

IN THE ENVIRONMENT COURT
WELLINGTON

ENV-

I MUA TE KOOTI TAIAO O AOTEAROA
I TE WHANGANUI-Ā-TARA ROHE

IN THE MATTER of the Resource Management Act 1991 ("Act")

AND

IN THE MATTER of Clause 14(1) of Schedule 1 of the Act

BETWEEN **KIWIRAIL HOLDINGS LIMITED**

Appellant

AND

MASTERTON DISTRICT COUNCIL

CARTERTON DISTRICT COUNCIL

SOUTH WAIRARAPA DISTRICT COUNCIL

Respondent

**NOTICE OF APPEAL AGAINST DECISIONS ON PROPOSED WAIRARAPA
COMBINED DISTRICT PLAN**

21 NOVEMBER 2025

To: The Registrar
The Environment Court
WELLINGTON

KIWI RAIL HOLDINGS LIMITED ("KiwiRail") appeals against parts of the decision of the Masterton District Council, Carterton District Council and South Wairarapa District Council ("**Councils**") on the Proposed Wairarapa Combined District Plan ("**Proposed Plan**").

BACKGROUND AND DECISIONS APPEALED

1. KiwiRail made a submission on the Proposed Plan on 14 December 2023.¹ KiwiRail presented evidence and legal submissions in support of its submission.
2. KiwiRail received notice of the Councils' decision on the Proposed Plan on 8 October 2025 ("**Decision**").
3. KiwiRail is not a trade competitor for the purposes of section 308D of the Act.
4. KiwiRail is a State-Owned Enterprise responsible for the management and operation of the national railway network. This includes managing railway infrastructure and land, as well as freight and passenger services within New Zealand. KiwiRail is also a Requiring Authority under section 167 of the Act for land designated for railway purposes throughout New Zealand.
5. KiwiRail's rail network in the Wairarapa region plays an important role in the regional and national transport network. KiwiRail has an interest in protecting its ability to operate, maintain and upgrade these lines now and into the future, as well as seeking to ensure the safety and amenity of those parties occupying land adjacent to the rail corridor.

SCOPE OF APPEAL

6. KiwiRail appeals the parts of the Decision that rejected or accepted only in part the following relief sought by KiwiRail:
 - (a) the inclusion of a Rail Vibration Alert Overlay in the planning maps to apply within 60m of the rail corridor designation boundary;

¹ Submission Number 79.

- (b) the inclusion of a Rail Corridor Noise Control Overlay in the planning maps to apply within 100m of the rail corridor designation boundary;
- (c) a new rule, standard and construction schedule requiring acoustic insulation and ventilation to be installed in new and altered buildings containing sensitive uses within the Rail Corridor Noise Control Overlay;
- (d) a new policy relating to acoustic insulation for noise sensitive activities within the Rail Corridor Noise Control Overlay;
- (e) amendments to the definition of "Reverse sensitivity";
- (f) amendments to the definition of "Noise sensitive activity";
- (g) amendments to the Network Utilities Chapter Introduction section regarding its application to transport; and
- (h) amendment to the Transport Chapter Introduction section regarding the inclusion of reference to "rail network".

GENERAL REASONS FOR APPEAL

7. The Decision:

- (a) will not promote the sustainable management of the natural and physical resources in the Masterton, Carterton and South Wairarapa Districts ("**Districts**"), and is therefore contrary to or inconsistent with Part 2 and other provisions of the Act;
- (b) is inconsistent with other relevant planning documents, including the Wellington Regional Policy Statement ("**WRPS**") and Wellington Natural Resources Plan;
- (c) will not meet the reasonably foreseeable needs of future generations;
- (d) will not enable the social, economic, and cultural wellbeing of the people of the Districts;
- (e) does not avoid, remedy, or mitigate actual and potential adverse effects on the environment; and
- (f) is not the most appropriate way to achieve the objectives of the Proposed Plan in terms of section 32 of the Act.

8. In addition to the general reasons outlined above, KiwiRail appeals the Decision for the specific reasons set out below.

SPECIFIC REASONS FOR APPEAL

Vibration

9. KiwiRail sought the inclusion of a new Rail Vibration Alert Area Overlay to identify areas susceptible to rail vibration, within 60m of the rail corridor designation boundary.
10. The Panel rejected the relief sought as it considered rail vibration effects from current train movements were not significant and did not require a vibration alert layer.² The Panel did not agree:³
- (a) a non-regulatory advisory method is the most appropriate method to avoid compromising the function and operation of the Wairarapa Line by reverse sensitivity effects from vibration;
 - (b) a Rail Vibration Alert Area Overlay might effectively address the annoyance, sleep disruption or building damage effects from vibration.
11. The Decision fails to acknowledge the adverse health and amenity effects arising from rail vibration, and that a vibration alert layer can be an effective tool to manage those effects by enabling landowners to mitigate vibration effects at their own discretion.
12. In rejecting the relief sought by KiwiRail, the Proposed Plan does not adequately address potential rail vibration effects on surrounding communities and is not the most appropriate way to achieve the objectives of the Proposed Plan or the purpose of the Act.⁴ The Proposed Plan and the WRPS contain objectives and policies that recognise the potential for reverse sensitivity effects on regionally significant infrastructure, and direct that such infrastructure be protected from these effects.⁵

² Proposed Plan Decision Report 10 at [4.54].

³ Proposed Plan Decision Report 10 at [4.55].

⁴ *Affco New Zealand v Napier City Council* NZEnvC Wellington W082/2004, 4 November 2004 at [29] as cited in *Tasti Products Limited v Auckland Council* [2016] NZHC 1673 at [60].

⁵ See for example INF-O1, SUB-P7, and NOISE-O2 of the Proposed Plan, and Policy 57 of the Greater Wellington Regional Council "Regional Policy Statement for the Wellington Region" (September 2025) Greater Wellington <<https://www.gw.govt.nz/your-region/plans-policies-and-bylaws/policies/regional-policy-statement/>>.

Relief sought

13. KiwiRail seeks the Proposed Plan be amended to include a Rail Vibration Alert Area Overlay in the planning maps and text describing the alert layer in the Noise Chapter Introduction section as set out in **Attachment A** or such alternative or consequential relief that addresses KiwiRail's concerns.

Noise

14. KiwiRail's submission sought the inclusion of noise provisions requiring acoustic insulation and appropriate mechanical ventilation to be installed in new (or altered) noise sensitive activities within 100m of the rail corridor designation boundary.
15. The Panel rejected KiwiRail's relief as it considered that:⁶
 - (a) substantial increases to freight or diesel-led passenger movements would be required to justify a 100m buffer; and
 - (b) KiwiRail had been unable to demonstrate any financial commitment to complete necessary upgrades to the network to materially increase freight capacity, nor any evidence to suggest any material increase in freight traffic is likely over the life of the Proposed Plan that would justify the proposed noise controls.
16. The Decision will enable a range of uses, including sensitive activities such as dwellings to be developed adjacent to existing rail infrastructure of regional and national significance. Without adequate provisions, such as those sought by KiwiRail, such development has the potential to result in adverse health and amenity effects on communities living and working near the rail corridor, as well as reverse sensitivity effects on KiwiRail's operations.
17. The Decision also does not recognise the need to protect the rail corridor from reverse sensitivity effects. Reverse sensitivity is a well-established planning principle and is an adverse effect for the purposes of the Act.⁷ The Proposed Plan and the WRPS contain objectives and policies that recognise the potential for reverse sensitivity effects on regionally significant infrastructure, and direct that such infrastructure be protected from these effects.⁸

⁶ Proposed Plan Decision Report 10 at [4.56].

⁷ *Affco New Zealand v Napier City Council* NZEnvC Wellington W082/2004, 4 November 2004 at [29] as cited in *Tasti Products Limited v Auckland Council* [2016] NZHC 1673 at [60].

⁸ See for example INF-O1, SUB-P7, and NOISE-O2 of the Proposed Plan, and Policy 57 of the Greater Wellington Regional Council "Regional Policy Statement for the Wellington Region" (September 2025) Greater Wellington

18. The relief sought by KiwiRail to include acoustic insulation and ventilation controls within 100m of the rail corridor designation boundary would give effect to these provisions by protecting the rail network from reverse sensitivity effects and ensuring its ongoing operation is not unduly constrained.

Relief sought

19. KiwiRail seeks the Proposed Plan be amended to include a Rail Corridor Noise Control Overlay and associated provisions, including a new policy and acoustic insulation and ventilation controls within 100m of the rail corridor designation boundary as set out in **Attachment A** or such alternative or consequential relief that addresses KiwiRail's concerns.

Reverse sensitivity

20. KiwiRail's submission sought the term "Reverse sensitivity" be defined in the Proposed Plan to assist users of the Proposed Plan and aid plan interpretation. Reverse sensitivity refers to the susceptibility of lawfully established effects-generating activities (which often cannot internalise all of their effects) to complaints or objections about their lawful activities arising from the location of new sensitive activities, such as residential dwellings, establishing nearby.

21. The Decision includes the following definition of "Reverse sensitivity":

Means the potential for the development, upgrading, operation and maintenance of an existing lawfully established activity to be compromised, constrained or curtailed by the more recent establishment or alteration of another activity which may be sensitive to the actual, potential or perceived environmental effects generated by an existing activity.

'Development' and 'upgrading' of an existing activity in this definition are limited to where the effects are the same or similar in character, intensity, and scale to those which existed before the development or upgrade.

22. KiwiRail does not consider the second sentence of the proposed definition is appropriate and seeks it is removed. KiwiRail's designation allows KiwiRail to upgrade and re-develop its infrastructure. This upgrade and development are not limited to effects that are the same or similar in character, intensity, and scale to those which existed before the development or upgrade. Limiting the protection of infrastructure from reverse sensitivity effects in such a manner is unduly restrictive and inconsistent with the definition of reverse sensitivity as it

<<https://www.gw.govt.nz/your-region/plans-policies-and-bylaws/policies/regional-policy-statement/>>.

has been developed through case law and applied in other planning documents.

Relief sought

23. KiwiRail seeks the definition of "Reverse Sensitivity" in the Proposed Plan is amended as set out in **Attachment A** or such alternative or consequential relief that addresses KiwiRail's concerns.

Noise sensitive activity

24. KiwiRail sought to amend the definition of "Noise sensitive activity" to ensure it sufficiently covered all potential activities sensitive to noise as follows:

Means any:

- a. ~~Any habitable room in a~~ residential activity (including visitor accommodation, seasonal worker accommodation, boarding houses, papakāinga, and retirement accommodation);
- b. ~~Any educational facilities (teaching areas and sleeping rooms only);~~
- c. ~~Any healthcare facility, including hospitals (rooms used for overnight patient medical care only);~~
- d. ~~Any~~ congregations within any places of worship; and
- e. Marae.

25. In the Decision, the Panel amended the subclause relating to healthcare facilities as sought by KiwiRail, however, rejected the remainder of KiwiRail's relief. The Decision means the definition will not sufficiently capture all activities most sensitive to noise. Consequently, the application of that definition to other provisions in the Proposed Plan means actual and potential adverse effects on those sensitive activities will not be mitigated nor potential reverse sensitivity effects.

Relief sought

26. KiwiRail seeks the definition of "Noise sensitive activity" in the Proposed Plan be amended as set out in **Attachment A** or such alternative or consequential relief that addresses KiwiRail's concerns.

Network Utilities Chapter

27. KiwiRail sought the Network Utilities Chapter Introduction be amended to ensure that rail infrastructure receives the benefit of the Network Utilities Chapter provisions in addition to those contained in the Transport Chapter. Rail infrastructure is defined as a network utility in the Proposed Plan and the Act.
28. The Panel rejected the relief sought on the basis the amendment sought was unnecessary.⁹ The Decision means the Network Utilities Chapter will not apply to transport infrastructure that is also a network utility.
29. Typically, network utility and transport chapters within district plans both apply to the rail network. The rail network is included in the definition of network utility under the Proposed Plan and the Act and the provisions are appropriate for rail activities. The rail corridor is also an integral part of the transport network with certain transport provisions that are specific to the rail corridor such as controls for development within proximity to level crossings. It is appropriate that both chapters apply to rail infrastructure.
30. The exclusion of transport infrastructure from the Network Utilities Chapter in the Decision means that rail infrastructure does not have the benefit of important objectives and policies in the Network Utilities Chapter which provided protection and enablement to network utilities, such as NU-O1, NU-O2, NU-O3, NU-P1.

Relief sought

31. KiwiRail seeks the Network Utilities Chapter Introduction be amended as set out in **Attachment A** to ensure that both the Network Utility and Transport Chapters apply to the rail network or such alternative or consequential relief that addresses KiwiRail's concerns.

Transport Chapter

32. KiwiRail sought the Transport Chapter Introduction be amended to include reference to the rail network where the introduction describes noise related reverse sensitivity effects as follows:

The Transport Chapter contains provisions that deal with on-site transport facilities and access, the operation, maintenance and repair of the transport network, and the effects of high traffic generating activities. Provisions addressing noise related

⁹ Proposed Plan Decision Report 7 at [2.18].

reverse sensitivity effects on the State Highway, rail network and Hood Aerodrome are in the Noise Chapter.

33. The Panel rejected KiwiRail's submission as a consequence of the Panel's decision to reject KiwiRail's relief on the Noise Chapter. For the reasons set out above, without adequate acoustic and ventilation provisions, development adjacent to the rail corridor has the potential to result in adverse health and amenity effects on communities, as well as reverse sensitivity effects on KiwiRail's operations. It is appropriate such provisions are included in the Noise Chapter and the cross reference in the Transport Chapter recognise those provisions, as is the case for effects on the State Highway and Hood Aerodrome.

Relief sought

34. KiwiRail seeks the Transport Chapter Introduction section be amended as set out in **Attachment A** to ensure there is reference to the rail network where the introduction describes noise related reverse sensitivity effects or such alternative or consequential relief that addresses KiwiRail's concerns.

ATTACHMENTS

35. The following documents are attached to this notice:
- (a) KiwiRail's proposed amendments to the Proposed Plan provisions (**Attachments A**).
 - (b) A copy of the relevant parts of the Decision (**Attachment B**).
 - (c) A copy of KiwiRail's submission (**Attachment C**).
 - (d) A list of the relevant names and addresses of persons who lodged submissions who are to be served with a copy of this notice (**Attachment D**).

KIWRAIL HOLDINGS LIMITED by its solicitors
and authorised agents Russell McVeagh:



Signature:

L J E Rapley / K L Gunnell

Date:

21 November 2025

Address for Service: C/- Cara Gibson
Russell McVeagh
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AUCKLAND

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TO: The Registrar of the Environment Court at Wellington.

AND TO: The Masterton District Council, Carterton District Council and South Wairarapa District Council.

AND TO: The relevant submitters on the provisions appealed.

ATTACHMENT A

Amendments Sought

Base text (black) Decisions version

Amendments sought by KiwiRail in red underline / ~~strikethrough~~

MAPS

Two overlays to be included in the Proposed Plan Maps to show:

- a. A Rail Vibration Alert Area Overlay which extends 60m outwards from the edge of the rail designation boundary;
- b. A Rail Corridor Noise Control Boundary Overlay which extends 100m outwards from the edge of the rail designation boundary.

NOISE CHAPTER

Introduction

Add as last paragraph:

[...]

A Rail Vibration Alert Area Overlay has been applied which identifies the vibration-sensitive area within 60 metres each side of the railway designation boundary as properties within this area may experience rail vibration effects. No specific district plan provisions apply in relation to vibration controls as a result of this Rail Vibration Alert Area Overlay. The Rail Vibration Alert Area Overlay is to advise property owners of the potential vibration effects but leaves with the site owner to determine an appropriate response.

Policy (new)

NOISE-P9 Noise insulation within the Rail Corridor Noise Control Overlay

Ensure noise sensitive activities are appropriately located and separated from the rail corridor and/or that any adverse noise, amenity, and adverse human health effects are avoided, remedied, or mitigated by requiring acoustic insulation measures within the Rail Corridor Noise Control Overlay.

Rules (new)

<u>NOISE-R16: Noise sensitive activities within the Rail Corridor Noise Control Overlay</u>	
<u>All zones</u>	<u>1. Activity Status: Permitted</u> <u>Where:</u> <u>a. compliance is achieved with NOISE-S4.</u>
<u>All zones</u>	<u>2. Activity Status: Restricted Discretionary</u> <u>Where:</u>

	<u>a. compliance is not achieved with Rule 16(1)</u> <u>Matters of discretion:</u> <u>1. Adverse effects on health and amenity of people indoors within the 'Railway Corridor Noise Overlay.</u> <u>2. Alternative options for building design or location that would achieve compliance with the standards in Table-S4.</u> <u>3. Adverse effects on the continuing operation of the railway corridor as a result of non-compliance with the standards in Table-S4.</u> <u>4. The reverse sensitivity effects on the rail network, including the extent to which the activity will unduly constrain the ongoing operation, maintenance and upgrade of the rail network.</u> <u>5. Any natural or built features of the site or surrounding area that will mitigate noise effects.</u> <u>6. The outcome of any consultation with KiwiRail.</u>
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Standards (new)

<u>NOISE-S5: Noise insulation standards for noise sensitive activities within the Rail Corridor Noise Control Overlay</u>								
<u>Indoor railway noise</u> <u>1. Any new building, or alteration to an existing building, that contains a noise sensitive activity where the building or alteration is:</u> <u>a. designed, constructed and maintained to achieve indoor design noise levels resulting from the railway not exceeding the maximum values in in Table-S4; or</u> <u>b. at least 50 metres from the railway network, and is designed so that a noise barrier entirely blocks line-of-sight from all parts of doors and windows to all points 3.8 metres above railway tracks; or</u> <u>c. is a single-storey framed residential building with habitable rooms designed, constructed and maintained in accordance with the construction schedule NOISE-APP1.</u> <u>Table S-4</u> <table> <tr> <th><u>Type of Noise Control Boundary</u></th><th><u>Activity</u></th><th><u>Rail Corridor maximum indoor design noise level</u></th></tr> <tr> <td></td><td></td><td></td></tr> </table>		<u>Type of Noise Control Boundary</u>	<u>Activity</u>	<u>Rail Corridor maximum indoor design noise level</u>				<u>Matters of discretion are:</u> <u>1. Adverse effects on health and amenity of people indoors within the 'Railway Corridor Noise Overlay.</u> <u>2. Alternative options for building design or location that would achieve compliance with the standards in Table-S4.</u> <u>3. Adverse effects on the continuing operation of the railway corridor as a result of non-compliance with the standards in Table-S4.</u> <u>4. The reverse sensitivity effects on the rail network, including the extent to which the activity will unduly constrain the ongoing operation, maintenance and upgrade of the rail network.</u>
<u>Type of Noise Control Boundary</u>	<u>Activity</u>	<u>Rail Corridor maximum indoor design noise level</u>						

