) 50dB at 125 Hz Leq(15 min) 65dB LAFmax

12. Any bedroom, sleeping area, class room or habitable room accommodating an activity sensitive to noise must be designed and/or insulated so that the internal noise levels do not exceed the following levels.

Table 9

Bedrooms and sleeping areas	35dB LAeq(15min) at all times
Habitable rooms (except bedrooms and sleeping areas) and classrooms in an educational facility	40 dBA LAeq(1 hour) at all times

13. The levels in Table 9 above must be met while taking into account:
 - a. the existing traffic noise levels at the external wall of any room subject to this rule, logarithmically averaged between 7am-10pm
 - b. the allowable noise generated in the zone or any adjacent zone.
14. Where windows or doors in an affected room must be shut to meet the controls in Table 9 above the room must be provided with:
 - a. a mechanical kitchen extractor fan ducted directly to the outside to serve any cooking hob, if not already installed and in sound working order in the kitchen, and

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- b. a mechanical ventilation system or systems capable of:
 - i. providing at least six air changes of outdoor air per hour in sleeping rooms and all habitable rooms and 10 air changes of outdoor air per hour in classrooms
 - ii. enabling the rate of airflow to be controlled across the range, from the maximum airflow capacity down to 0.5 air changes (plus or minus 0.1) of outdoor air per hour
 - iii. being individually switched on and off by the building occupants, in the case of each system
 - iv. operating at a noise level of no more than 35dB $L_{Aeq(1min)}$ in bedrooms and sleeping areas and no more than 40dB $L_{Aeq(1min)}$ in the other habitable rooms, hallways of dwellings and classroom Noise levels from the mechanical system(s) must be measured at least 1m away from any diffuser, or
- c. air conditioning plus mechanical outdoor air ventilation capable of:
 - i. providing internal temperatures in sleeping areas, habitable rooms and classrooms not greater than 25 degrees Celsius at five per cent ambient design conditions with all external doors and windows of those rooms closed
 - ii. providing 0.5 air changes (plus or minus 0.1) of outdoor air per hour in all habitable rooms
 - iii. being individually switched on and off by the building occupants
 - iv. operating at a noise level of no more than 35dB $L_{Aeq(1 min)}$ in bedrooms and sleeping areas and no more than 40dB $L_{Aeq(1 min)}$ in the other habitable rooms, classrooms and hallways of dwellings.
- d. Noise levels from the mechanical systems must be measured at least 1m away from any diffuser.

1.2 Noise arising from activities between zones

Coastal zone interface

[rcp]

1. Except where specific noise provisions are provided for below, all activities in the CMA or on a lake or river must not exceed the following levels when measured at or within the boundary of any occupied dwelling or at the notional boundary of any rural dwelling.

Table 10

7am-10pm	55dB $L_{Aeq(15 min)}$
10pm-7am	45dB $L_{Aeq(15 min)}$ 75dB L_{AFmax}

2. The noise levels in Table 10 above do not apply to:
 - a. the operational requirements of vessels (including cargo vessels, tugs, passenger liners, naval vessels and commercial fishing vessels), and
 - b. temporary activities.

Residential zone interface

3. The $L_{Aeq(15 min)}$ noise level and maximum noise level (L_{AFmax}) arising from:
 - a. any non-residential activity measured at or within the boundary of a property in a residential zone, or
 - b. any activity, other than farming, horticulture, measured at the notional boundary of any dwelling on rural zoned property must not exceed the following levels.

Table 11

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Monday to Saturday 7am-10pm	55dB LAeq(15 min)
Sunday 9am-6pm	
All other times	45dB LAeq(15 min) 60dB Leq(15 min) at 63 Hz 55dB Leq(15 min) at 125 Hz 75dB LAFmax

1.3 Recreational noise

Residential zone interface

1. The LAeq(15 min) noise level and maximum noise level (LAFmax) arising from:
 - a. any non-residential activity measured at or within the boundary of a property in a residential zone, or
 - b. any activity, other than farming, horticulture, measured at the notional boundary of any dwelling on rural zoned property must not exceed the following levels.