<u>Rail Corridor</u>	<u>Bedrooms</u>	<u>35dB LAeq</u>	<u>5. Any natural or built features of the site or surrounding area that will mitigate noise effects.</u> <u>6. The outcome of any consultation with KiwiRail.</u>
	<u>Lecture rooms / theatres, music studios, assembly halls</u>	<u>35dB LAeq</u>	
	<u>Conference rooms, drama studios, libraries and designated sleeping rooms for children aged 6 years or younger in schools, early childhood centres or tertiary institutions</u>	<u>40dB LAeq</u>	
	<u>Sensitive activities in hospitals including overnight medical care, wards, clinics, consulting rooms, theatres, nurses' stations</u>	<u>40dB LAeq</u>	
	<u>Places of assembly including churches, places of worship and marae</u>	<u>35dB LAeq</u>	
	<u>Other habitable rooms</u>	<u>40dB LAeq</u>	
<u>Mechanical ventilation</u> 2. If opening windows must be closed to achieve the design noise levels in Table-S4, the building must be designed, constructed and maintained with a mechanical ventilation system that: a. For habitable rooms located within the Rail Corridor Noise Control Overlay containing a residential activity, achieves the following requirements: i. Provides mechanical ventilation that can operate continuously to satisfy clause G4 of the New Zealand Building Code and that provides at least 1 air changes per hour, but no less than 7.5L/s per occupant; ii. Provides cooling and heating that is controllable by the occupant and can maintain the inside temperature between 18°C and 25°C when assessed using a 2.5% design weather condition for the applicable location. An acceptable design weather set would include IRHACE Yearbook 2009 NIWA weather data; and iii. HVAC system installed in compliance with (a) and (b) above, must not generate more than 35 dB LAeq(30s)			

<u>when measured 1 metre away from any grille or diffuser.</u> <u>The noise level must be measured after the system has cooled the rooms to the temperatures in (ii), or after a period of 30 minutes from the commencement of cooling (whichever is the lesser).</u> <u>b. Alternatively, in lieu of section (2)a. above, a design verified by a suitably qualified and experienced HVAC expert stating the design proposed will provide ventilation and internal space temperature controls to meet or exceed the outcomes described in parts (2)a.</u> <u>c. A commissioning report must be submitted to the Council prior to occupation of the building demonstrating compliance with all of the mechanical ventilation system performance requirements in (2).</u> <u>Design report</u> <u>3. A report is submitted to the council demonstrating compliance with clauses (1) to (2) above (as relevant) prior to the construction or alteration of any building containing an activity sensitive to noise. Compliance with 1(a) and (c) must be confirmed by a Registered Acoustician and when doing so railway noise must be assumed to be 70 LAeq(1h) at a distance of 12 metres from the track, and must be deemed to reduce at a rate of 3 dB per doubling of distance up to 40 metres and 6 dB per doubling of distance beyond 40 metres.</u>	
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Appendices (new)

NOISE-APP1 Construction schedule for indoor noise control

<u>Elements</u>	<u>Minimum construction for noise control in addition to the requirements of the New Zealand Building Code</u>	
<u>External walls</u>	<u>Wall cavity infill of fibrous insulation, batts or similar (minimum density of 9 kg/m3)</u>	
	<u>Cladding and internal wall lining complying with either Options A, B or C below:</u>	
	<u>Option A - Light cladding:</u> <u>timber weatherboard or sheet</u> <u>materials with surface mass</u>	<u>Internal lining of minimum 17</u> <u>kg/m2 plasterboard, such as</u> <u>two layers of 10 mm thick high-</u>

	<u>between 8 kg/m² and 30 kg/m² of wall cladding</u>	<u>density plasterboard, on resilient/isolating mountings</u>
	<u>Option B - Medium cladding: surface mass between 30 kg/m² and 80 kg/m² of wall cladding</u>	<u>Internal lining of minimum 17 kg/m² plasterboard, such as two layers of 10 mm thick high-density plasterboard</u>
	<u>Option C - Heavy cladding: surface mass between 80 kg/m² and 220 kg/m² of wall cladding</u>	<u>No requirements additional to New Zealand Building Code</u>
<u>Roof/ceiling</u>	<u>Ceiling cavity infill of fibrous insulation, batts or similar (minimum density of 7 kg/m³)</u>	
	<u>Ceiling penetrations, such as for recessed lighting or ventilation, shall not allow additional noise break-in</u>	
	<u>Roof type and internal ceiling lining complying with either Options A, B or C below:</u>	
	<u>Option A - Skillion roof with light cladding: surface mass up to 20 kg/m² of roof cladding</u>	<u>Internal lining of minimum 25 kg/m² plasterboard, such as two layers of 13 mm thick high-density plasterboard</u>
	<u>Option B - Pitched roof with light cladding: surface mass up to 20 kg/m² of roof cladding</u>	<u>Internal lining of minimum 17 kg/m² plasterboard, such as two layers of 10 mm thick high-density plasterboard</u>
	<u>Option C - Roof with heavy cladding: surface mass between 20 kg/m² and 60 kg/m² of roof cladding</u>	<u>No requirements additional to New Zealand Building Code</u>
<u>Glazed areas</u>	<u>Aluminium frames with full compression seals on opening panes</u>	
	<u>Glazed areas shall be less than 35% of each room floor area</u>	
	<u>Either, double-glazing with:</u> <u>• a laminated pane of glass at least 6 mm thick; and</u> <u>• a cavity between the two panes of glass at least 12 mm deep; and</u> <u>• a second pane of glass at least 4 mm thick</u> <u>Or, any other glazing with a minimum performance of Rw 33 dB</u>	
<u>Exterior doors</u>	<u>Exterior door with line-of-sight, to any part of the state highway road surface or to any point 3.8 metres above railway tracks</u>	<u>Solid core exterior door, minimum surface mass 24 kg/m², with edge and threshold compression seals; or other</u>

		<u>doorset with minimum performance of Rw 30 dB</u>
	<u>Exterior door shielded by the building so there is no line-of-sight to any parts of the state highway road surface or any points 3.8 metres above railway tracks</u>	<u>Exterior door with edge and threshold compression seals</u>

DEFINITIONS

Reverse Sensitivity

Means the potential for the development, upgrading, operation and maintenance of an existing lawfully established activity to be compromised, constrained or curtailed by the more recent establishment or alteration of another activity which may be sensitive to the actual, potential or perceived environmental effects generated by an existing activity.

~~'Development' and 'upgrading' of an existing activity in this definition are limited to where the effects are the same or similar in character, intensity, and scale to those which existed before the development or upgrade.~~

Noise Sensitive Activity

Means any:

- a. ~~Any habitable room in a R~~esidential activity (including visitor accommodation, seasonal worker accommodation, boarding houses, papakāinga, and retirement accommodation);
- b. ~~Any E~~ducational facilities ~~(teaching areas and sleeping rooms only);~~
- c. Any healthcare facility, including hospitals;
- d. Any congregations within places of worship/marae; and
- e. Any habitable room in new seasonal worker accommodation within the State Highway Noise Boundary.

NETWORK UTILITIES CHAPTER

Introduction

The Wairarapa relies on *network utilities*, including electricity transmission and distribution, radio-communications, telecommunications, meteorological facilities, and water and wastewater reticulation. A *network utility* operator, as defined by the Act, or other operators may provide these utilities.

Transport related network utilities including the road and rail network are ~~not also~~ addressed in ~~this chapter. They are covered by~~ the Transport Chapter.

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TRANSPORT CHAPTER

Introduction

The Transport Chapter contains provisions that deal with on-site transport facilities and access, the operation, maintenance and repair of the transport network, and the effects of high traffic generating activities. Provisions addressing noise related reverse sensitivity effects on the State Highway, rail network and Hood Aerodrome are in the Noise Chapter.

Definitions

Term	Definition
Accessory building	Means a detached building, the use of which is ancillary to the use of any building, buildings or activity that is or could be lawfully established on the same site but does not include any minor residential unit.
Accessway	Means any area or part of private land where the primary purpose is to provide access, including vehicle access, between the body of any allotment(s) or site(s) and any public road, footpath, or cycling path. Accessway includes any rights of way, private way, access lot, access leg, or private road. (For the vehicle access to/from a legal road, see the definition for 'vehicle crossing').
Addition	Means any works undertaken to an existing building which has the effect of increasing the gross floor area of that building.
Additional infrastructure	Means: a. public open space b. community infrastructure as defined in section 197 of the Local Government Act 2002 c. land transport (as defined in the Land Transport Management Act 2003) that is not controlled by local authorities d. social infrastructure, such as schools and healthcare facilities e. a network operated for the purpose of telecommunications (as defined in section 5 of the Telecommunications Act 2001) f. a network operated for the purpose of transmitting or distributing electricity or gas
Aerodrome Obstacle Limitation Surface	As shown on the planning maps and defined in Appendix TR-2.
Agricultural aviation	Means intermittent operation of an aircraft from a rural airstrip or helicopter landing area for primary production, biosecurity, or conservation activities including stock management, pest control, the application of fertiliser, agrichemicals, vertebrate toxic agents, frost management and associated refuelling.
Allotment	1. The term allotment means—

Proposed Wairarapa Combined District Plan (Decisions Version)
Definitions

Term	Definition
	a. any parcel of land under the Land Transfer Act 2017 that is a continuous area and whose boundaries are shown separately on a survey plan, whether or not— i. the subdivision shown on the survey plan has been allowed, or subdivision approval has been granted, under another Act; or ii. a subdivision consent for the subdivision shown on the survey plan has been granted under this Act; or b. any parcel of land or building or part of a building that is shown or identified separately— i. on a survey plan; or ii. on a licence within the meaning of subpart 6 of Part 3 of the Land Transfer Act 2017; or c. any unit on a unit plan; or d. any parcel of land not subject to the Land Transfer Act 2017. 2. 2. For the purposes of subsection (12), an allotment that is— a. subject to the Land Transfer Act 2017 and is comprised in 1 record of title or for which 1 record of title could be issued under that Act; or b. not subject to that Act and was acquired by its owner under 1 instrument of conveyance— shall be deemed to be a continuous area of land notwithstanding that part of it is physically separated from any other part by a road or in any other manner whatsoever, unless the division of the allotment into such parts has been allowed by a subdivision consent granted under this Act or by a subdivisional approval under any former enactment relating to the subdivision of land. 3. 3. For the purposes of subsection (2), the balance of any land from which any allotment is being or has been subdivided is deemed to be an allotment.
Alteration	Means any work to existing buildings or structures which involves the change, removal, or replacement of walls, windows, or features which results in an external appearance different to its existing appearance and does not increase the gross floor area of the building or structure.
Ancillary activity	Means an activity that supports and is subsidiary to a primary activity.
Antenna	Means a device that receives or transmits radiocommunication or telecommunication signals, but not a small cell unit

Proposed Wairarapa Combined District Plan (Decisions Version)
Definitions

Term	Definition
Archaeological site	Means, subject to section 42(3) of the Heritage New Zealand Pouhere Taonga Act 2014,— a. any place in New Zealand, including any building or structure (or part of a building or structure), that— i. was associated with human activity that occurred before 1900 or is the site of the wreck of any vessel where the wreck occurred before 1900; and ii. provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand; b. and includes a site for which a declaration is made under section 43(1) of the Heritage New Zealand Pouhere Taonga Act 2014.
Artificial crop protection structure	Means a structure with material used to protect crops and/or enhance growth (excluding greenhouses).
Aviation Related Activities	Means activities that have an operational or functional relationship with aviation and the operation of aircraft at the Hood Aerodrome, and includes: a. Educational facilities focused on aviation training and instruction, including but not limited to flight schools and aviation academies. b. Community facilities and Commercial Activities that support or are themed around aviation, such as an aviation centre/museum or other visitor attractions that promote or support aviation culture and services. c. Emergency Service Facilities related to Aviation, such as LifeFlight. d. Industrial Activities (excluding noxious or offensive industry) that support aviation.
Biodiversity compensation	Means a conservation outcome that meets the requirements in Appendix 4 of the National Policy Statement for Indigenous Biodiversity and results from actions that are intended to compensate for any more than minor residual adverse effects on indigenous biodiversity after all appropriate avoidance, minimisation, remediation, and biodiversity offsetting measures have been sequentially applied.
Biodiversity offset	Means a measurable conservation outcome that meets the requirements in Appendix 3 of the National Policy Statement for Indigenous Biodiversity and results from actions that are intended to:

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Term	Definition
	a. redress any more than minor residual adverse effects on indigenous biodiversity after all appropriate avoidance, minimisation, and remediation measures have been sequentially applied; and b. achieve a net gain in type, amount, and condition of indigenous biodiversity compared to that lost.
Boundary Adjustment	Means a subdivision that alters the existing boundaries between adjoining allotments, without altering the number of allotments.
Building	Means a temporary or permanent movable or immovable physical construction that is: a. partially or fully roofed; and b. fixed or located on or in land; but excludes any motorised vehicle or other mode of transport that could be moved under its own power.
Building coverage	Means the percentage of the net site area covered by the building footprint.
Business services	Means activities where the primary business is offering and/or supplying for hire or sale services, rather than goods. It includes but is not limited to: a. Offices for businesses, local and government agencies, community entities; b. Professional services, e.g. lawyers, accountants, engineering, surveying, insurance, financial services, not for profit organisations, banks, travel agents; c. Personal services, e.g. hairdressing, beauty therapy, dry cleaning, shoe repairs; and d. Postal services.
Cabinet	Means a casing around equipment that is necessary to operate a telecommunication network, but not any of the following: a. a casing around an antenna, a small cell unit, ancillary equipment, or any part of a telecommunication line b. a casing that is wholly underground c. a casing that is inside a building d. a building

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Term	Definition
Cleanfill area	Means an area used exclusively for the disposal of cleanfill material.
Cleanfill material	Means virgin excavated natural materials including clay, gravel, sand, soil and rock that are free of: a. combustible, putrescible, degradable or leachable components; b. hazardous substances and materials; c. products and materials derived from hazardous waste treatment, stabilisation or disposal practices; d. medical and veterinary wastes, asbestos, and radioactive substances; e. contaminated soil and other contaminated materials; and f. liquid wastes.
Coastal Environment	Means the area identified on the planning maps as being located within the inland extent of the coastal environment.
Commercial activity	Means any activity trading in goods, equipment or services. It includes any ancillary activity to the commercial activity (for example administrative or head offices).
Common wall	Means any wall dividing adjoining residential units in a residential building or any party wall dividing accessory buildings.
Communication Kiosk	Any structure intended for public use to facilitate telecommunications and includes boxes or booths for telephone, video screen or internet services or other means to convey encrypted or non-encrypted sign, signal, impulse, writing, image, sound, instruction, information, or intelligence of any nature.
Community Corrections Activity	Means the use of land and buildings for non-custodial services for safety, welfare and community purposes, including probation, rehabilitation and reintegration services, assessments, reporting, workshops and programmes, administration, and a meeting point for community works groups.
Community facility	Means land and buildings used by members of the community for recreational, sporting, cultural, safety, health, welfare, or worship purposes. It includes provision for any ancillary activity that assists with the operation of the community facility.

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Term	Definition
Community garden	Means land used as a garden by a group or collective, for the purpose of growing fruit, vegetables, and flowers. Includes composting.
Community-scale renewable electricity generation activity	Means renewable electricity generation for the purpose of supplying an immediate community, or connecting into the distribution network.
Conservation activities	Means the use of land or buildings for activities undertaken for the purposes of maintaining, protecting, and/or enhancing the natural, historic, and/or ecological values of a natural or historic resource. It may include activities which assist to enhance the public's appreciation and recreational enjoyment of the resource and includes restoration planting, pest and weed control, track construction and maintenance, and plant nurseries to support these purposes.
Contaminated land	Means land that has a hazardous substance in or on it that— a. has significant adverse effects on the environment; or b. is reasonably likely to have significant adverse effects on the environment
Council's Engineering Development Standard	For all districts means the Engineering Development Standard 2023, except in South Wairarapa the three waters standards outlined in Sections 4 - 6 of the document do not apply. For subdivision and development in South Wairarapa the applicable three waters standards are those specified in the Wellington Water Standards and Specifications for Water Services.
Crop structure support	Means an open structure on which plants are grown.
Cultivation	Means the alteration or disturbance of land (or any matter constituting the land including soil, clay, sand and rock) for the purpose of sowing, growing or harvesting of pasture or crops.
Customary activity	Means the use of land resources, or buildings for Māori cultural activities that provide for the special relationship between tangata whenua and places of customary importance in accordance with tikanga and traditional uses.
Customer connection line	Means a telecommunication line or electricity that connects a distribution network to a premises for the purpose of enabling the operator to provide services to a customer.

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Term	Definition
Development Capacity	Means the capacity of land to be developed for housing or for business use, based on:(a) the zoning, objectives, policies, rules, and overlays that apply in the relevant proposed and operative RMA planning documents; and(b) the provision of adequate development infrastructure to support the development of land for housing or business use.
Digital sign	Means a sign with an electronic display that uses technologies such as LCD, LED, projection, and e-paper to display digital images, video, web pages, weather data, restaurant menus, or text. Includes illumination.
Distribution network	Means a distributor's lines and associated equipment used for the conveyance of electricity on lines other than lines that are part of the national grid.
Distributor	Means a business engaged in distribution of electricity.
Drive-through activities	Means any activity with a substantial focus on drive-through transactions, including service stations and drive-through retail and services outlets and restaurants.
Earthworks	Means the alteration or disturbance of land, including by moving, removing, placing, blading, cutting, contouring, filling or excavation of earth (or any matter constituting the land including soil, clay, sand and rock); but excludes gardening, cultivation, and disturbance of land for the installation of fence posts.
Educational facilities	Means land or buildings used for teaching or training by childcare services, schools, or tertiary education services, including any ancillary activities.
Emergency service facilities	Means facilities associated with organisations responsible for the safety and physical welfare of people or property in the community, and includes fire, ambulance, and police stations.
Entertainment activities	Means the use of any facility for the purpose of providing entertainment and includes any cinema, theatre, concert venue, conference centre, and private function facilities.
Esplanade reserve	Means a reserve within the meaning of the Reserves Act 1977— a. which is either— i. a local purpose reserve within the meaning of section 23 of that Act, if vested in the territorial authority under section 239; or ii. a reserve vested in the Crown or a regional council under section 237D; and

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Term	Definition
	b. which is vested in the territorial authority, regional council, or the Crown for a purpose or purposes set out in section 229.
Esplanade strip	Means a strip of land created by the registration of an instrument in accordance with section 232 for a purpose or purposes set out in section 229.
Farm quarry	Means the extraction of minerals taken for use ancillary to farming and horticulture, and only used within the property of extraction. It includes the extraction of material for farm and forestry tracks, accessways, and hardstand areas on the property of origin. It does not include the exportation or removal of extracted material (including any aggregate) from the property of origin or retail or other sales of such material.
Finished floor level	Means the level at the bottom of the floor joists or the base of the concrete floor slab.
Food and beverage activity	Means any activity where the primary business is selling food or beverages for immediate consumption, primarily on site. It includes: a. restaurants; b. cafes; c. bars; d. taverns; It excludes: e. food and beverage retail stores e.g. supermarkets, dairies, superettes, bakeries, and takeaway food bars; and f. drive-through activities.
Foreshore Protection Area	Means the area being 50 metres landward of Mean High-Water Springs in all areas of the Coastal Environment, except for Riversdale which is specifically identified on the Planning Maps.
Front face	Means the face on the outside of a panel antenna, which faces away from the structure on which it is mounted.
Frost fan	Means a land-based device designed or adapted to mitigate frost damage by fanning warmer air over potentially frost affected surfaces and includes;

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Term	Definition
	a. Fan blades; b. Motive source; c. Support structure/tower; d. Plinth; and e. Associated probes and communications and networking devices.
Functional need	Means the need for a proposal or activity to traverse, locate or operate in a particular environment because the activity can only occur in that environment.
Gross floor area	Means the sum of the total area of all floors of a building or buildings (including any void area in each of those floors, such as service shafts, lift wells or stairwells) measured: a. where there are exterior walls, from the exterior faces of those exterior walls; b. where there are walls separating two buildings, from the centre lines of the walls separating the two buildings; c. where a wall or walls are lacking (for example, a mezzanine floor) and the edge of the floor is discernible, from the edge of the floor.
Ground level	Means: a. the actual finished surface level of the ground after the most recent subdivision that created at least one additional allotment was completed (when the record of title is created); b. if the ground level cannot be identified under paragraph (a), the existing surface level of the ground; c. if, in any case under paragraph (a) or (b), a retaining wall or retaining structure is located on the boundary, the level on the exterior surface of the retaining wall or retaining structure where it intersects the boundary
Habitable room	Means any room used for the purposes of teaching or used as a living room, dining room, sitting room, bedroom, office or other room specified in the Plan to be a similarly occupied room.
Hangar Homes	Means a hangar with an attached or integrated residential unit, where the residential component is secondary to the primary function of the hangar.

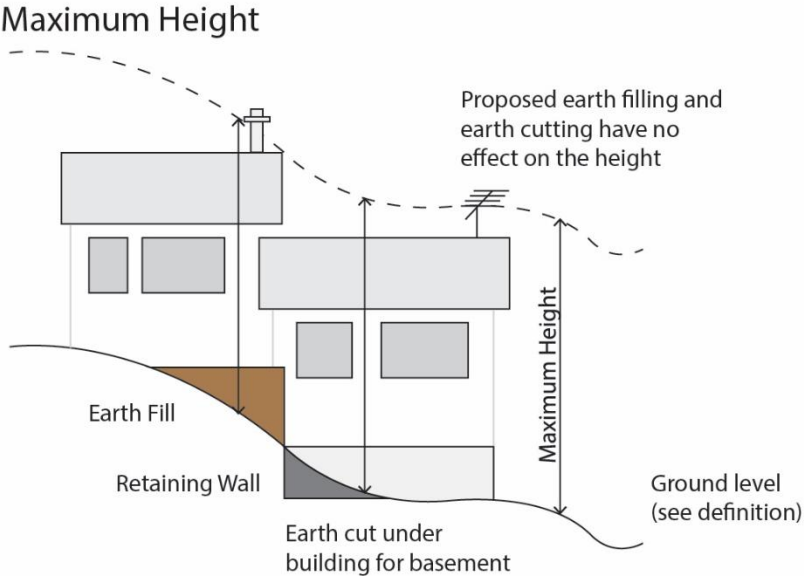
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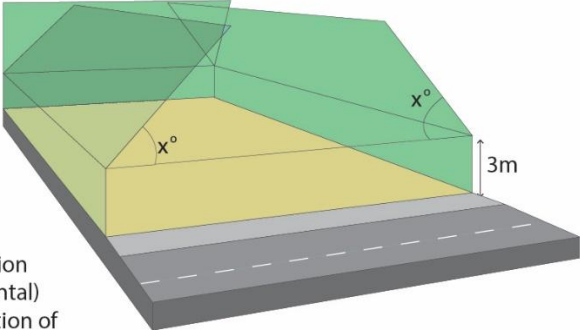
Term	Definition								
	Note: For the purposes of this definition, a hangar is a building or structure designed for housing and maintaining aircraft.								
Hapū	Means kinship group, clan, tribe, subtribe - section of a large kinship group and the primary political unit in traditional Māori society. It consisted of a number of whānau sharing descent from a common ancestor, usually being named after the ancestor, but sometimes from an important event in the group's history. A number of related hapū usually shared adjacent territories forming a looser tribal federation (iwi).								
Hazard areas	Means land identified on planning maps and categorised in Table NH-1 Hazard risk categories as: Table NH-1 Hazard risk categories: <table> <tr> <th>Hazard category</th><th>Hazard type</th></tr> <tr> <td>High hazard area</td><td> Flood hazard – river corridors Fault hazard - Well-defined and well-defined extended FAZs with recurrence interval class I (RI ≤2,000 years) and class II (RI >2,000 - ≤3,500 years) - Distributed and uncertain - constrained FAZs with recurrence interval class I (RI ≤2,000 years) </td></tr> <tr> <td>Moderate hazard area</td><td> Flood hazard – overland flow path Fault hazard - Well-defined and well-defined extended FAZs with recurrence interval class III (RI 3,500 – 5,000 years), class IV (RI >5,000 - ≤10,000 years), and class V (RI >10,000 - ≤20,000 years) - Distributed and uncertain - constrained FAZs with recurrence interval class II (RI >2,000 - ≤3,500 years) and III (RI 3,500 – 5,000 years) - Uncertain – poorly constrained FAZs with recurrence interval class I (RI ≤2,000 years) and class II (RI >2,000 - ≤3,500 years) </td></tr> <tr> <td>Low hazard area</td><td> Flood hazard – ponding Possible liquefaction-prone area Fault hazard - Distributed and uncertain – constrained FAZs with recurrence interval class IV (RI >5,000 - </td></tr> </table>	Hazard category	Hazard type	High hazard area	Flood hazard – river corridors Fault hazard - Well-defined and well-defined extended FAZs with recurrence interval class I (RI ≤2,000 years) and class II (RI >2,000 - ≤3,500 years) - Distributed and uncertain - constrained FAZs with recurrence interval class I (RI ≤2,000 years)	Moderate hazard area	Flood hazard – overland flow path Fault hazard - Well-defined and well-defined extended FAZs with recurrence interval class III (RI 3,500 – 5,000 years), class IV (RI >5,000 - ≤10,000 years), and class V (RI >10,000 - ≤20,000 years) - Distributed and uncertain - constrained FAZs with recurrence interval class II (RI >2,000 - ≤3,500 years) and III (RI 3,500 – 5,000 years) - Uncertain – poorly constrained FAZs with recurrence interval class I (RI ≤2,000 years) and class II (RI >2,000 - ≤3,500 years)	Low hazard area	Flood hazard – ponding Possible liquefaction-prone area Fault hazard Distributed and uncertain – constrained FAZs with recurrence interval class IV (RI >5,000 -
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Term	Definition
	≤10,000 years) and class V (RI >10,000 - ≤20,000 years) • Uncertain – poorly constrained FAZs with recurrence interval class III (RI 3,500 – 5,000 years), class IV (RI >5,000 - ≤10,000 years) and class V (RI >10,000 - ≤20,000 years) • All FAZs with recurrence interval class VI (RI >20,000 - ≤125,000 years)
Hazard sensitive activities	Means activities that are particularly vulnerable to exposure to a significant risk of damage from one or more identified natural hazard areas. Hazard sensitive activities are the following: - Community facilities; - Marae; - Healthcare facilities; - Emergency service facilities; - Educational facilities; - Entertainment activities; - Retirement villages; and - Residential activities and residential units.
Hazardous substance	Includes, but is not limited to, any substance defined in section 2 of the Hazardous Substances and New Organisms Act 1996 as a hazardous substance. The Hazardous Substances and New Organisms Act 1996 defines hazardous substances as meaning, unless expressly provided otherwise by regulations or an EPA notice, any substance— - with 1 or more of the following intrinsic properties: - explosiveness; - flammability; - a capacity to oxidise; - corrosiveness; - toxicity (including chronic toxicity); - ecotoxicity, with or without bioaccumulation; or - which on contact with air or water (other than air or water where the temperature or pressure has been artificially increased or decreased) generates a substance with any 1 or more of the properties specified in paragraph (a).

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Term	Definition
Healthcare activities	Means the use of premises: a. By one or more health care providers for the purposes of carrying on their profession; b. As a veterinary clinic; or c. As a medical laboratory But does not include a supported residential care facility, or a healthcare institution in which there is on-site resident healthcare staff and overnight accommodation of patients.
Height	Means the vertical distance between a specified reference point and the highest part of any feature, structure or building above that point. 
Height in relation to boundary	Means the height of a structure, building or feature, relative to its distance from either the boundary of: (a) a site; or (b) another specified reference point.

Term	Definition
	 The angle of a recession plane (x° from horizontal) depends on the location of the boundary: East boundary: 45°
Helicopter Landing Area	Means any area of land intended or designed to be used, whether wholly or partly, for helicopter movement or servicing, including heliports and helipads. It does not include areas of land used on a temporary basis for helicopter landings, including but not limited to: - Emergency landings - Medical emergencies - Search and rescue operations - Firefighting, police or civil defence purposes - Temporary activities - Temporary military training activities - Construction of structures - Construction, upgrading, maintenance and repair of network utilities - Surveying.
Heritage curtilage	Means the land (including land covered by water) surrounding a listed heritage building or item that is essential for retaining and interpreting its significance. It can apply to either land integral to the heritage item, or a precinct that includes buildings, relics, areas, and their settings. Note: for the purpose of this definition, curtilage shall apply to the whole site unless defined otherwise.
Heritage upgrade works	Means, in relation to identified heritage building or item, works to satisfy or increase compliance with the Building Act 2004 and Building Code requirements and includes: - Seismic investigation affecting the exterior of an identified heritage building or item or an interior element to identify, assess and make decisions on whether it is earthquake-prone; - Seismic strengthening to make it more resistant to seismic activity, ground motion, or soil failure due to earthquakes, including temporary lifting or moving off foundations or permanent realignment of foundations;

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Term	Definition
	c. Temporary lifting or temporary moving to allow for ground, foundation and retaining wall remediation; d. Fire protection affecting the exterior of an identified heritage building or item or an interior element, e.g. fire isolation exits, fire alarm panels, external stairs, removal or installation of external doors (or upgrading of door panels) in relation to escape route provisions and fire resistance ratings, etc.; and e. Accessibility affecting the exterior of an identified heritage building, or item or an interior element, e.g. external door openings, handrails and ramps, etc.
Highly Productive Land	Means land that has been mapped in accordance with clause 3.4 and is included in an operative regional policy statement as required by clause 3.5 (but see clause 3.5(7) for what is treated as highly productive land before the maps are included in an operative regional policy statement and clause 3.5(6) for when land is rezoned and therefore ceases to be highly productive land)
Home business	Means a commercial activity that is: a. undertaken or operated by at least one resident of the site; and b. incidental to the use of the site for a residential activity.
Horticulture or Horticultural Activities	Means the production of fruit, vegetables, flowers, and grains. Includes: a. Greenhouses, b. Market gardens, c. Plant nurseries, d. Orchards, and e. Vineyards. Excludes: f. Forestry, and g. Intensive primary production.
Indigenous vegetation	Means vascular and non-vascular plants that, in relation to a particular area, are native to the ecological district in which that area is located.

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Term	Definition
Infrastructure	Means: a. pipelines that distribute or transmit natural or manufactured gas, petroleum, biofuel, or geothermal energy: i. network for the purpose of telecommunication as defined in section 5 of the Telecommunications Act 2001: ii. a network for the purpose of radiocommunication as defined in section 2(1) of the Radiocommunications Act 1989: iii. facilities for the generation of electricity, lines used or intended to be used to convey electricity, and support structures for lines used or intended to be used to convey electricity, excluding facilities, lines, and support structures if a person— iv. uses them in connection with the generation of electricity for the person's use; and v. does not use them to generate any electricity for supply to any other person: b. a water supply distribution system, including a system for irrigation: c. a drainage or sewerage system: d. structures for transport on land by cycleways, rail, roads, walkways, or any other means: e. facilities for the loading or unloading of cargo or passengers transported on land by any means: f. an airport as defined in section 2 of the Airport Authorities Act 1966: g. a navigation installation as defined in section 2 of the Civil Aviation Act 1990: h. facilities for the loading or unloading of cargo or passengers carried by sea, including a port related commercial undertaking as defined in section 2(1) of the Port Companies Act 1988: i. anything described as a network utility operation in regulations made for the purposes of the definition of network utility operator in section 166
Industrial activity	Means an activity that manufactures, fabricates, processes, packages, distributes, repairs, stores, or disposes of materials (including raw, processed, or partly processed materials) or goods. It includes any ancillary activity to the industrial activity.
Intensive primary production	Means any activity defined as <i>intensive indoor primary production</i> or <i>intensive outdoor primary production</i>.

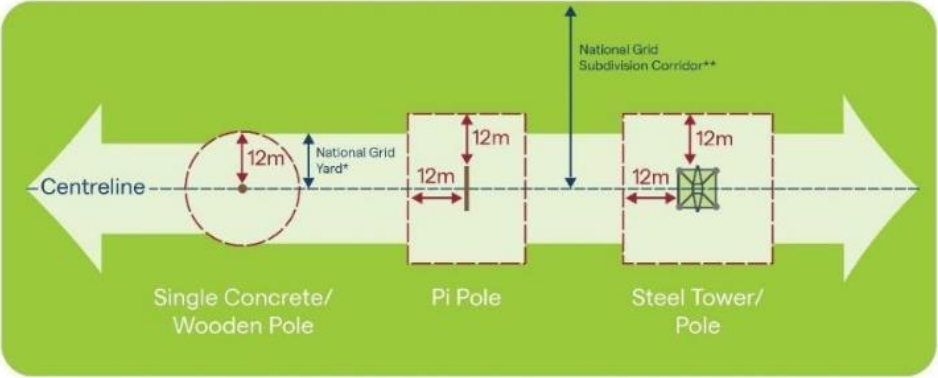
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Term	Definition
Intensive indoor primary production	Means primary production activities that principally occur within buildings and involve growing fungi or keeping or rearing livestock (excluding calf-rearing for a specified time period) or poultry.
Intensive outdoor primary production	Means any primary production activities involving the keeping or rearing of livestock (excluding calf-rearing for a specified time period) that principally occurs outdoors which, by the nature of the activity, precludes the maintenance of pasture or ground cover.
Iwi	Extended kinship group, tribe, nation, people, nationality, race - often refers to a large group of people descended from a common ancestor and associated with a distinct territory.
Keeping of goats	Means the keeping or farming of one or more free-ranging goats (i.e., untethered).
Lake	Means a body of fresh water which is entirely or nearly surrounded by land.
Land disturbance	Means the alteration or disturbance of land (or any matter constituting the land including soil, clay, sand and rock) that does not permanently alter the profile, contour or height of the land.
Land based primary production	Means production, from agricultural, pastoral, horticultural, or forestry activities, that is reliant on the soil resource of the land.
Landfill	Means an area used for, or previously used for, the disposal of solid waste. It excludes cleanfill areas.
Large-scale renewable electricity generation activity	Means electricity generation activities utilising renewable energy sources for the purpose of exporting electricity directly into the distribution network or National Grid. It includes all ancillary components and activities such as substations, battery energy storage systems, climate/environmental monitoring equipment, earthworks, roading, maintenance buildings, temporary concrete batching plants, internal transmission and fibre networks, vegetation clearance, and site rehabilitation works.
Less hazard sensitive activities	Means activities that are less sensitive to natural hazards, which are: a. Accessory buildings and structures used for non-habitable purposes; b. Infrastructure; c. Park management activity; and d. Buildings and structures associated with temporary activities; and

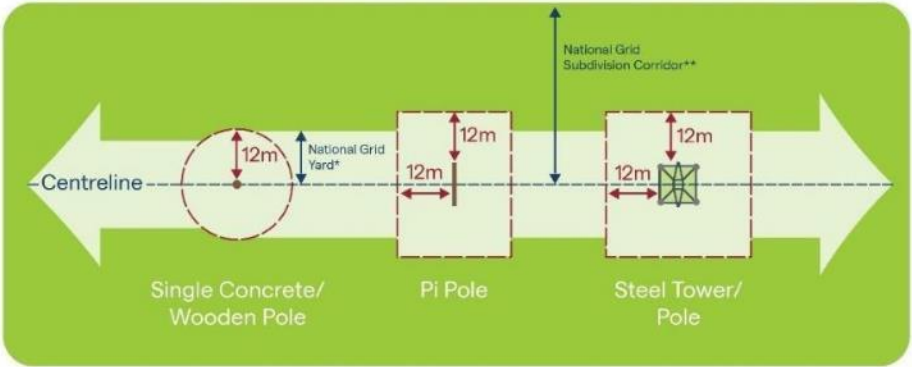
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Term	Definition
	e. Activities not defined as hazard sensitive activities or potentially hazard sensitive activities.
Loading space	Means a defined area of an allotment that has access to a road or service lane for the exclusive use of transferring goods from a vehicle to an activity or vice a versa; excludes parking, landscaping, or other similar areas.
Maintenance	Means the regular and ongoing protective care of a building or structure to prevent deterioration, and a. in relation to an identified heritage building or item, the regular and ongoing protective care of the building or item to prevent deterioration and retain its heritage values; or b. in relation to network utilities, any work or activity required for the ongoing operation and functioning of existing network utilities.
Mana whenua	Means territorial rights, power from the land, authority over land or territory, jurisdiction over land or territory - power associated with possession and occupation of tribal land. The tribe's history and legends are based in the lands they have occupied over generations and the land provides the sustenance for the people and to provide hospitality for guests.
Mining	Means to take, win, or extract, by whatever means— a. A mineral existing in its natural state in land; or b. A chemical substance from a mineral existing in its natural state in land; and Includes— c. The injection of petroleum into an underground gas storage facility; and d. The extraction of petroleum from an underground gas storage facility; but Does not include prospecting or exploration for a mineral or chemical substance referred to in paragraph (a).
Minor residential unit	Means a self-contained residential unit that is ancillary to the principal residential unit and is held in common ownership with the principal residential unit on the same site.

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Term	Definition
Modification	As it relates to vegetation means the felling, clearance, removal, damage, or destruction of the vegetation including the following activities within the vegetation drip line: a. work that involves compaction, sealing, or removal of soil; b. drilling or excavation; or c. discharge of toxic substances.
Motorised outdoor recreation activity	Means any activity involving a motor driven vehicle on land and/or water and includes motorbikes, off-roaders, all-terrain vehicles, jetboats, and jetskis, in which the use of the vehicle is operated for profit or are organised activities with their own dedicated tracks and facilities.
National Grid	Means the assets used or owned by Transpower New Zealand Limited.
National Grid subdivision corridor	Means the area measured either side of the centreline of above ground National Grid transmission lines as follows (and illustrated in dark green below): a. 14 metres for 110kV transmission lines on single poles; b. 16 metres for 110kV transmission lines on pi poles; c. 32 metres for 110kV transmission lines on towers (including tubular steel towers where these replace steel lattice towers);  * National Grid Yard: 10m from single concrete/wooden pole lines, 12m from all other line types ** National Grid Subdivision Corridor: 14m, 16m and 32m depending on line voltage The National Grid subdivision corridor does not apply to underground cables or any transmission lines (or sections of transmission line) that are designated.