Table 12

Monday to Saturday 7am-9:30pm	60dB LAeq(15 min) for 25hrs in any 7 day period during these times
Sunday and public holidays 9am-6pm	
All other times	45dB LAeq(15 min) 60dB Leq(15 min) at 63 Hz 55dB Leq(15 min) at 125 Hz 75dB LAFmax

2. At the same time, the following controls must also be met:
 - a. floodlights for sporting activities must be turned off by 9.30pm on Monday to Saturday and at 6pm on Sundays and public holidays
 - b. organised outdoor recreational activities must be finished by 9.30pm on Monday to Saturday inclusive and by 6pm on Sundays and public holidays
 - c. organised outdoor recreational activities must not commence before 7am on Monday to Saturday and 9am on Sundays and public holidays
 - d. vehicles entrances to any area exclusively serving an artificial sports field on the reserve must be closed between 11pm and 7am.

1.4 Construction noise

Construction noise – all zones except City Centre and Metropolitan Centre zones

1. Noise from construction and demolition activities in all zones except in the City Centre and Metropolitan Centre zones must meet the requirements of Tables 2 and 3 of New Zealand Standard on Acoustics – Construction Noise (NZS 6803: 1999). The measurement and assessment of construction noise must be in accordance with New Zealand Standard on Acoustics – Construction Noise (NZS 6803: 1999) and the requirements of annex A of New Zealand Standard on Acoustics – Construction Noise (NZS 6803: 1999) must be used if it is necessary to assess the measured Leq levels in high background noise areas.

Construction noise – City Centre and Metropolitan Centre zones

2. Construction activities in the City Centre and Metropolitan Centre zones must not exceed the following

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levels when measured for any 30-minute period 1m from the façade of any adjacent building.

Table 13

Construction of less than 15 consecutive calendar days' duration		
	L _{Aeq} (30 min)	L _{AFmax}
Monday to Friday 6.30am-10.30pm	80 dB	90 dB
Saturday 7am-11pm	85 dB	90 dB
Sunday 9am-7pm	80 dB	90 dB
All other times (night time)	60 dB	75 dB
All other times in the Residential and Learning precincts in the City Centre zone	55 dB	75 dB

Table 14

Construction of 15 consecutive calendar days or more		
	L _{Aeq} (30 min)	L _{AFmax}
Monday to Friday 6.30am-10.30pm	75 dB	90 dB
Saturday 7am-11pm	80 dB	90 dB
Sunday 9am-7pm	65 dB	85 dB
All other time (nighttime)	60 dB	75 dB
All other times in the Residential and Learning precincts in the City Centre zone	55 dB	75dB

3. The measurement and assessment of construction noise must be in accordance with New Zealand Standard on Acoustics – Construction Noise (NZS 6803: 1999) and the requirements of annex A of New Zealand Standard on Acoustics – Construction Noise (NZS 6803: 1999) must be used if it is necessary to assess the measured Leq levels in high background noise areas.
4. Where external measurement of construction noise is impractical or inappropriate, the upper limits for the noise measured inside the building must be 20dB less than the appropriate levels in tables 13 and 14 above.

Construction noise: essential work within road carriageways at night

5. The above clauses do not apply to essential maintenance or utility works undertaken within the carriage way of a road (including the shoulder of a state highway or motorway) at night where:
 - a. it has been demonstrated to the council that these works cannot reasonably be carried out during daylight hours. For example, the location of the works within the carriageway of the road, and the traffic volumes on that road, make it impracticable to work during the day
 - b. it has been demonstrated to the council that these works cannot reasonably comply with the night time (10.30pm to 6.30am) noise levels of New Zealand Standard on Acoustics – Construction Noise (NZS 6803: 1999) or Table 1 and 2 above. For example the nature of the work make compliance impracticable
 - c. a works access permit and a construction noise and vibration management plan has been provided to council in accordance with clause 9 below.

Construction noise: essential work within the road during the day

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6. The above clauses do not apply to essential maintenance or utility works undertaken within a road during the day where:
 - a. it has been demonstrated to the council that these works can not reasonably be carried out in compliance with the noise levels of New Zealand Standard on Acoustics – Construction Noise (NZS 6803: 1999) or table 1 and 2 above. For example, the nature of the work and the proximity to adjacent properties make compliance impracticable
 - b. this provision only applies for 10 days of any 12 month period outside any property on any road
 - c. a works access permit and a construction noise and vibration management plan has been provided to council in accordance with clause 7(c) below.