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Term	Definition
National Grid support structure	Means a pole, tower or other support structure ancillary to a transmission line that is part of the National Grid.
National Grid yard	Means (as illustrated in light green below): - the area located 10 metres either side of the centreline of an overhead 110kV National Grid transmission line on single poles; - the area located 12 metres in any direction from the outer edge of a National Grid support structure; - the area located 12 metres either side of the centreline of any overhead National Grid transmission line on pi poles or towers.  * National Grid Yard: 10m from single concrete/wooden pole lines, 12m from all other line types ** National Grid Subdivision Corridor: 14m, 16m and 32m depending on line voltage
Natural hazard	Means any atmospheric or earth or water related occurrence (including earthquake, tsunami, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire, or flooding) the action of which adversely affects or may adversely affect human life, property, or other aspects of the environment.
Natural inland wetland	Means a wetland (as defined in the Act) that is not: - in the coastal marine area; or - a deliberately constructed wetland, other than a wetland constructed to offset impacts on, or to restore, an existing or former natural inland wetland; or - a wetland that has developed in or around a deliberately constructed water body, since the construction of the water body; or

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Term	Definition
	d. a geothermal wetland; or e. a wetland that: i. is within an area of pasture used for grazing; and ii. has vegetation cover comprising more than 50% exotic pasture species (as identified in the National List of Exotic Pasture Species using the Pasture Exclusion Assessment Methodology (see clause 1.8)); unless iii. the wetland is a location of a habitat of a threatened species identified under clause 3.8 of this National Policy Statement, in which case the exclusion in (e) does not apply.
Net site area	Means the total area of the site, but excludes: a. any part of the site that provides legal access to another site; i. any part of a rear site that provides legal access to that site; ii. any part of the site subject to a designation that may be taken or acquired under the Public Works Act 1981.
Network utility	Means a project, work, system, or structure that is a network utility operation undertaken by a network utility operator.
Network Utility Operator	Means a person who— a. undertakes or proposes to undertake the distribution or transmission by pipeline of natural or manufactured gas, petroleum, biofuel, or geothermal energy; or b. operates or proposes to operate a network for the purpose of— i. telecommunication as defined in section 5 of the Telecommunications Act 2001; or ii. radiocommunication as defined in section 2(1) of the Radiocommunications Act 1989; or c. is an electricity operator or electricity distributor as defined in section 2 of the Electricity Act 1992 for the purpose of line function services as defined in that section; or d. undertakes or proposes to undertake the distribution of water for supply (including irrigation); or e. undertakes or proposes to undertake a drainage or sewerage system; or

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Term	Definition
	f. constructs, operates, or proposes to construct or operate, a road or railway line; or g. is an airport authority as defined by the Airport Authorities Act 1966 for the purposes of operating an airport as defined by that Act; or h. is a provider of any approach control service within the meaning of the Civil Aviation Act 1990; or i. is a responsible SPV that is constructing or proposing to construct eligible infrastructure; or j. undertakes or proposes to undertake a project or work prescribed as a network utility operation for the purposes of this definition by regulations made under this Act,— and the words network utility operation have a corresponding meaning.
Noise sensitive activity	Means: a. Any habitable room in a residential activity (including visitor accommodation, boarding houses, papakāinga, and retirement accommodation); b. Any educational facilities (teaching areas and sleeping rooms only); c. Any healthcare facility, including hospitals; d. Any congregations within places of worship/marae e. Any habitable room in new seasonal worker accommodation within the State Highway Noise Boundary.
Noxious or offensive Industry	Means an industrial activity involving: a. blood or offal treating; bone boiling or crushing; dag crushing; fellmongering; fish cleaning or curing; gut scraping and treating; and tallow melting; b. flax pulping; flock manufacture or teasing of textile materials for any purpose; and wood pulping; c. storage and disposal of sewage, septic tank sludge, or refuse (excluding municipal recycling processing facilities); d. slaughtering of animals; storage, drying or preserving of bones, hides, hoofs or skins; tanning; and wool scouring.

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Term	Definition
	e. any other processes involving fuel burning equipment, which individually or in combination with other equipment, have a fuel burning rate of up to 1000 kg/hr; f. burning out of the residual content of metal containers used for the transport or storage of chemicals; g. the burning of municipal, commercial or industrial wastes, by the use of incinerators for disposal of waste; h. any industrial wood pulp process in which wood or other cellulose material is cooked with chemical solutions to dissolve lining, and the associated processes of bleaching and chemical and by-product recovery; i. crematoriums; and j. any industrial activity which involves the discharge of odour or dust beyond the site boundary
Official Sign	Has the same meaning as in the National Planning Standards (as set out below): Means all signs required or provided for under any statute or regulation, or are otherwise related to aspects of public safety.
Official Traffic Sign	Means any sign erected or approved by a road controlling authority for the purposes of regulating, warning, or informing road users (including pedestrians) of road conditions, locations, activities, traffic control, or other such information relative to the use of the road, including tourist and essential service facilities. This definition also includes other road controlling devices, such as traffic lights, railway crossing lights, and barrier arms.
Off-site Sign	Means any sign that does not relate to an activity currently occurring on the site on which the sign is located.
Operational need	Has the same meaning as in the National Planning Standards (as set out below): Means the need for a proposal or activity to traverse, locate or operate in a particular environment because of technical, logistical or operational characteristics or constraints.
Organic Composting	Means any combination of solid or semi-solid vegetable and animal waste that has fully decomposed and matured to a stable product. For the purposes of the Plan, compost does not contain human sewage. Composting over 100m³ per site is defined as rural industry.

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Outdoor living space	Has the same meaning as in the National Planning Standards (as set out below): Means an area of open space for the use of the occupants of the residential unit or units to which the space is allocated.
Outdoor storage	Means the use of land for the purpose of storing vehicles, equipment, machinery, natural and processed products, and wastes, on a permanent or semi-permanent basis and outside a fully enclosed building.
Outer Air Noise Boundary	The 50dBA contour line, as shown on the planning maps.
Outstanding Natural Character	Means an area identified as having Outstanding Natural Character within the Coastal Environment as identified in SCHED10 - Outstanding Natural Character.
Outstanding Natural Features and Landscapes	Means an area of outstanding natural features and landscapes identified in SCHED9 - Outstanding Natural Features and Landscapes.
Papakāinga	Means housing and any ancillary activities (including residential, social, cultural, educational, economic, conservation, commercial or recreation activities) for tangata whenua on their ancestral land.
Park management activity	Means activities and the use of land or structures that facilitate the management, use, and enjoyment of open space, including: a. landscaping, planting, and vegetation maintenance; i. pest and weed control; ii. vehicle, machinery, and equipment depots; iii. storage sheds; iv. public toilets, shelters, and changing facilities; v. footbridges, paths, and boardwalks; vi. minor stormwater management devices e.g. rain gardens; vii. park furniture including seating, picnic tables, playground equipment, rubbish bins, lighting structures, shade sails, water features, drinking fountains, barbeques, and cycle parking structures; and viii. public art and memorials.
Parking area	Means that part of an allotment or building within which vehicle parking is accommodated, including all manoeuvring areas.

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Parking bay	Means an area formed, marked, and set aside for vehicle parking to meet the parking requirements of this Plan.
Pest plant species	Means any plant species identified in Appendix ECO-1 - Schedule of Pest Plant Species.
Plantation forest or plantation forestry	Has the same meaning as in Regulation 3 of the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017: Means a forest deliberately established for commercial purposes, being— a. at least 1 ha of continuous forest cover of forest species that has been planted and has or will be harvested or replanted; and b. includes all associated forestry infrastructure; but c. does not include— i. a shelter belt of forest species, where the tree crown cover has, or is likely to have, an average width of less than 30 m; or ii. forest species in urban areas; or iii. nurseries and seed orchards; or iv. trees grown for fruit or nuts; or v. long-term ecological restoration planting of forest species; or vi. willows and poplars space planted for soil conservation purposes
Pole	In regard to poles supporting telecommunication antennas has the same meaning as in the National Environmental Standard for Telecommunication Facilities (as set out below): Means a pole, mast, lattice tower, or similar structure, of a kind that is able to be used (with or without modification) to support antennas Or otherwise means a structure for supporting network utility lines.
Potentially hazard sensitive activities	Means activities that are potentially sensitive to natural hazards, which are: a. Buildings associated with primary production; b. Commercial activities; c. Industrial activities; or d. Rural industry activities.
Primary production	Has the same meaning as in the National Planning Standards (as set out below):

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Term	Definition
	Means a. any aquaculture, agricultural, pastoral, horticultural, mining, quarrying or forestry activities; and b. includes initial processing, as an ancillary activity, of commodities that result from the listed activities in a.; c. includes any land and buildings used for the production of the commodities from a. and used for the initial processing of the commodities in b.; but d. excludes further processing of those commodities into a different product.
Productive capacity	Has the same meaning as in the National Policy Statement for Highly Productive Land (as set out below): in relation to land, means the ability of the land to support land-based primary production over the long term, based on an assessment of: a. physical characteristics (such as soil type, properties, and versatility); and b. legal constraints (such as consent notices, local authority covenants, and easements); and c. the size and shape of existing and proposed land parcels
Qualified arborist	Means a person suitably experienced and competent in arboriculture, having acquired through training, qualification (a minimum of a level 5 NZQA advanced certificate in arboriculture or equivalent arboricultural qualification) and/or equivalent experience, the knowledge and skills enabling that person to perform the required tasks.
Quarry	Has the same meaning as in the National Planning Standards (as set out below): Means a location or area used for the permanent removal and extraction of aggregates (clay, silt, rock or sand). It includes the area of aggregate resource and surrounding land associated with the operation of a quarry and which is used for quarrying activities.
Quarrying activities	Means the extraction, processing (including crushing, screening, washing, and blending), transport, storage, sale and recycling of aggregates (clay, silt, rock, sand), the deposition of overburden material, rehabilitation, landscaping and cleanfilling of the quarry, and the use of land and accessory buildings for offices, workshops, and car parking areas associated with the operation of the quarry.
Recreation activity	Means any activity where there is the passive or active pursuit of leisure, which can be competitive or non-competitive, casual or organised and includes sporting

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Term	Definition
	events. It includes provision for any ancillary activity that assists with the operation of the recreation activity.
Relocatable building	Means the removal, relocation, re-siting or demolition of an existing building from any site to another site, excluding the movement of a building within the same title or a new building built off-site that has not been used and is for the express purpose of being located to the subject site.
Renewable electricity generation	Has the same meaning as in the National Policy Statement for Renewable Electricity Generation (as set out below): Means generation of electricity from solar, wind, hydro-electricity, geothermal, biomass, tidal, wave, or ocean current energy sources.
Renewable electricity generation activities	Has the same meaning as in the National Policy Statement for Renewable Electricity Generation (as set out below): Means the construction, operation and maintenance of structures associated with renewable electricity generation. This includes small and community-scale distributed renewable generation activities and the system of electricity conveyance required to convey electricity to the distribution network and/or the national grid and electricity storage technologies associated with renewable electricity.
Repair	Means, to improve the long-term condition of a building or structure to fix any damaged or decayed aspects, and a. in relation to an identified heritage building or item, to improve the long-term condition of a heritage item, by using identical or closely similar materials to fix any damaged or decayed heritage fabric; <u>or</u> b. in relation to network utilities, any work or activity required for the ongoing operation and functioning of existing network utilities.
Residential activity	Has the same meaning as in the National Planning Standards (as set out below): Means the use of land and building(s) for people's living accommodation.
Residential unit	Has the same meaning as in the National Planning Standards (as set out below): Means a building(s) or part of a building that is used for a residential activity exclusively by one household, and must include sleeping, cooking, bathing and toilet facilities.

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Term	Definition
Residential visitor accommodation	Means the use of a residential unit (or part of a residential unit) for temporary accommodation (meaning stays of less than 90 days for any one guest), subject to a tariff being paid by guests, that is incidental to the use of the residential unit for a residential activity.
Retail activities	Means activities where the primary business is displaying, offering, and/or supplying goods for sale or hire of a kind ordinarily acquired for personal, domestic, or household use or consumption. It includes but is not limited to: a. clothing, footwear, and personal accessory retailing; b. antique and used goods, second hand, or charity shops; c. furniture and homeware retail stores; d. recreational goods and sports stores; e. electrical retailing; f. stationery shops; g. food and beverage retail stores, e.g. supermarkets, dairies, superettes, bakeries, and takeaway food bars; and h. department stores. It does not include: i. trade suppliers.
Retirement village	Has the same meaning as in the National Planning Standards (as set out below): Means a managed comprehensive residential complex or facilities used to provide residential accommodation for people who are retired and any spouses or partners of such people. It may also include any of the following for residents within the complex: recreation, leisure, supported residential care, welfare and medical facilities (inclusive of hospital care) and other non-residential activities.
Reverse Sensitivity	Means the potential for the development, upgrading, operation and maintenance of an existing lawfully established activity to be compromised, constrained or curtailed by the more recent establishment or alteration of another activity which may be sensitive to the actual, potential or perceived environmental effects generated by an existing activity. ‘Development’ and ‘upgrading’ of an existing activity in this definition are limited to where the effects are the same or similar in character, intensity, and scale to those which existed before the development or upgrade.

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River	Has the same meaning as in the National Planning Standards (as set out below): Has the same meaning as in section 2 of the RMA (as set out below) Means a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal).
Road	Has the same meaning as in the National Planning Standards (as set out below): Has the same meaning as in section 2 of the RMA (as set out below) Has the same meaning as in section 315 of the Local Government Act 1974; and includes a motorway as defined in section 2(1) of the Government Roding Powers Act 1989 Section 315 of the Local Government Act 1974 road definition: Means the whole of any land which is within a district, and which— a. immediately before the commencement of this Part was a road or street or public highway; or b. immediately before the inclusion of any area in the district was a public highway within that area; or c. is laid out by the council as a road or street after the commencement of this Part; or d. is vested in the council for the purpose of a road as shown on a deposited survey plan; or e. is vested in the council as a road or street pursuant to any other enactment;— and includes— f. except where elsewhere provided in this Part, any access way or service lane which before the commencement of this Part was under the control of any council or is laid out or constructed by or vested in any council as an access way or service lane or is declared by the Minister of Works and Development as an access way or service lane after the commencement of this Part or is declared by the Minister of Lands as an access way or service lane on or after 1 April 1988: g. every square or place intended for use of the public generally, and every bridge, culvert, drain, ford, gate, building, or other thing belonging thereto or lying upon the line or within the limits thereof;—

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	but, except as provided in the Public Works Act 1981 or in any regulations under that Act, does not include a motorway within the meaning of that Act or the Government Roading Powers Act 1989 Section 2(1) of the Government Roading Powers Act 1989 motorway definition: Motorway— - means a motorway declared as such by the Governor-General in Council under section 138 of the Public Works Act 1981 or under section 71 of this Act; and - includes all bridges, drains, culverts, or other structures or works forming part of any motorway so declared; but - does not include any local road, access way, or service lane (or the supports of any such road, way, or lane) that crosses over or under a motorway on a different level
Root protection area	Means the circular area of ground surrounding a notable tree, for a distance of 12 times the diameter of the tree 1.4 metres above ground level, up to a maximum radius of 15m.
Rural airstrip	Means any defined area of land in the General Rural Zone intended or designed to be used, whether wholly or partly, for aircraft movement or storage, or the servicing of aircraft, excluding any airstrip on land where the principal use of that land is for primary production and is used intermittently for agricultural aviation activities (farm airstrips).
Rural industry	Has the same meaning as in the National Planning Standards (as set out below): Means an industry or business undertaken in a rural environment that directly supports, services, or is dependent on primary production.
Rural produce retail	Means the use of land, structures and/or buildings on, or within which, rural produce grown or produced by the same operation, and products manufactured by them, are offered for sale. This includes the further processing of products manufactured by the same operation.
Seasonal worker accommodation	Means the use of land and buildings for the sole purpose of accommodating the short-term labour requirement of a primary production activity, rural industry or post-harvest facility.
Sensitive activities	Means the use of land and/or buildings for:

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Term	Definition
	a. Residential activities; b. Educational facilities; c. Community facilities; d. Healthcare activities; e. Supported residential care facilities; f. Papakāinga; g. Visitor accommodation; and/or h. Residential visitor accommodation.
Service station	Means a vehicle orientated facility where the principal activity is the refuelling of motorised vehicles and the sale of products and services associated with fuels and/or motor vehicles. They may include ancillary activities such as the sale of food and beverage and trailer hire.
Sign	Has the same meaning as in the National Planning Standards (as set out below): Means any device, character, graphic or electronic display, whether temporary or permanent, which: a. is for the purposes of: i. identification of or provision of information about any activity, property or structure or an aspect of public safety; ii. providing directions; or iii. promoting goods, services or events; and b. is projected onto, or fixed or attached to, any structure or natural object; and c. includes the frame, supporting device and any ancillary equipment whose function is to support the message or notice.
Significant hazardous facility	Means the use of land and/or buildings for one or more of the following activities: a. Manufacturing of hazardous substances and associated storage (including industries manufacturing agrochemicals, fertilisers, acids/alkalis, or paints); b. Oil and gas exploration and extraction facilities; c. Purpose built bulk storage facilities for the storage of hazardous substances (other than petrol, diesel, or LPG); d. The storage/use of more than 100,000L of petrol;

Term	Definition
	e. The storage/use of more than 100,000L of diesel; f. The storage/use of more than 6 tonnes of LPG; g. Galvanising plants; h. Electroplating and metal treatment facilities; i. Tanneries; j. Timber treatment; k. Freezing works and rendering plants; l. Wastewater treatment plants; m. Metal smelting and refining (including battery refining or re-cycling); n. Milk treatment plants; o. Fibreglass manufacturing; p. Polymer foam manufacturing; and q. Landfills. For the avoidance of doubt, the following activities are not considered to be significant hazardous facilities: b. The incidental use and storage of hazardous substances in minimal domestic scale quantities; c. Retail outlets for hazardous substances intended for domestic usage (e.g supermarkets, hardware stores, and pharmacies); d. The incidental storage and use of agrichemicals, fertilisers, and fuel for primary production activities; e. Pipelines used for the transfer of hazardous substances such gas, oil, trade waste, and sewage; f. Fuel in motor vehicles, boats, airplanes, and small engines; g. The underground storage of petrol and diesel at service stations undertaken in accordance with HSNOCOP 44 Below Ground Stationary Container Systems for Petroleum - Design and Installation and HSNOCOP 45 Below Ground Stationary Containers Systems for Petroleum - Operation; h. Temporary military training activities; i. The transport of hazardous substances (e.g. in trucks or trains).

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Term	Definition
Significant Natural Area	Means: a. an area considered significant due to ecological attributes as Identified areas of significant indigenous vegetation and significant habitat of indigenous fauna as set out in SCHED5 – Schedule of Significant Natural Areas; <u>or</u> b. areas that have been assessed through resource consent processes as an area of significant indigenous vegetation or significant habitat of indigenous fauna using the significance criteria in the Wellington Regional Policy Statement.
Significant Waterbodies	Means any waterbody identified in SCHED11 - Significant Waterbodies.
Site	Has the same meaning as in the National Planning Standards (as set out below): Means: a. an area of land comprised in a single record of title under the Land Transfer Act 2017; or b. an area of land which comprises two or more adjoining legally defined allotments in such a way that the allotments cannot be dealt with separately without the prior consent of the council; or c. the land comprised in a single allotment or balance area on an approved survey plan of subdivision for which a separate record of title under the Land Transfer Act 2017 could be issued without further consent of the Council; or d. despite paragraphs (a) to (c), in the case of land subdivided under the Unit Titles Act 1972 or the Unit Titles Act 2010 or a cross lease system, is the whole of the land subject to the unit development or cross lease.
Site and area of significance to Māori	Means a site, place or feature that are of historical, cultural/or spiritual significance to Māori, including wāhi tapu.
Shelterbelts and small woodlots	Means the planting of tree species as a shelter belt or small woodlot for the purpose of shelter, screening, stability or erosion control, or as a carbon sink, where this planting is not greater than 1 hectare in size or for timber use on the same property as which it is grown. This definition excludes activities defined as forestry or conservation.

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Term	Definition
Small-scale renewable electricity generation activity	Means <u>renewable</u> electricity generated <u>generation</u> for the <u>purpose of using electricity on a particular site use solely on the site on which it is generated, with or without exporting excess supply back connecting</u> into the distribution network.
Special Amenity Landscapes	Means an area of landscape value identified in SCHED8 - Special Amenity Landscapes.
Special Audible Characteristic	Has the same meaning as 'special audible characteristic' in section 6.3 of New Zealand Standard 6802:2008 Acoustics – Environmental Noise.
Street furniture	Means objects and pieces of equipment installed within road reserves for public use and includes bus shelters, benches, seats and planter boxes. Street furniture does not include any network utility structures.
Street tree	Means any tree where the trunk is located within legal road reserve.
Structure	Has the same meaning as in the National Planning Standards (as set out below): Has the same meaning as in section 2 of the RMA: means any building, equipment, device, or other facility, made by people and which is fixed to land; and includes any raft.
Supported residential care facility	Means a facility in which residential accommodation, supervision, assistance, care, and/or support by another person or agency for the living needs of elderly, ill, and/or disabled residents, such as hospices and rest homes. This definition excludes these activities where they are provided as part of a retirement village.
Surface waterbody	Means a body of freshwater in a river, lake, stream, pond, water race, or wetland.
Tangata whenua	Means local people, hosts, indigenous people - people born of the whenua.
Taonga	Means treasure, anything prized - applied to anything considered to be of value including socially or culturally valuable objects, resources, phenomenon, ideas and techniques.
Temporary activity	Means an activity in any zone that is of a non-repetitive, transient nature. It includes entertainment, cultural, and sporting events, temporary military training activities, and activities ancillary to construction and demolition.

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Temporary emergency services training activity	Means a temporary activity undertaken for the training of any component of Fire and Emergency New Zealand for any emergency purpose. An emergency purpose are those 16 purposes which enable Fire and Emergency New Zealand to achieve its main functions under section 11 and 12 of the Fire and Emergency New Zealand Act 2017.
Temporary military training activity	Has the same meaning as in the National Planning Standards (as set out below): Means a temporary activity undertaken for the training of any component of the New Zealand Defence Force (including with allied forces) for any defence purpose. Defence purposes are those purposes for which a defence force may be raised and maintained under section 5 of the Defence Act 1990 which are: a. the defence of New Zealand, and of any area for the defence of which New Zealand is responsible under any Act; b. the protection of the interests of New Zealand, whether in New Zealand or elsewhere; c. the contribution of forces under collective security treaties, agreements, or arrangements; d. the contribution of forces to, or for any of the purposes of, the United Nations, or in association with other organisations or States and in accordance with the principles of the Charter of the United Nations; e. the provision of assistance to the civil power either in New Zealand or elsewhere in time of emergency; f. the provision of any public service.
Temporary sign	Means a sign of a transient nature that is used to: a. Advertise that the property is for sale; b. Advise of any temporary construction project being undertaken on the site; c. Inform of a public election; d. Advertise an event associated with any temporary recreational or community activity within the Wairarapa.
Tower	a. means a steel-lattice structure that supports conductors as part of a transmission line; and b. includes the hardware associated with the structure (such as insulators, cross-arms, and guy-wires) and the structure's foundations.

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Term	Definition
	This definition is only applicable to electricity networks.
Trade supplier	Means a business engaged in sales to businesses and institutional customers and consists only of suppliers of goods in one or more of the following categories: a. automotive and/or marine suppliers; b. building suppliers; c. catering equipment suppliers; d. farming and agricultural suppliers; e. garden and patio suppliers; f. hire services (except hire or loan of books, videos, DVDs, and other similar home entertainment items); g. industrial clothing and safety equipment suppliers; and h. office furniture, equipment, and systems suppliers.
Transport network	Means the road and rail network in the district including state highways, public pedestrian and cycling facilities, public transport and associated public infrastructure e.g. bike racks, bus stops, and shelters.
Upgrade	As it applies to renewable electricity generation activities or network utilities, means the improvement or increase in carrying capacity, operational efficiency, security, or safety of existing infrastructure.
Vehicle crossing	Means that part of the legal road area that has been or can be or is proposed to be formed, reformed, or otherwise constructed to enable vehicle access between a site and a formed public road or live traffic lane.
Very High and High Natural Character	Means an area identified as having Very High or High Natural Character within the Coastal Environment as identified in SCHED11 - Very High and High Coastal Natural Character.
Visitor accommodation	Has the same meaning as in the National Planning Standards (as set out below): Means land and/or buildings used for accommodating visitors, subject to a tariff being paid, and includes any ancillary activities.
Wāhi tapu	Means places sacred to Māori in the traditional, spiritual, religious, ritual or mythological space. Generally, areas such as urupā or burial caves.

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Term	Definition
Waste management facility	Means facility used for receiving waste for transfer, treatment, disposal, or temporary storage. It includes: a. refuse transfer stations; and b. recycling. It excludes: c. landfills; and d. cleanfills.
Waterbody	Has the same meaning as in the National Planning Standards (as set out below): Has the same meaning as in section 2 of the RMA (as set out below): Means fresh water or geothermal water in a river, lake, stream, pond, wetland, or aquifer, or any part thereof, that is not located within the coastal marine area.
Wetland	Has the same meaning as in the National Planning Standards (as set out below): Has the same meaning as in section 2 of the RMA (as set out below): Includes permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions.
Whenua	Land

NOISE – Noise

Many activities and operations are carried out throughout the Wairarapa resulting in the generation of noise. Some environments are inherently noisy due to the functional need and characteristics of some activities, including industrial and rural activities, and are unable to occur elsewhere or be practically avoided. It is important that these activities and operations are able to continue, while ensuring that any adverse effects on the surrounding environment are avoided. Noise has the potential to affect the health of neighbouring residents (e.g., through sleep disturbance) and cause annoyance, and is often the cause of complaints. Noise effects can vary, depending on a range of factors including frequency, time, character and/or duration, and distance.

Hood Aerodrome is a strategic component of the Wairarapa aviation industry with rules applying to nearby land uses to protect its functionality and its future development against undue sensitivity to the effects of air traffic, such as noise.

Noise sensitive land uses can be impacted by the development of new and upgraded key transport *infrastructure*. Where new *noise sensitive activities* are established alongside existing and busy roads, this can result in adverse effects to human health as a result of sleep disturbance. New buildings should be designed to mitigate potential effects to human health from established transport routes. Noise sensitive activities will be defined and managed to mitigate potential effects on human health occurring from operational noise from established transport routes.

The noise rules and standards in this chapter provide the noise limits for specific activities and zones. Other than where expressly provided for, noise levels arising from activities must be measured in accordance with NZS6801:2008 Acoustics - Measurement of Environmental Sound and assessed in accordance with NZS6802:2008 Acoustics - Environmental Noise.

It is important to note that some activities are exempt from the noise rules set out in this chapter as they are either not controlled by the Resource Management Act 1991 or are controlled separately by other chapters in this plan or by the application of relevant New Zealand Noise Standards, including:

- a. NZS 6803:1999 Acoustics Construction Noise;
- b. NZS 6805:1992 Airport Noise Management and Land Use Planning;
- c. NZS 6806:2010 Acoustics Road Traffic Noise - New and Altered Roads;
- d. NZS 6807:1994 Noise Management and Land Use Planning for Helicopter Landing Areas; and
- e. NZS 6808:2010 Acoustics Wind Farm Noise.

Objectives

NOISE-O1	Noise generation
The benefits of activities that generate noise are recognised, where the adverse effects from noise are compatible with the anticipated purpose, character, and amenity values of the relevant zone(s) and do not compromise public health, safety, and wellbeing of people and communities.	
NOISE-O2	Reverse sensitivity
The function and operation of existing and permitted noise generating activities are not compromised by <i>reverse sensitivity</i> effects from noise <i>sensitive activities</i> .	

Policies

NOISE-P1	Enable noise-generating activities in appropriate areas
Enable the generation of noise from activities that: f. maintain the predominant character and amenity values of the receiving zone(s) by controlling the types of activities and levels of noise permitted in each zone; and a. do not compromise the health, safety, and wellbeing of people and communities.	
NOISE-P2	Ensure noise effects from activities are compatible with the existing environment
Provide for other activities that generate noise, where these avoid, remedy, or mitigate any adverse effects, having regard to: a. the extent to which it avoids conflict with existing noise sensitive activities; b. whether the level of effects is compatible with the character and amenity of the location and adjacent established activities and their operation; c. the compatibility of the noise with other noises generated from permitted zone activities, and other activities not controlled by the Plan, within the receiving zone; d. the degree to which the noise breaches the permitted noise standards for the receiving zone(s); e. whether adverse effects can be internalised to the site where the noise is generated and the extent to which they can be minimised at site boundaries; f. the frequency, intensity, duration, and offensiveness of the noise generated; g. any adverse effects on the health, safety, and wellbeing of people and communities within the surrounding area, including sleep disturbance and annoyance;	

	h. whether the activity adopts the best practicable option to avoid, remedy, or mitigate adverse effects and the appropriateness of potential mitigation measures to control and monitor the noise levels in addition or as alternatives to the best practicable option through noise management plans or other methods; and i. potential positive effects associated with the activity which is generating the noise that has a functional need to occur in that location.
NOISE-P3	Minimise noise effects from construction activities
	Minimise the adverse effects of noise from construction activities on the amenity values of the surrounding area, having regard to: a. the sensitivity of the receiving environment; b. the proposed duration and daily work hours of the construction activities; and c. whether compliance with permitted noise standards can be practically achieved in consideration of site, topographical, and other constraints.
NOISE-P4	Noise insulation near State Highway
	Ensure noise sensitive activities are appropriately located and separated from state highways and/or that any adverse noise, amenity, and adverse human health effects are avoided, remedied, or mitigated by identifying a state highway noise boundary on the planning maps and incorporating acoustic insulation measures.
NOISE-P5	Protect the operation of Hood Aerodrome from <i>reverse sensitivity</i> effects
	Protect the operation of Hood Aerodrome and other key air transport facilities from the potential adverse effects created by the proximity of nearby sensitive land use activities.
NOISE-P6	Noise <i>sensitive activities</i> in Commercial and Mixed Use Zones and General Industrial Zone
	Ensure noise <i>sensitive activities</i> proposing to locate within the Commercial, Mixed Use, and General Industrial Zones are located, designed, constructed, and operated in a way which will ensure adverse noise and health and safety effects are minimised having regard to: a. the primary purpose and the anticipated frequency of use of the noise sensitive activity; b. the location of noise sensitive activities in relation to noise generating activities and the level of noise that will be received within any noise sensitive building; c. the ability to design and construct buildings accommodating noise sensitive activities with sound insulation and/or other mitigation measures to ensure the level

of noise received within the building is minimised, particularly at night to minimise sleep disturbance; and d. the likelihood of unreasonable and/or objectionable noise being heard in any areas of private outdoor living space and the ability to mitigate this effect with screening, separation, or topography.	
NOISE-P7	Noise of limited duration and frequency
Allow noisy activities of limited duration and frequency which are of importance to the community, such as noise associated with temporary activities, the operation of emergency services, and temporary military training activities, subject to appropriate controls.	
NOISE-P8	Noise effects from the rural environment
The use of noisy equipment that has a limited duration and frequency (in particular, audible bird scaring devices, agricultural aviation activities and frost protection devices, and harvesters) that supports agricultural production in the rural environment is enabled by exempting these activities from noise limits, subject to reasonable use.	

Rules

The following activities are not subject to the rules and standards in this chapter: a. Aircraft being operated during flight; b. Vehicles being driven on a road (within the meaning of Section 2(1) of the Transport Act 1998), or within a site as part of or compatible with a normal residential activity; c. Trains on rail lines (public or private) and crossing bells within road reserve, including at railway yards, railway sidings, or stations. However, this exemption does not apply to the testing (when stationary), maintenance, loading, or unloading of trains; d. Agriculture, horticulture, pastoral farming, and conservation, activities undertaken for a limited duration, including using agricultural vehicles, agricultural aviation, helicopter landing areas, machinery, frost protection equipment or equipment used on a seasonal or intermittent basis, forestry planting, and forestry harvesting in the General Rural and Rural Lifestyle Zones; e. Motorised craft operating on the surface of <i>waterbodies</i>; f. Any warning device or siren used by emergency services for emergency purposes (and routine testing and maintenance); g. The use of generators and mobile equipment (including vehicles) for emergency purposes, including testing and maintenance not exceeding 48 hours in duration,

where they are operated by emergency services or lifeline utilities or associated with a retirement village; h. Activities at emergency service facilities associated with emergency response and emergency response training; i. Helicopters used for an emergency or as an air ambulance; j. Impulsive sounds (such as hammering and bangs) and dog barking noise which are poorly assessed by reference to NZS 6802:2008 Acoustics - Environmental Noise; or k. The control of crowd noise at a park or reserve. l. conservation activities undertaken for a limited duration, including agricultural aviation activities and, helicopter landing areas, in the Natural Open Space Zone. m. Temporary helicopter activities undertaken for a limited duration in the General Rural, Rural Lifestyle and Natural Open Space Zone and used on a seasonal or intermittent basis.

NOISE-R1		Emission of noise (not otherwise provided for in this chapter)
	All Zones	1. Activity status: Permitted Where: m. Compliance is achieved with: i. NOISE-S1; and; ii. NOISE-S2;
	All Zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NOISE-R1(1). Matters of discretion: 1. The effect of non-compliance with any relevant NOISE standard that is not met and the matters of discretion of any standard that is not met.

NOISE-R2		Emission of noise from construction, maintenance, and demolition activities
	All Zones	1. Activity status: Permitted Where: a. Compliance is achieved with: i. NOISE-S2.
	All Zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NOISE-R2(1). Matters of discretion: 1. The effect of non-compliance with any relevant NOISE standard that is not met and the matters of discretion of any standard that is not met.

NOISE-R3		Emission of noise from airblasts
	All Zones	1. Activity status: Permitted Where: a. Compliance is achieved with: i. NOISE-S2.
	All Zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NOISE-R3(1). Matters of discretion: 1. The effect of non-compliance with any relevant NOISE standard that is not met and the matters of discretion of any standard that is not met.

NOISE-R4		Emission of noise from bird scaring devices
	All Zones	1. Activity status: Permitted Where: a. Compliance is achieved with: i. NOISE-S2.
	All Zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NOISE-R4(1). Matters of discretion: 1. The effect of non-compliance with any relevant NOISE standard that is not met and the matters of discretion of any standard that is not met.

NOISE-R5		Emission of noise from frost protection devices
	All Zones	1. Activity status: Permitted Where: a. Compliance is achieved with: i. NOISE-S2.
	All Zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NOISE-R5(1). Matters of discretion: 1. The effect of non-compliance with any relevant NOISE standard that is not met and the matters of discretion of any standard that is not met.

NOISE-R6	Emission of noise from domestic wind turbines
All Zones	1. Activity status: Permitted Where: a. Domestic wind turbines comply with the underlying zone noise standards in NOISE-S1; and b. Measurement is undertaken in accordance with Section 7.7 of NZS 6808:2010 Acoustics Wind Farm Noise.
All Zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NOISE-R6(1). Matters of discretion: 1. Effects on ambient noise levels. 2. Management of effects from the turbine(s) with regard to the matters set out in NOISE-P2. 3. The extent to which alternative locations and methods have been considered to avoid, remedy, or mitigate any adverse effects, recognising: i. the practical constraints associated with renewable electricity generation activities; and ii. the environmental benefits of renewable electricity generation activities. 4. The ability to mitigate adverse effects through the imposition of conditions such as noise attenuation.

NOISE-R7	Emission of noise from large-scale renewable electricity generation activities (wind)
General Rural Zone	1. Activity status: Permitted Where: a. The noise generated complies with the limits set out in NZS 6808:2010 Acoustics Wind Farm Noise.
General Rural Zone All Other Zones	2. Activity status: Discretionary Where: a. Compliance is not achieved with NOISE-R7(1).

NOISE-R8	Emission of noise from helicopter landing areas
General Rural Zone	1. Activity status: Restricted discretionary Where: a. No helicopter movement (landing or departure) shall result in noise levels exceeding L_{Amax} 70 dBA between 10.00pm and 7.00am or L_{Amax} 90 dBA at all other times, when measured at the notional boundary of any noise sensitive activity; and b. Noise from helicopter landing areas is measured and assessed in accordance with NZS 6807:1994 Noise Management and Land Use Planning for Helicopter Landing Areas. Matters of discretion: 1. The matters set out in NOISE-P5. 2. Hours of operation. 3. Flight frequency. 4. Approach and departure flight paths minimising overflight of residential activities. 5. Application of non-statutory guidelines, such as HAI Fly Neighbourly Guidelines. 6. The extent of servicing and status as a heliport.
General Rural Zone All Other Zones	2. Activity status: Discretionary Where: a. Compliance is not achieved with NOISE-R8(1).

NOISE-R9	Emission of noise from helicopter operations at 625 Chester Road, Carterton
General Rural Zone	1. Activity status: Permitted Where: a. Compliance is achieved with: i. NOISE-S2.
General Rural Zone	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NOISE-R9(1). Matters of discretion:

	1. The effect of non-compliance with any relevant NOISE standard that is not met and the matters of discretion of any standard that is not met. 2. The matters set out in NOISE-P5.
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NOISE-R10		Emission of noise from <i>temporary activities</i> (not including <i>temporary military training activities</i>)
	All Zones	1. Activity status: Permitted Where: a. Compliance is achieved with: i. NOISE-S2.
	All Zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NOISE-R10(1). Matters of discretion: 1. The effect of non-compliance with any relevant NOISE standard that is not met and the matters of discretion of any standard that is not met.

NOISE-R11		Emission of noise from <i>temporary military training activities</i>
	All Zones	1. Activity status: Permitted Where: b. The activity involves stationary and mobile noise sources; and c. Compliance is achieved with: i. NOISE-S2.
	General Rural Zone Natural Open Space Zone	2. Activity status: Permitted Where: a. The activity involves live firing, fire of blank ammunition, and/or the use of explosives; b. The activity only occurs: i. Between 7.00am and 7.00pm; and ii. For a maximum duration of three consecutive days within any rolling 90-day period on any one site and shall not reoccur within that period on any other site

		within 2km of any of the site boundaries on which the activity takes place; c. Sound emissions must not exceed 70dB L_{Amax} measured at the notional boundary of any building housing a noise <i>sensitive activity</i>; and d. Notice must be provided to the Council at least 48 hours prior to the commencement of the activity, specifying whether the activity involves live firing and/or the use of explosives, or firing of blank ammunition; the location of the activity and the boundaries within which the activity will take place and the distances to buildings containing noise <i>sensitive activities</i>; and the timing and the duration of the activity.
All Zones		3. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NOISE-R11(1), (2), or (3). Matters of discretion: 1. The effect of non-compliance with any relevant NOISE standard that is not met and the matters of discretion of any standard that is not met. 2. Management of effects from the training activities with regard to the matters set out in NOISE-P2. 3. Whether the noise levels are likely to cause alarm or adversely affect the character and amenity values of the location and adjacent activities. 4. Any mitigation of the noise proposed, in accordance with a best practicable option approach (e.g. site layout and design, design and location of <i>structures</i>, <i>buildings</i> and equipment and the timing of operations), including: i. The extent to which alternative locations and methods have been considered to avoid, or mitigate any adverse effects, recognising the practical constraints associated with temporary military training activities; and ii. The ability to mitigate adverse effects through the imposition of conditions.
Residential Zones Rural Lifestyle Zone		4. Activity status: Discretionary Where: a. The activity involves live firing, fire of blank ammunition, and/or the use of explosives; and

Commercial and Mixed Use Zones Open Space Zone Sport and Active Recreation Zone Special Purpose Zones	b. The activity is not located within the General Rural Zone or the Natural Open Space Zone.
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NOISE-R12	New <i>buildings</i>, change of use of existing <i>buildings</i>, and <i>additions</i> to existing <i>buildings</i> to be occupied by a noise <i>sensitive activity</i> in Commercial and Mixed Use Zones and General Industrial Zones
Commercial and Mixed Use Zones General Industrial Zone	1. Activity status: Permitted Where: a. Compliance is achieved with: i. NOISE-S3.
Commercial and Mixed Use Zones General Industrial Zone	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with: i. NOISE-S3. Matters of discretion: 1. The effect of non-compliance with any relevant NOISE standard that is not met and the matters of discretion of any standard that is not met. 2. The matters set out in NOISE-P4.