Construction noise: conditions of essential work within the road carriageway during the day or night

7. The work permitted above must only occur if it:
 - a. it is undertaken in accordance with a permit issued by Auckland Transport or if approved by the New Zealand Transport Agency
 - b. the council has received that permit and a construction noise and vibration management plan for that work at least 5 working days before the work commences
 - c. the construction noise and vibration management plan must be prepared by an acoustic specialist and must include the following:
 - i. an outline of the community consultation to be undertaken to advise the occupiers of properties located within 100m of the proposed works of the following:
 - the area affected by the work
 - if the work is required to be undertaken at night why this is necessary
 - the type of work planned and the noise likely to be generated
 - the date and times of work
 - a contact name and number of the works supervisor who can be contacted if any issue arises
 - how noise and vibration complaints will be managed
 - ii. a description of the works and its duration, anticipated equipment to be used and the processes to be undertaken
 - iii. an identification of the best practicable options that will be undertaken to mitigate and minimise any noise being produced that is likely to exceed the levels of New Zealand Standard on Acoustics – Construction Noise (NZS 6803: 1999) or Table 1 and 2 above.

1.5 Vibration

1. Blasting and pile driving activities must be controlled to ensure any resulting ground vibration does not exceed the levels set out in Table 1 of DIN 4150-3 (1999): Structural vibration – Part 3 Effects of vibration on structures when measured on the foundation or the horizontal plane of the highest floor of an affected building.
2. Stationary vibrating, reciprocating and rotating machinery and all piping, ducting and other equipment attached to such machinery must be installed and maintained so that any resulting vibration does not exceed the levels of the following table when measured in adjacent buildings or areas of buildings under different ownership from the source of the vibration.

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Affected occupied building or area	Time of day	Maximum vibration level in rms velocity (mm/s) between 8 and 80Hz
Buildings in a Heavy Industry or Light Industry zone	All	0.80
Buildings for commercial activities	All	0.40
Habitable rooms of buildings designed for residential use	7am-10pm	0.20
Sleeping areas of buildings designed for residential use	10pm-7am	0.14
Surgery rooms of health care facilities	All	0.10

1.6 Blasting

1. The noise created by the use of explosives for any rock blasting activity measured at the boundary of the site on which the explosives are used must not exceed a peak sound pressure 120dB (L_{zpeak}) of.

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1.7 Helicopter noise

1. The take off or landing of a helicopter on any site except for emergency services must not cause a noise level which exceeds 85dB LAFmax measured on the notional boundary of any adjacent site containing activities sensitive to noise.

1.8 General

1. Except where more specific requirements apply noise levels arising from activities must be measured and assessed in accordance with the New Zealand Standard on the Measurement of environmental sound (NZS 6801: 2008) and the New Zealand Standard on Acoustics - environmental noise (NZS 6802: 2008). Special audible characteristics (appendix B4 of NZS 6802: 2008) must not apply to measured levels at 63 and 125Hz if levels are specified for these frequencies, but must apply to all other octave frequencies.

2. Assessment - Development control infringements

2.1 Matters of discretion

In addition to the general matters of discretion in [clause 2.3](#) of the general provisions, the council will restrict its discretion to the matters below for the listed development control infringement.

1. Noise and vibration
 - a. effects on adjacent land uses
 - b. measures to avoid, remedy or mitigate the adverse effects of noise
 - c. reverse sensitivity effects.

2.2 Assessment criteria

In addition to the general assessment criteria in [clause 2.3](#) of the general provisions, the council will consider the relevant criteria below for the listed development control infringement.

1. Noise and vibration
 - a. Effects on adjacent land uses
 - i. Noise and vibration generated by an activity should not adversely affect adjacent land uses particularly noise sensitive land uses.
2. Measures to avoid, remedy or mitigate the adverse effects of noise
 - a. In considering the assessment criterion above, the council will assess whether the noise or vibration generated by the activity:
 - i. will occur at times when disturbance to sleep can be avoided or minimised
 - ii. will be compatible with activities occurring or allowed to occur in the surrounding area
 - iii. will be limited in duration or frequency
 - iv. will exceed the existing background noise levels in that environment and the reasonableness of those existing levels
 - v. can be carried out during daylight hours, such as road works and works on public footpaths.
3. Reverse sensitivity effects
 - a. The activity proposed should not be adversely affected by the existing or expected level of noise including transport noise and should not create potential for reverse sensitivity issues if approved.

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