NOISE-R13	New <i>buildings</i> or <i>additions</i> to existing <i>buildings</i>, or alterations to existing buildings that create new habitable rooms, to be occupied by a noise <i>sensitive activity</i> located within the Noise control boundary (state highway) as shown on the planning maps
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	All Zones	1. Activity status: Permitted Where: a. Compliance is achieved with: i. NOISE-S3.
	All Zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NOISE-R13(1). Matters of discretion: 1. The effect of non-compliance with any relevant NOISE standard that is not met and the matters of discretion of any standard that is not met. 2. The matters set out in NOISE-P4.

NOISE-R14	Noise <i>sensitive activities</i> within Hood Aerodrome Air Noise Boundaries	
	All Zones	1. Activity status: Permitted Where: a. Compliance is achieved with: i. NOISE-S4.
	All Zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NOISE-R14(1). Matters of discretion: 1. The effect of non-compliance with any relevant NOISE standard that is not met and the matters of discretion of any standard that is not met. 2. The matters set out in NOISE-P5. 3. Acoustic insulation measures. 4. Other acoustic mitigation measures. 5. Location of the proposed activity. 6. Other measures necessary to protect the operational requirements of the Hood Aerodrome.

NOISE-R15	Noise <i>sensitive activities</i> within the Chester Road Air Noise Boundary (excluding seasonal worker accommodation)
General Rural Zone	1. Activity status: Permitted Where: a. Compliance is achieved with: i. NOISE-S4.
General Rule Zone	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NOISE-R15(1). Matters of discretion: 1. The effect of non-compliance with any relevant NOISE standard that is not met and the matters of discretion of any standard that is not met. 2. The matters set out in NOISE-P5. 3. Acoustic insulation measures. 4. Other acoustic mitigation measures. 5. Location of the proposed activity.

Standards

NOISE-S1	Maximum noise levels in Zones
Residential Zones and Māori Purpose Zone - Noise emitted from any activity within a Residential Zone or Māori Purpose Zone shall not exceed the following noise limits at any point within any other site within a Residential Zone or Māori Purpose Zone: - Daytime (7.00am to 7.00pm): 50 dB $L_{Aeq(15min)}$; - Evening: (7.00pm to 10.00pm): 45 dB $L_{Aeq(15min)}$; - Night time: (10.00pm to 7.00am): 40 dB $L_{Aeq(15min)}$; and - Night time: (10.00pm to 7.00am): 70 dB L_{Amax}. - Noise emitted from any activity within a Residential Zone or Māori Purpose Zone shall not exceed the following noise limits at any point within the notional boundary of any noise sensitive activity on any other site within a Rural Zone or Future Urban Zone: - Daytime (7.00am to 7.00pm): 55 dB $L_{Aeq(15min)}$; - Evening: (7.00pm to 10.00pm): 50 dB $L_{Aeq(15min)}$; - Night time: (10.00pm to 7.00am): 45 dB $L_{Aeq(15min)}$; and - Night time: (10.00pm to 7.00am): 70 dB L_{Amax}. Rural Zones and Future Urban Zone - Noise emitted from any activity within a Rural Zone or Future Urban Zone shall not exceed the following noise limits at	Matters of discretion for all zones - Ambient noise levels and any special character of noise from any existing activities, the nature and character of any changes to the sound received at any receiving site and the degree to which such sounds are compatible with the surrounding activities. - Management of effects from the activities with regard to the matters set out in NOISE-P2. - Any mitigation of the noise proposed, in accordance with a best practicable option approach (e.g., site layout and design, design and location of structures, buildings and equipment, and the timing of operations). - The ability to mitigate adverse effects through the imposition of conditions such as noise attenuation.

any point within the notional boundary of any noise sensitive activity on any other site within a Rural Zone or Future Urban Zone, or at any point within the boundary of any other site within a Residential Zone or Māori Purpose Zone: a. Daytime (7.00am to 7.00pm): 55 dB $L_{Aeq(15min)}$; b. Evening: (7.00pm to 10.00pm): 50 dB $L_{Aeq(15min)}$; c. Night time: (10.00pm to 7.00am): 45 dB $L_{Aeq(15min)}$; and d. Night time: (10.00pm to 7.00am): 70 dB L_{Amax}. Commercial and Mixed Use Zones 4. Noise generated by any activity within a Commercial and Mixed Use Zone shall not exceed the following noise limits at any point within any other Commercial and Mixed Use Zone site: a. At all times: 60 dB $L_{Aeq(15min)}$; and b. Night time: (10.00pm to 7.00am): 80 dB L_{Amax}. 5. Noise generated by activity within a Commercial and Mixed Use Zone shall not exceed the following noise limits at any point within any site within a Residential Zone or Māori Purpose Zone: a. Daytime (7.00am to 7.00pm): 50 dB $L_{Aeq(15min)}$; b. Evening: (7.00pm to 10.00pm): 45 dB $L_{Aeq(15min)}$; c. Night time: (10.00pm to 7.00am): 40 dB $L_{Aeq(15min)}$; and d. Night time: (10.00pm to 7.00am): 70 dB L_{Amax}.	
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6. Noise generated by activity within a Commercial and Mixed Use Zone shall not exceed the following noise limits at any point within the notional boundary of any noise sensitive activity within a Rural Zone or Future Urban Zone: a. Daytime (7.00am to 7.00pm): 55 dB $L_{Aeq(15min)}$; b. Evening: (7.00pm to 10.00pm): 50 dB $L_{Aeq(15min)}$; c. Night time: (10.00pm to 7.00am): 45 dB $L_{Aeq(15min)}$; and d. Night time: (10.00pm to 7.00am): 70 dB L_{Amax}. General Industrial Zone 7. Noise generated by any activity within the General Industrial Zone shall not exceed the following noise limits at any point beyond the site boundary: a. At all times: 70 dB $L_{Aeq(15min)}$; and b. Night time: (10.00pm to 7.00am): 85 dB L_{Amax}. 8. Noise generated by activity within the General Industrial Zone shall not exceed the following noise limits at any point within any site within a Residential Zone or Māori Purpose Zone: a. Daytime (7.00am to 7.00pm): 50 dB $L_{Aeq(15min)}$; b. Evening: (7.00pm to 10.00pm): 45 dB $L_{Aeq(15min)}$; c. Night time: (10.00pm to 7.00am): 40 dB $L_{Aeq(15min)}$; and d. Night time: (10.00pm to 7.00am): 70 dB L_{Amax}. 9. Noise generated by activity within the General Industrial Zone shall not exceed the following noise limits at any point within the notional boundary of any	
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noise sensitive activity within a Rural Zone or Future Urban Zone: - Daytime (7.00am to 7.00pm): 55 dB $L_{Aeq(15min)}$; - Evening: (7.00pm to 10.00pm): 50 dB $L_{Aeq(15min)}$; - Night time: (10.00pm to 7.00am): 45 dB $L_{Aeq(15min)}$; and - Night time: (10.00pm to 7.00am): 70 dB L_{Amax}. Open Space Zone 10. Noise generated by activity within an Open Space Zone shall not exceed the following noise limits at any point within any site within a Residential Zone or Māori Purpose Zone: - Daytime (7.00am to 7.00pm): 50 dB $L_{Aeq(15min)}$; - Evening: (7.00pm to 10.00pm): 45 dB $L_{Aeq(15min)}$; - Night time: (10.00pm to 7.00am): 40 dB $L_{Aeq(15min)}$; and - Night time: (10.00pm to 7.00am): 70 dB L_{Amax}. 11. Noise generated by activity within an Open Space Zone shall not exceed the following noise limits at any point within the notional boundary of any noise sensitive activity within a Rural Zone or Future Urban Zone: - Daytime (7.00am to 7.00pm): 55 dB $L_{Aeq(15min)}$; - Evening: (7.00pm to 10.00pm): 50 dB $L_{Aeq(15min)}$; - Night time: (10.00pm to 7.00am): 45 dB $L_{Aeq(15min)}$; and - Night time: (10.00pm to 7.00am): 70 dB L_{Amax}.	
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All Zones All sound levels shall be measured in accordance with NZS 6801:2008 Acoustics - Measurement of Environmental Sound and assessed in accordance with NZS 6802:2008 Acoustics - Environmental Sound.	
NOISE-S2	Maximum noise levels for specified activities
Construction 1. Construction noise shall be measured, assessed, managed, and controlled in accordance with the requirements of New Zealand Standard NZS 6803:2008 Acoustics - Construction Noise. Bird scaring devices 2. The operation of audible devices (including gas guns, audible avian distress alarms, and firearms) for the purpose of bird scaring shall be permitted between ½ hour before sunrise and ½ hour after sunset, provided that: a. a noise limit of 65 dB L_{AE} shall apply at any point within the notional boundary of any noise sensitive activity other than on the property in which the device is located within a Rural Zone or Future Urban Zone and at any point within a Residential Zone or Māori Purpose Zone; b. no more than six audible events shall occur per device in any 60 minute period, except up to ten audible events may occur in any 60 minutes for devices located more than 300m from the notional boundary of any noise sensitive activity (other than on the property in which the device is located) within the Rural Zone or	Matters of discretion for construction, bird scaring devices, frost protection devices, airblast, helicopters at Chester Road, and temporary activities 1. Ambient noise levels and any special character of noise from any existing activities, the nature and character of any changes to the sound received at any receiving site, and the degree to which such sounds are compatible with the surrounding activities. 2. Management of effects from the activities with regard to the matters set out in NOISE-P2. 3. Any mitigation of the noise proposed, in accordance with a best practicable option approach (e.g., site layout and design, design and location of structures, buildings and equipment, and the timing of operations). 4. The ability to mitigate adverse effects through the imposition of conditions such as noise attenuation. Matters of discretion for temporary military activities involving stationary noise sources 5. Management of effects from the activities with regard to the matters set out in NOISE-P2.

Future Urban Zone or residentially zoned or Māori Purpose zoned site; c. each audible event shall not exceed three sound emissions from any single device within a one-minute period and no such events are permitted during the period between sunset and sunrise the following day; d. within 300m from the notional boundary of any noise sensitive activity within a Rural Zone or Future Urban Zone, or any site within a Residential Zone or Māori Purpose Zone, the number of devices shall not exceed one device per 4ha of land in any single land holding, except that in the case of a single land holding less than 4ha in area, one device shall be permitted; and e. provided no device shall be placed in such a manner that in any public place 90 dB LAE is received from any one noise event. Frost protection devices 3. Operation of frost protection devices is a permitted activity, provided that: a. noise from frost protection devices shall not exceed a noise limit of 60 dB L_{Aeq(15min)} when measured at a distance of 300m; b. new frost protection fans must have 4 or more blades; c. the hours of operation are restricted to the times when danger of frost damage is imminent or for maintenance purposes; d. the frost protection devices shall be operated only when air temperature 1m above the ground is 1°C or below and shall cease operation when the air temperature reaches 3°C;	6. Any mitigation of the noise proposed, in accordance with a best practicable option approach (e.g. site layout and design, design and location of structures, buildings and equipment, and the timing of operations), including the extent to which alternative locations and methods have been considered to avoid, or mitigate any adverse effects, recognising the practical constraints associated with temporary military training activities. 7. The ability to mitigate adverse effects through the imposition of conditions. 8. The noise impact on noise sensitive activities, stock and wildlife, including the peak sound levels resulting from impulsive noise. 9. The provision of a noise management plan that specifically identifies the likely noise impacts for the area and describes the measures required to avoid or mitigate these. 10. The programme for notification and communication with occupiers and owners of affected sites prior to the activities commencing, including updates during the event. 11. The method for following up any complaints received during or after the event including communications with the Council.
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e. the thermometer used to measure the air temperature shall be located 1m above the ground and must be calibrated annually; f. operation for maintenance purposes shall be restricted to between the hours of 8.00am and 6.00pm weekdays. Test operation may take place only for emergency maintenance outside these hours; and g. a written log shall be maintained, clearly recording the date, temperature, and length of time the devices are used. A copy of the log shall be made available to the Councils upon request. Airblast 4. Airblast overpressure from blasting on any land or in water shall not exceed a peak sound pressure level of 115dBZ (peak) at any point within the notional boundary of any noise sensitive activity; and 5. Airblast shall be measured in accordance with the NZS6801:2008 Acoustics – Environmental Measurement of Sound and assessed in accordance with the provisions of AS 2187.2 – 2006 Explosives – Storage, Transport and Use Part 2. Note: Vibration will be assessed as required either as excessive noise under Part 12 of the RMA or as unreasonable noise under Section 16 of the RMA. Where NZS 6802: 2008 Acoustics - Environmental noise does not include assessment of the type of noise in question, other appropriate Standards may be used as specified in the definition for “Noise Emission Level”.	
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Helicopters at Chester Road

6. Operation of a helicopter landing activity at 625 Chester Road, Carterton, legally described as Lot 1 DP 88190, is to comply with the following:
- a. all helicopter activity on the site shall not exceed the following maximum number of helicopter movements (averaged over a period of not more than 7 consecutive days) during any prescribed daytime or night time period:
 - i. Day: 4 landings and 4 take-offs; and
 - ii. Night: 2 landings and 2 take-offs;
 - b. Subject to (c) below, all helicopter activity on the site shall be planned and carried out such that the maximum noise exposure from helicopter arrivals and departures, averaged over a period of not more than 7 consecutive days, does not exceed 65Ldn as measured at or beyond the helicopter noise boundary (as shown on the Planning Maps), measured and assessed using the procedure set out in NZS 6807:1994 Noise Management and Land Use Planning for Helicopter Landing Areas;
 - c. the following times are to be used for complying with NOISE-S2(6)(a) and (b) above:
 - i. Day (Winter): 7.00am to 10.00pm NZST;
 - ii. Night (Winter): 10.00pm to 7.00am NZST;
 - iii. Day (Summer): 5.00am to 10.00pm NZDT; and
 - iv. Night (Summer): 10.00pm to 5.00am NZDT;

d. the following helicopter activities are excluded from complying with NOISE-S2(6)(a) and (b) above: i. helicopters landing in an emergency or diverted aircraft; ii. emergency flights required to rescue people for life threatening situations or to transport patients, human vital organs, or medical personnel in a medical emergency; iii. flights required for the purpose of firefighting; iv. the operation of unscheduled flights required to meet the needs of a declared national or civil defence emergency; and v. helicopters owned or operated by or on behalf of the NZ Defence Force or NZ Police. e. the operator shall ensure that the activity be limited to use of a Hughes 500 Model or such other types of helicopter which generates the same or less noise output than a Hughes 500 Model C (with 2 tail blade rotor system); f. the operator shall ensure pilots using the site conduct their flight operations to avoid, except in the case of emergencies, over-flight of residential units at an altitude of 500 feet (152m) or less above the ground; g. a written log of all aircraft movements shall be kept. A copy of the log shall be made available to the Councils upon request; and h. the operator shall require that all pilots using the site, plan routes and fly in accordance with the recommendations of the Helicopter Association International "Fly Neighbourly Guide", February 1993 revision for the relevant aircraft type.	
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Temporary activities

7. Any noise generated by the *temporary activity* must not exceed the following limits at any point within a site in a Residential Zone or Māori Purpose Zone, or within the notional boundary of any noise sensitive activity in a Rural Zone or Future Urban Zone:
- a. 7.00am to 10.00pm: 75 dB LAeq(15min);
 - b. 7.00am to 10.00pm: 85 dB Leq(1min) at 63 Hz; and
 - c. 7.00am to 10.00pm: 75 dB Leq(1min) at 125 Hz.

Temporary military training activities involving stationary or mobile noise sources

8. Noise generated by the activity shall not exceed the following noise limits at any point within any Residential Zone or Māori Purpose Zone, or the notional boundary of any noise sensitive activity within any other Zone:
- d. Daytime (7.00am to 10.00pm): 55 dB LAeq(15min);
 - e. Night time: (10.00pm to 7.00am): 45 dB LAeq(15min); and
 - f. Night time: (10.00pm to 7.00am): 75 dB LAmax.

Where the noise limits for zones in NOISE-S1 are higher, then those higher limits shall apply.

NOISE-S3	Noise insulation standards for noise sensitive activities in Zones
All Zones within the Noise control boundary (state highway) 12. Any noise sensitive activities in a new <i>building</i>, or a new <i>addition</i> to an existing <i>building</i>, or a new alteration to an existing building that create new habitable rooms within the Noise control boundary (state highway) (as shown on the planning maps) must be designed, constructed, and maintained to achieve an internal noise level of 40 dB $L_{Aeq(24hr)}$ inside all habitable spaces; and Note: Compliance with (1) above shall be achieved if, prior to the construction of any new building, new addition or new alteration, an acoustic design certificate from a suitably qualified and experienced acoustic consultant is provided to the Council certifies that the proposed design and construction of the building, addition or alteration will achieve the internal sound levels. The building shall be designed, constructed, and maintained in accordance with the design certificate. 13. Where it is necessary to have the windows closed to achieve the above design requirements, a ventilation system must be provided. The ventilation system must be designed to satisfy the following: 14. Provides mechanical ventilation to satisfy clause G4 of the NZ Building Code; and 15. 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 16. Provides relief for equivalent volumes of spill air; 17. Provides cooling and heating that is controllable by the occupant and can	Matters of discretion 1. Management of sensitivity to noise with regard to the matters set out in NOISE-P2 and NOISE-P4. 2. The provision of a report from an acoustic specialist which provides evidence that the level of acoustic insulation is appropriate to ensure the amenity of present and future residents of the site. 3. The impact of any sensitive activity that does not provide the required noise insulation on the ability of existing or future permitted business activities to operate or establish without undue constraint.

maintain the inside temperature between 18 C and 25 C; and 18. Does not generate more than 35dB LAeq(30s) when measured 1 metre away from any grille or diffuser Commercial and Mixed Use Zones 1. Any noise sensitive activities in a new <i>building</i>, change of use of existing <i>buildings</i>, or a new <i>addition</i> to an existing <i>building</i>, must be designed, constructed, and maintained to achieve a minimum external sound insulation of the building envelope of $D_{tr,2m,nTw} + C_{tr} > 30 \text{ dB}$; and 2. Where it is necessary to have the windows closed to achieve the above design requirement, a ventilation system must be provided. The ventilation system must be designed to satisfy the following: 3. Provides mechanical ventilation to satisfy clause G4 of the NZ Building Code; and 4. 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 5. Provides relief for equivalent volumes of spill air; 6. Provides cooling and heating that is controllable by the occupant and can maintain the inside temperature between 18 C and 25 C; and 7. Does not generate more than 35dB LAeq(30s) when measured 1 metre away from any grille or diffuser General Industrial Zone 8. Any noise sensitive activities in a new <i>building</i>, change of use of existing <i>buildings</i>, or a new <i>addition</i> to an existing <i>building</i>, must be designed, constructed,	
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and maintained to achieve a minimum external sound insulation of the building envelope of $D_{tr,2m,nTw} + C_{tr} > 35 \text{ dB}$; and 9. Where it is necessary to have the windows closed to achieve the above design requirement, a ventilation system must be provided. The ventilation system must be designed to the following: 10. Provides mechanical ventilation to satisfy clause G4 of the NZ Building Code; and 11. 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 12. Provides relief for equivalent volumes of spill air; 13. Provides cooling and heating that is controllable by the occupant and can maintain the inside temperature between 18 C and 25 C; and 14. Does not generate more than 35dB LAeq(30s) when measured 1 metre away from any grille or diffuser	
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NOISE-S4	Noise insulation standards for noise <i>sensitive activities</i> in specified areas
Chester Road Helicopters Operations Air Noise Boundary Any new <i>residential unit, alterations</i> or <i>additions</i> of a habitable room to a noise <i>sensitive activity</i> within the Outer Air Noise Boundary (50 dBA) or higher as shown on the District Plan Maps shall be designed and constructed in compliance with one of the following: 1. By production of a design certificate from an appropriately qualified and experienced acoustic engineer, certifying that the design proposed is capable of achieving an external sound insulation level of $DnTw + Ctr > 30dB$ when tested in accordance with ISO 140 – Part 5:1998 Acoustics – Measurement of Sound Insulation in Buildings and of Building Elements Part 5: Field Measurements of Airborne Sound Insulation of Façade Elements and Façade, and that the building is constructed in accordance with this design; or 2. Incorporation of the following accepted acoustic design solutions in the building: a. standard external cladding with minimum surface density of 8kg per square metre such as brick, concrete, plaster, timber, or plastic weatherboard and fibre cement; b. internal wall linings of gypsum plasterboard of at least 12mm thickness or similar density material; c. continuous ceiling linings without cut-outs and of gypsum plasterboard of at least 10mm thickness or similar density material;	Matters of discretion for Chester Road Helicopters Operations Air Noise Boundary and Hood Aerodrome Air Noise Boundary 1. Management of sensitivity to noise with regard to the matters set out in NOISE-P2 and NOISE-P5. 2. The provision of a report from an acoustic specialist which provides evidence that the level of acoustic insulation is appropriate to ensure the amenity of present and future residents of the site. The impact of any <i>sensitive activity</i> that does not provide the required noise insulation of the ability of existing or future permitted business activities to operate or establish without undue constraint.

d. fibrous thermal insulation batts (not polystyrene) in internal wall and ceiling cavities; e. standard roof cladding of steel, tiles, metal tiles, or butynol; f. standard external window and door glazing of a minimum 5mm thickness; g. aluminium external joinery fitted with airtight seals throughout; and h. room glazing with a total area of no more than 50% of the room's wall area. Hood Aerodrome Air Noise Boundary Any <i>additions</i> or <i>alterations</i> to a habitable room of an existing noise sensitive activity within the Outer Air Noise Boundary (50 dBA) as shown on the Planning Maps shall be designed and constructed in compliance with one of the following: 3. Between the 50 and 55 dBA noise contour: a. by production of a design certificate from an appropriately qualified and experienced acoustic engineer, certifying that an internal noise level not exceeding 40 dBA L_{dn} will be achieved by construction in accordance with the proposed design; or b. incorporation of the following accepted acoustic design solutions in the building: i. standard external cladding with minimum surface density of 8kg per square metre such as brick, concrete, plaster, timber, or plastic weatherboard and fibre cement; ii. internal wall linings of gypsum plasterboard of at	
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least 12mm thickness or similar density material; iii. continuous ceiling linings without cut-outs and of gypsum plasterboard of at least 10mm thickness or similar density material; iv. fibrous thermal insulation batts (not polystyrene) in external wall and ceiling cavities; v. standard roof cladding of steel, tiles, metal tiles, or butynol; vi. standard external window and door glazing of a minimum 5mm thickness; vii. aluminium external joinery fitted with airtight seals throughout; and viii. room glazing with a total area of no more than 50% of the room's total floor area. 4. Between the 55 and 60 dBA noise contour: a. compliance with NOISE-S4(3)(a) above; b. incorporation of a mechanical ventilation system in accordance with the New Zealand Building Code. Such a ventilation system shall not create more than 40 dBA L_{eq} in the principal living room, no more than 30 dBA L_{eq} in any bedroom, and no more than 40 dBA L_{eq} in any hallway, in each building. Noise levels from the mechanical systems shall be measured at least 1m away from any diffuser; and c. a mechanical extractor fan ducted to the outside to serve any cooking hob if such extractor fan is not already installed and in working order.	
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NU – Network Utilities

The Wairarapa relies on *network utilities*, including electricity transmission and distribution, radio-communications, telecommunications, meteorological facilities, and water and wastewater reticulation. A *network utility* operator, as defined by the Act, or other operators may provide these utilities.

Transport related network utilities including the road and rail network are not addressed in this chapter. They are covered by the Transport Chapter.

Network utilities are critical for the ongoing functioning of the Wairarapa. They contribute significantly to the community's health and safety, as well as to its economic, environmental, and social wellbeing. The benefits of *network utilities* to the efficient functioning of modern society are therefore substantial.

Some *network utilities* have the potential to have adverse effects on the environment. These effects may result from activities involved in establishing the facility, be generated by the facility itself, or be associated with the maintenance and operation of the facility.

Potential adverse effects can include:

- the visual impacts of structures;
- risks to public health and safety; and
- noise and odour.

Likewise, incompatible land uses adjacent to network utilities can have an adverse effect on the ongoing function, operation and development of network utilities.

In general, the effects of *network utilities* can be managed through development and performance standards, whether through Codes of Practice or regulatory controls.

The provisions within this chapter apply on a district-wide basis. The rules in the zone chapters do not apply to *network utilities* unless specifically stated within a rule or standard in this chapter. The objectives policies, and rules in district-wide matters chapters to apply to network utilities.

Relationship with other regulations

Additional regulatory requirements, separate to the District Plan, are also relevant to *network utilities*, including:

1. The Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009 (NESETA);
2. The Resource Management (National Environmental Standards for Telecommunication Facilities) Regulations 2016 (NESTF);
3. The National Code of Practice for Utility Operators' Access to Transport Corridors;

4. The New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001); and
5. Electricity (Hazards from Trees) Regulations 2003.

In the case of conflict with any provision of this plan and any national environmental standard (including the NESETA or the NESTF), under Section 43B of the Act the provisions of the national environmental standards will prevail.

Objectives

NU-O1	Benefits of <i>network utilities</i>
The benefits of effective, efficient, resilient, and safe <i>network utilities</i> are recognised and provided for.	
NU-O2	Adverse effects of <i>network utilities</i>
The adverse effects of <i>network utilities</i> on the environment are avoided, remedied, or mitigated, while recognising: a. the <i>functional need</i> or <i>operational need</i> of network utilities; and b. that positive effects of <i>network utilities</i> may be realised locally, regionally, or nationally.	
NU-O3	Adverse effects on <i>network utilities</i>
The safe function and operation of <i>network utilities</i> is protected from the adverse effects, including <i>reverse sensitivity</i> effects, of incompatible subdivision, use, and development.	
NU-O4	<i>National Grid</i>
Subdivision, use, and development is managed to avoid sensitive activities and reverse sensitivity effects on the <i>National Grid</i> and ensure that the operation, maintenance, repair, upgrading, and development of the <i>National Grid</i> is not compromised.	

Policies

NU-P1	Recognising the benefits of <i>network utilities</i>
Recognise the benefits of <i>network utilities</i> by: a. enabling the operation, maintenance, repair, replacement, minor upgrading or removal of existing <i>network utilities</i> throughout the district; b. enabling investigation, monitoring, and navigation activities associated with <i>network utility</i> operations throughout the district; c. providing for upgrades that are not minor upgrades to, and the development of new, <i>network utilities</i>; and d. providing for the functions and responsibilities of <i>network utilities</i> as lifeline utilities during an emergency.	
NU-P2	<i>Network utilities</i>, land use, subdivision, development, and urban growth
Encourage the coordination of <i>network utilities</i> planning and delivery with land use, subdivision, development, and urban growth so that future land use and <i>network utilities</i> are integrated, safe, efficient, and aligned.	
NU-P3	Technological advances
Recognise the benefits of new technologies for <i>network utilities</i> by providing for new technologies that: a. improve access to, and efficient use of, networks and services; b. allow for the re-use of redundant services and <i>structures</i>; c. increase resilience, safety, or reliability of networks and services; d. result in environmental benefits and enhancements; or e. promote environmentally sustainable outcomes including green <i>infrastructure</i> and the increased the utilisation of renewable resources.	
NU-P4	Managing adverse effects of <i>network utilities</i>
Manage the adverse effects of <i>network utilities</i>, including effects on natural and physical resources, amenity values, <i>sensitive activities</i>, and the health, safety, and wellbeing of people and communities by: a. controlling the <i>height</i>, bulk, and location of <i>network utilities</i>, where practicable;	

- b. requiring compliance with recognised standards or guidelines for the potential adverse effects of noise, vibration, radiofrequency fields, and electric and magnetic fields;
- c. requiring the undergrounding of new *network utilities* in urban areas, other than in General Industrial Zone or for customer connections to existing overhead networks, unless there are technological or operational constraints, or natural or physical features that make underground placement impractical or unreasonable;
- d. encouraging network utility operators to consider the undergrounding of new and existing *network utilities* in all other areas where practicable;
- e. mitigating adverse visual effects through landscaping and/or the use of recessive colours and finishes, where practicable; and
- f. requiring *network utilities* to adopt a design which integrates network utilities within the site, and recognises the character and amenity values of the surrounding area to the extent practicable taking into account the functional or operational need of the work or facility.

NU-P5

Consideration of adverse effects of *network utilities*

Ensure that *network utilities* avoid, remedy, or mitigate adverse effects on the environment, while recognising the *functional need* or *operational need* of the *network utility*, and having regard to:

- a. the extent to which adverse effects have been addressed through site, route, or method selection and/or the extent to which the *network utility* is constrained by *functional need* or *operational need*;
- b. the necessity of the *network utility*, including:
 - i. the need to quickly repair and restore disrupted services; and
 - ii. the impact of not operating, repairing, maintaining, *upgrading*, removing, or developing the *network utility*;
- c. the time, duration, or frequency of adverse effects;
- d. the location of existing *network utilities*, including:
 - i. the complexity and connectedness of the networks and services; and
 - ii. the potential for co-location and shared use of *network utility* corridors; and
- e. anticipated outcomes for the receiving environment, including the role, function, and predominant planned character of the underlying zone.

NU-P6	Adverse effects of the National Grid
	Provide for the operation, maintenance, repair, replacement, upgrade and development of the National Grid where any adverse effects are appropriately managed by: a. enabling the ongoing operation, maintenance, repair, replacement and minor upgrading of existing National Grid assets; b. providing for new, or upgrades that are more than minor to, the National Grid while: i. in urban environments, the transmission system should minimise adverse effects on urban amenity and avoid adverse effects on town centres, areas of high recreation value and existing sensitive activities; ii. where (i) does not apply, in all environments seeking to avoid adverse effects on the characteristics and values of the following; i. significant indigenous vegetation and significant habitats of indigenous fauna; 1. outstanding natural features and landscapes; 2. areas of outstanding, very high and high natural character; 3. significant waterbodies; 4. heritage buildings or items; 5. sites and areas of significance to Māori; 6. special amenity landscapes; and 7. in the coastal environment, recognising that there will be areas where avoidance of adverse effects is required to protect the special values and characteristics of those areas; c. where it is not practicable to avoid adverse effects on the characteristics and values of the areas listed in (b), remedy or mitigate adverse effects having regard to: i. the operational needs or functional needs of the National Grid and the extent to which those requirements constrain measures to avoid, remedy or mitigate adverse effects; ii. the extent to which significant adverse effects are avoided; iii. the extent to which any adverse effects have been avoided, remedied or mitigated by route, site and method selection; iv. for upgrades, the extent to which existing adverse effects have been reduced as part of any substantial upgrade; v. the extent to which adverse effects on urban amenity have been minimised; vi. the appropriateness of offsetting of, or compensated for, any residual adverse effects on indigenous biodiversity values, where offered; and d. outside of the areas listed in (b), avoiding, remedying, or mitigating other adverse effects, having regard to the matters in (c). e. In the event of conflict between NU-P6 and other policies in the District Plan, NU-P6 prevails over those policies.

NU-P7	Activities near the National Grid
Manage subdivision, use, and development near the <i>National Grid</i> to: - avoid the establishment or expansion of <i>sensitive activities</i>; - ensure that the safe and efficient operation, maintenance, repair, <i>upgrading</i>, removal, and development of the <i>National Grid</i> is not compromised; and - ensure that <i>reverse sensitivity</i> effects on the <i>National Grid</i> are avoided.	

Rules

NU-R1	Operation, maintenance, repair, and removal of existing aboveground and underground <i>network utilities</i>
All zones	1. Activity status: Permitted Where: - All aboveground structures that are no longer required for <i>network utility</i> purposes are removed within two years of being replaced or becoming redundant; - Compliance is achieved with NU-S4 - NU-S7.
All zones	2. Activity status: Restricted discretionary Where: - Compliance is not achieved with NU-R1(1). Matters of discretion: - The <i>functional need</i> or <i>operational need</i> of, and benefits derived from, the <i>network utility</i>, including the potential impact on the levels of service or health and safety if the work is not undertaken. - The effects of non-compliance with any relevant Network Utilities Standards. - The location of <i>network utilities</i>, including the need for connections to existing networks and services.
NU-R2	New underground <i>network utilities</i> (including <i>customer connection lines</i>) and <i>upgrading</i> of existing underground <i>network utilities</i>, not otherwise provided for in this chapter
All zones	1. Activity status: Permitted Where: - Compliance is achieved with: - NU-S4; and

	ii. NU-S5.
All zones	2. Activity status: Non-complying Where: a. Compliance is not achieved with NU-R2(1)(a).

NU-R3	Upgrade of existing above ground <i>network utilities</i>
All zones	1. Activity status: Permitted Where: a. The realignment, relocation, or replacement of a line, pipe, <i>pole</i>, <i>tower</i>, conductor, switch, transformer, or ancillary structure is within 5m of the existing alignment or location; - a <i>pole</i> is not replaced with a tower; - a replacement <i>pole</i>, tower, does not exceed the <i>height</i> of the replaced <i>pole</i> or tower by the greater of: - more than 15%; or - the maximum <i>structure height</i> for the underlying zone set out in NU-S1; - the diameter or width of a replacement <i>pole</i>: - does not exceed twice that of the replaced <i>pole</i> at its widest point; or - where a single <i>pole</i> is replaced with a pi <i>pole</i>, the width of the pi <i>pole</i> structure must not exceed three times the width of the replaced <i>pole</i> at its widest point; - a replacement tower's footprint does not exceed the width of the tower by more than 25%; - there are no additional towers; - an additional <i>pole</i>, up to a maximum of two <i>poles</i>, is necessary to achieve the conductor clearances required by NZECP 34:2001; and - all structures that are no longer required for <i>network utility</i> purposes are removed within two years of being replaced or becoming redundant; or b. The realignment, relocation, or replacement of any other <i>network utility</i>; - all <i>structures</i> that are no longer required for <i>network utility</i> purposes are removed within two years of being replaced or becoming redundant; and - compliance is achieved with all Network Utilities Standards.

	All zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NU-R3(1), NU-S1, or NU-S2. Matters of discretion: 1. The <i>functional need</i> or <i>operational need</i> of, and benefits derived from, the <i>network utility</i>, including the potential impact on the levels of service or health and safety if the work is not undertaken. 2. The bulk, height, location, and design of the network utility, including any associated <i>buildings or structures</i>. 3. The amenity values of the respective zone and the extent to which any adverse amenity effects can be avoided, remedied, or mitigated. 4. Site reinstatement. 5. The duration, timing, and frequency of adverse effects. 6. The effects of non-compliance with any relevant Network Utilities Standards. 7. The location of <i>network utilities</i>, including the need for connections to existing networks and services. 8. Effects on areas of <i>outstanding natural features and landscapes, waterbodies, indigenous vegetation</i>, historic heritage, and sites and areas of significance to Māori. 9. The local, regional and national benefits of network utilities.
	All zones	3. Activity status: Non-complying Where: b. Compliance is not achieved with NU-S4 or NU-S5.

NU-R4	Aboveground customer connection lines to existing above ground network utilities
Residential and Commercial Zones	1. Activity status: Permitted Where: a. The connection does not include a new tower; b. The connection does not exceed three additional <i>poles</i>; and c. Compliance is achieved with Network Utilities Standard NU-S1, NU-S4 and NU-S5.
All other zones	2. Activity status: Permitted Where:

		a. Compliance is achieved with Network Utilities Standard NU-S1, NU-S4 and NU-S5.
	All zones	3. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NU-R4(1) or (2). Matters of discretion: 1. The purpose, necessity, and location of the aboveground <i>customer connection line</i>. 2. The potential adverse amenity effects of the aboveground connection, including impacts on the amenity values of the locality, and any contribution to cumulative adverse effects. 3. The effects of non-compliance with any relevant Network Utilities Standards. 4. The location of ` , including the need for connections to existing networks and services. 5. Effects on areas of <i>outstanding natural features and landscapes, waterbodies, indigenous vegetation</i>, historic heritage, and sites and areas of significance to Māori.
	All zones	4. Activity status: Non-complying Where: a. Compliance is not achieved with NU-S4 or NU-S5.

NU-R5		Temporary network utilities
	All zones	1. Activity status: Permitted Where: a. The temporary <i>network utility</i> operates for a maximum of 12 months; b. All temporary <i>network utilities</i> and associated buildings and structures are removed from the site on completion of the works; and c. Compliance is achieved with Network Utilities Standards NU-S4, NU-S5, NU-S6, and NU-S7.
	All zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NU-R5(1). Matters of discretion:

		1. The <i>functional need</i> or <i>operational need of</i>, and benefits from, the temporary <i>network utility</i>, including the potential impact on the levels of service or health and safety if the work is not undertaken. 2. The bulk, <i>height</i>, location, and design of the <i>network utility</i>, including any associated <i>buildings</i> or <i>structures</i>. 3. The amenity values of the respective zone and the extent to which any adverse amenity effects can be avoided, remedied, or mitigated. 4. The effects of non-compliance with any relevant Network Utilities Standards. 5. The necessity of the temporary <i>network utility</i>. 6. The time, duration, or frequency of adverse effects. 7. The location of <i>network utilities</i>, including the need for connections to existing networks and services. 8. Effects on areas of <i>outstanding natural features and landscapes, waterbodies, indigenous vegetation</i>, historic heritage, and sites and areas of significance to Māori.
	All zones	3. Activity status: Non-complying Where: a. Compliance is not achieved with NU-S4 or NU-S5.

NU-R6	Substations (including switching stations) not enclosed by a building
All zones	1. Activity status: Permitted Where: a. The maximum building and structure height is: i. 2.5m; or ii. complies with NU-S2. b. The maximum area of the substation is: i. 20m² in Residential Zones; or ii. 30m² in all other Zones. c. When located within or on a site adjacent to the General Residential Zone, the substation are set back from site boundaries to comply with the <i>height in relation to boundary</i> standard for the General Residential Zone; and d. Compliance is achieved with: i. NU-S4; and ii. NU-S5.

	All zones 2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NU-R6(1). Matters of discretion: 1. The <i>functional need</i> or <i>operational need</i> of, and benefits from, the <i>network utility</i>, including the potential impact on the levels of service or health and safety if the work is not undertaken. 2. The bulk, <i>height</i>, location, and design of the <i>network utility</i>, including any associated <i>buildings or structures</i>. 3. The amenity values of the respective zone and the extent to which any adverse visual amenity effects can be avoided, remedied, or mitigated, including: i. any innovative design that integrates the <i>network utility</i> within the site, existing built form and/or landscape in a way that assists to maintain the character and amenity of the surrounding area; and ii. whether the use of landscaping and/or recessive colours and finishes can assist to mitigate any adverse effects. 4. Whether the works may result in public health and/or safety risks. 5. The effects of non-compliance with any relevant rule or standard. 6. The location of <i>network utilities</i>, including the need for connections to existing networks and services. 7. Effects on areas of <i>outstanding natural features and landscapes, waterbodies, indigenous vegetation</i>, historic heritage, and sites and areas of significance to Māori. 8. The local, regional and national benefits of network utilities
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NU-R7	New network utilities in existing buildings
All zones	1. Activity status: Permitted Where: a. Compliance is achieved with: i. NU-S4; and ii. NU-S5.
All zones	2. Activity status: Non-complying Where: a. Compliance is not achieved with NU-R7(1).

NU-R8	Navigational aids, sensing, and environmental monitoring equipment (including air quality and meteorological)
All zones	1. Activity status: Permitted Where: a. Compliance is achieved with: i. NU-S4; and ii. NU-S5.
All zones	2. Activity status: Non-complying Where: a. Compliance is not achieved with NU-R8(1).

NU-R9	Overhead lines and associated support structures including lines that convey electricity
Rural Zones, Māori Purpose Zone and General Industrial Zone	1. Activity status: Permitted Where: a. Compliance is achieved with Network Utilities Standards NU-S1, NU-S4, NU-S5, NU-S6 and NU-S7.
Rural Zones, Māori Purpose Zone and General Industrial Zone	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NU-R9(1). Matters of discretion: 1. The <i>functional need</i> or <i>operational need of</i>, and benefits from, the <i>network utility</i>, including the potential impact on the levels of service or health and safety if the work is not undertaken. 2. The effects of non-compliance with any Network Utilities Standards. 3. The bulk, <i>height</i>, location, and design of the <i>network utility</i>, including any associated <i>buildings</i> or <i>structures</i>. 4. The time, duration, or frequency of adverse effects. 5. The location of <i>network utilities</i>, including the need for connections to existing networks and services. 6. The extent to which adverse effects have been addressed through site, and route or method selection.

		7. Effects on areas of <i>outstanding natural features and landscapes, waterbodies, indigenous vegetation</i>, historic heritage, and sites and areas of significance to Māori. 8. The local, regional and national benefits of network utilities.
	All other zones	3. Activity status: Restricted discretionary Where: a. Compliance is achieved with: - NU-S4; and - NU-S5. Matters of discretion: - The <i>functional need</i> or <i>operational need</i> of, and benefits from, the temporary <i>network utility</i>, including the potential impact on the levels of service or health and safety if the work is not undertaken. - The bulk, <i>height</i>, location, and design of the <i>network utility</i>, including any associated <i>buildings</i> or <i>structures</i>. - The amenity values of the respective zone and the extent to which any adverse amenity effects can be avoided, remedied, or mitigated. - The extent to which the <i>network utility</i> may adversely impact on existing land uses. - Compliance with recognised standards or guidelines for the potential adverse effects of noise, vibration, radiofrequency fields, and electric and magnetic fields. - The extent to which adverse effects have been addressed through site, and route or method selection. - The necessity of the <i>network utility</i>. - Whether the works may result in public health and/or safety risks. - Effects on areas of <i>significant natural features and landscapes, waterbodies, indigenous vegetation</i>, historic heritage, and sites and areas of significance to Māori. - The local, regional and national benefits of network utilities.
	All other zones	4. Activity status: Discretionary Where: a. Compliance is achieved with: - NU-S4; and - NU-S5. b. Compliance is not achieved with one or more of the other network utility standards.

	All zones 5. Activity status: Non-complying Where: a. Compliance is not achieved with NU-R9(4).
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NU-R10	Communications kiosk or minor utility <i>structures</i> and <i>cabinets</i> , and electric vehicle charging stations
	All zones 1. Activity status: Permitted Where: a. The <i>structure</i> does not exceed: i. A <i>height</i> of 3.5m and an area of 1.5m²; or ii. A <i>height</i> of 2.2m and an area of 6.25m²; and b. Compliance is achieved with: i. NU-S4; and ii. NU-S5. Note: For the purpose of this rule, electric vehicle charging station installers and/ or operators do not need to be a Network Utility Operator.
	All zones 2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NU-R10(1)(a). Matters of discretion: 1. The <i>functional need</i> or <i>operational need</i> of, and benefits from, the activity, including the potential impact on the levels of service or health and safety if the work is not undertaken. 2. The bulk, height, location, and design of the <i>network utility</i>, including any associated buildings or structures. 3. The amenity values of the respective zone and the extent to which any adverse amenity effects can be avoided, remedied, or mitigated. 4. The effects of non-compliance with any relevant Network Utilities Standards. 5. The location of the activity, including the need for connections to existing networks and services. 6. Effects on areas of outstanding natural features and landscapes, waterbodies, indigenous vegetation, historic heritage, and sites and areas of significance to Māori.

	All zones 3. Activity status: Non-complying Where: a. Compliance is not achieved with NU-S4 or NU-S5.
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NU-R11	Telecommunications or radiocommunication activities (not otherwise provided for by another rule in this chapter and not regulated in the NESTF)
Residential zones	1. Activity status: Permitted Where: a. All <i>poles</i> and <i>antenna</i> (except those located on the road reserve) shall not project above a 45° <i>height in relation to boundary</i> plane from points 3m above the site boundary when the adjoining property is zoned Residential (but not a road boundary); b. A panel <i>antenna</i>: i. does not exceed a width of 0.7m; and ii. when in a road reserve, fits within an envelope of 3.5m in length and 0.7m in width; c. A dish <i>antenna</i> does not exceed a diameter of 1.2m; d. Omni directional ‘whip’ or dipole <i>antenna</i> do not exceed: i. 1.6m in vertical length; ii. 60mm in diameter; and iii. 1.5m in horizontal length; e. A headframe does not exceed 2.5m in diameter: f. For <i>antenna</i> attached to a <i>building</i>, the lowest point at which the antenna is attached to the building must be at least 15 m above the ground and the <i>antenna</i> does not exceed a height of 5m above the point of attachment to the <i>building</i>; g. Other <i>network utility buildings</i> or <i>structures</i> do not exceed a footprint of 2m² or a height of 2m; and h. Compliance is achieved with all Network Utilities Standards NU-S1, NU-S4, NU-S5, NU-S6 and NU-S7.
All other zones	2. Activity status: Permitted Where: a. All poles and antenna (except those located on the road reserve) shall not project above a 45° height in relation to

		boundary plane from points 3m above the site boundary when the adjoining property is zoned Residential (but not a road boundary); b. A panel antenna: i. does not exceed a width of 0.7m; and ii. when in a road reserve, fits within an envelope of 3.5m in length and 0.7m in width; c. A dish antenna does not exceed a diameter of 1.2m; d. Omni directional ‘whip’ or dipole antenna do not exceed: i. 1.6m in vertical length; ii. 60mm in diameter; and iii. 1.5m in horizontal length; e. A headframe does not exceed 6m in diameter; For antenna attached to a building, the antenna does not exceed height of 5m above the point of attachment to the building; f. Other network utility buildings or structures do not exceed a footprint of 5m² and a height of 2.5m; and g. Compliance is achieved with all relevant Network Utilities Standards.
	All zones	3. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NU-R11(1); and b. Compliance is achieved with: i. NU-S4; and ii. NU-S5. Matters of discretion: 1. The <i>functional need</i> or <i>operational need</i> of, and benefits from, the <i>network utility</i>, including the potential impact on the levels of service or health and safety if the work is not undertaken. 2. The bulk, <i>height</i>, location, and design of the <i>network utility</i>, including any associated <i>buildings</i> or <i>structures</i>. 3. The amenity values of the respective zone and the extent to which any adverse amenity effects can be avoided, remedied, or mitigated.

		4. The effects of non-compliance with any relevant Network Utilities Standards. 5. Whether the works may result in public health and/or safety risks. 6. The location of <i>network utilities</i>, including the need for connections to existing networks and services. 7. Effects on areas of <i>outstanding natural features and landscapes, waterbodies, indigenous vegetation</i>, historic heritage, and sites and areas of significance to Māori.
	All zones	4. Activity status: Non-complying Where: a. Compliance is not achieved with NU-S4 or NU-S5.

NU-R12		Telecommunications <i>poles</i> and new <i>antennas</i> (regulated by the NESTF that do not meet the permitted activity standards in Regulations 27, 29, 31, 33, or 35 of the NESTF)
	All zones	1. Activity status: Controlled Where: a. For panel <i>antenna</i>: a width of 0.9m is not exceeded; b. For dish <i>antenna</i> located in the road reserve: the <i>antenna</i> does not exceed a diameter of: i. 0.6m in a residential zone; or ii. 0.9m in all other zones; c. For dish <i>antenna</i> not located in the road reserve: the <i>antenna</i> does not exceed a diameter of: i. 0.6m in a residential zone; or ii. 2m in all other zones; and d. Compliance is achieved with the <i>structure height</i> standards in NU-S1. Matters of control: 1. The <i>functional need</i> or <i>operational need</i> of, and benefits from, the <i>network utility</i>, including the potential impact on the levels of service or health and safety if the work is not undertaken. 2. The amenity values of the respective zone and the extent to which any adverse visual amenity effects can be avoided, remedied, or mitigated. 3. The location of <i>network utilities</i>, including the need for connections to existing networks and services.

All zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NU-R12(1). Matters of discretion: 1. The <i>functional need</i> or <i>operational need of</i>, and benefits from, the temporary <i>network utility</i>, including the potential impact on the levels of service or health and safety if the work is not undertaken. 2. The bulk, <i>height</i>, location, and design of the <i>network utility</i>, including any associated <i>buildings</i> or <i>structures</i>. 3. The amenity values of the respective zone and the extent to which any adverse amenity effects can be avoided, remedied, or mitigated. 4. The effects of non-compliance with any relevant Network Utilities Standards. 5. The location of <i>network utilities</i>, including the need for connections to existing networks and services. 6. Effects on areas of <i>outstanding natural features and landscapes, waterbodies, indigenous vegetation</i>, historic heritage, and sites and areas of significance to Māori.
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NU-R13	Antenna attached to a building (regulated by the NESTF that do not meet the permitted standards in Regulation 37 of the NESTF)
All zones	1. Activity status: Controlled Where: a. A new panel <i>antenna</i> does not exceed a maximum front face area of 2m²; and b. For <i>antenna</i> attached to a <i>building</i>, provided the <i>antenna</i> does not exceed a <i>height</i> of 5m above the point of attachment to the <i>building</i>. Matters of control: 1. The <i>functional need</i> or <i>operational need of</i>, and benefits from, the <i>network utility</i>, including the potential impact on the levels of service or health and safety if the work is not undertaken. 2. The amenity values of the respective zone and the extent to which any adverse visual amenity effects can be avoided, remedied, or mitigated. 3. The location of <i>network utilities</i>, including the need for connections to existing networks and services.

All zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NU-R13(1). Matters of discretion: 1. The <i>functional need</i> or <i>operational need</i> of, and benefits from, the temporary <i>network utility</i>, including the potential impact on the levels of service or health and safety if the work is not undertaken. 2. The bulk, <i>height</i>, location, and design of the <i>network utility</i>, including any associated <i>buildings</i> or <i>structures</i>. 3. The amenity values of the respective zone and the extent to which any adverse amenity effects can be avoided, remedied, or mitigated. 4. The effects of non-compliance with any relevant Network Utilities Standards. 5. The location of <i>network utilities</i>, including the need for connections to existing networks and services. 6. Effects on areas of <i>outstanding natural features and landscapes, waterbodies, indigenous vegetation</i>, historic heritage, and sites and areas of significance to Māori.
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NU-R14	Telecommunications <i>cabinets</i> (regulated by the NESTF that do not meet the permitted standards in Regulations 20, 21, or 22 of the NESTF)
All zones	1. Activity status: Controlled Where: a. A telecommunications <i>cabinet</i> does not exceed a footprint of 2.5m² or a height of 2m; or b. A group of telecommunications <i>cabinets</i> do not exceed a footprint of 3m². Matters of control: 1. The <i>functional need</i> or <i>operational need</i> of, and benefits from, the <i>network utility</i>, including the potential impact on the levels of service or health and safety if the work is not undertaken. 2. The amenity values of the respective zone and the extent to which any adverse visual amenity effects can be avoided, remedied, or mitigated. 3. The location of <i>network utilities</i>, including the need for connections to existing networks and services.

All zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NU-R14(1). Matters of discretion: 4. The <i>functional need</i> or <i>operational need</i> of, and benefits from, the temporary <i>network utility</i>, including the potential impact on the levels of service or health and safety if the work is not undertaken. 5. The bulk, <i>height</i>, location, and design of the <i>network utility</i>, including any associated <i>buildings</i> or <i>structures</i>. 6. The amenity values of the respective zone and the extent to which any adverse amenity effects can be avoided, remedied, or mitigated. 7. The effects of non-compliance with any relevant Network Utilities Standards. 8. The location of <i>network utilities</i>, including the need for connections to existing networks and services. 9. Effects on areas of <i>outstanding natural features and landscapes, waterbodies, indigenous vegetation</i>, historic heritage, and sites and areas of significance to Māori.
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NU-R15	Aboveground <i>network utilities</i> (including <i>network utility buildings</i> and <i>structures</i> and enclosed substations) not provided for by another rule in this chapter
Residential, Rural Lifestyle, Open Space, Recreation Zones, Māori Purpose Zone, Future Urban Zone	1. Activity status: Permitted Where: a. The maximum <i>building</i> and <i>structure height</i> for the underlying zone is complied with, or the <i>building</i> does not exceed a <i>height</i> of 10m, whichever is greater; b. The <i>building</i> or structure does not exceed a footprint of 20m²; c. The <i>building</i> or structure is set back 3m from any site boundary in any Residential Zone (excluding network utility structures located in roads); and d. Compliance is achieved with Network Utilities Standards NU-S3 – NU-S7.
Commercial and Mixed Use Zones	2. Activity status: Permitted Where:

		a. Within the Neighbourhood Centre Zone, the following zone standards are complied with: NCZ-S1, S2, S3, S4, S5 and S9; b. Within the Mixed Use Zone, the following zone standards are complied with: MUZ-S1, S2, S3, S4, S9, S10; c. Within the Town Centre Zone, the following zone standards are complied with: TCZ-S1, S2, S3, S4, S6, S7 and S10; and d. Compliance is achieved with Network Utilities Standards NU-S3 – NU-S7.
	General Rural Zone and General Industrial Zone	3. Activity status: Permitted Where: a. Within the General Rural Zone, the following zone standards are complied with: GRUZ-S1, S2 and S3, and the maximum gross floor area of any building does not exceed 300m²; b. Within the General Industrial Zone, the following zone standards are complied with: GIZ-S1, S2, S3, S4, S6, S7 and S10.
	All zones	4. Activity status: Restricted discretionary Where: a. Compliance is not achieved with NU-R15(1), NU-R15(2) or NU-R15(3); and b. Compliance is achieved with: i. NU-S4; and ii. NU-S5. Matters of discretion: 1. The <i>functional need</i> or <i>operational need</i> of, and benefits from, the temporary <i>network utility</i>, including the potential impact on the levels of service or health and safety if the work is not undertaken. 2. The bulk, <i>height</i>, location, and design of the <i>network utility</i>, including any associated <i>buildings</i> or <i>structures</i>. 3. The amenity values of the respective zone and the extent to which any adverse amenity effects can be avoided, remedied, or mitigated. 4. The effects of non-compliance with any relevant Network Utilities Standards. 5. In the Commercial and Mixed Use Zones, the General Rural Zone or the General Industrial Zone, the effects of non-compliance with any relevant zone standards.

		6. Whether the works may result in public health and/or safety risks. 7. The location of <i>network utilities</i> , including the need for connections to existing networks and services. 8. Effects on areas of <i>outstanding natural features and landscapes, waterbodies, indigenous vegetation</i> , historic heritage, and sites and areas of significance to Māori.
	All zones	5. Activity status: Non-complying Where: a. Compliance is not achieved with NU-S4 or NU-S5.

NU-R16		Aboveground pipelines and ancillary structures for the conveyance, treatment, storage, or retention/detention of water, wastewater, or stormwater
	All zones	1. Activity status: Restricted discretionary Matters of discretion: - The <i>functional need</i> or <i>operational need</i> of, and benefits from, the <i>network utility</i>, including the potential impact on levels of service or health and safety if the work is not undertaken. - Whether the works may result in public health and/or safety risks. - The extent to which the <i>network utility</i> may adversely impact on existing land uses. - The extent, nature, and effects of earthworks and vegetation clearance and any related adverse ecological effects. - Control of erosion and sediment, including effects on drainage, flooding, and overland flow paths. - Site reinstatement and replanting. - The location of <i>network utilities</i>, including the need for connections to existing networks and services. - Effects on areas of <i>outstanding natural features and landforms, waterbodies, indigenous vegetation</i>, historic heritage, and sites and areas of significance to Māori.

NU-R17		Water reservoirs and wastewater treatment plants
	All zones	1. Activity status: Discretionary

NU-R18		Buildings, structures, and activities in the National Grid Yard
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	All zones	1. Activity status: Permitted Where: a. The activity is not a <i>sensitive activity</i>; b. <i>Buildings</i> or <i>structures</i> comply with the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP34:2001) and are: i. for a network utility; ii. a fence not exceeding 2.5m in height above ground level; iii. a non-habitable building or structure used for agricultural and horticultural activities including irrigation that is not a milking shed/dairy shed (excluding the stockyards and ancillary platforms), a wintering barn, a building for intensive production or, a commercial greenhouse, or produce packing facilities; or iv. building alterations or additions to an existing building or structure that do not increase the height above ground level or footprint of the building or structure; or c. A <i>building</i> or <i>structure</i> provided for by (b)(i) to (iv) must: i. not be used for the handling or storage of <i>hazardous substances</i> with explosive or flammable intrinsic properties in greater than domestic-scale quantities; ii. not permanently obstruct vehicle access to a <i>National Grid</i> support structure; or iii. be located at least 12m from the outer visible edge of a foundation of a <i>National Grid</i> support structure, except where it is: - a fence not exceeding 2.5m height above <i>ground level</i> that is located at least 6m from the outer visible edge of a foundation of a <i>National Grid</i> support structure; or - an artificial crop protection structure or crop support structure not exceeding 2.5m in height and located at least 8m from a <i>National Grid</i> transmission line <i>pole</i> that is removable or temporary to allow a clear working space of 12m from the <i>pole</i> for maintenance and allows all weather access to the pole and a sufficient area for maintenance equipment, including a crane.
	All zones	2. Activity status: Non-complying Where: a. Compliance is not achieved with NU-R18(1). Notification:

	Application for resource consent under this rule will be decided without public notification. If a resource consent application is made under this rule, Transpower will be considered an affected person in accordance with Section 95E of the RMA and notified of the application, where written approval is not provided.
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NU-R19	In the National Grid Yard:
	1. Land disturbance for the installation of fence posts 2. Earthworks
All zones	1. Activity status: Permitted Where: a. The land disturbance and earthworks is no deeper than 300mm within 6m of the outer edge of a foundation of a National Grid transmission line tower or pole; b. The land disturbance and earthworks is no deeper than 3m between 6m and 12m from the outer visible edge of a foundation of a 110kV National Grid transmission line tower or pole; c. The land disturbance and earthworks does not compromise the stability of a National Grid transmission line tower or pole; d. The land disturbance and earthworks does not result in a reduction in the ground to conductor clearance distances as required in Table 4 of the New Zealand Electrical Code of Practice for Safe Electrical Distances (NZECP 34:2001); e. The land disturbance and earthworks does not result in existing vehicular access to a National Grid support structure being permanently obstructed; and f. Clauses (a)-(e) do not apply to the following: i. <i>land disturbance</i> undertaken as part of agricultural, horticultural or domestic cultivation, or repair or resealing of a <i>road</i>, footpath, driveway, or farm track; ii. excavation of a vertical hole, not exceeding 500mm in diameter, that is more than 1.5m from outer visible edge of foundation of a National Grid transmission line pole or stay wire; and iii. <i>earthworks</i> that otherwise meets the requirements of the New Zealand Code of Practice for Electrical Safe Distances (NZECP34:2001).

	All zones 2. Activity status: Non-complying Where: a. Compliance is not achieved with NU-R19(1). Notification: Application for resource consent under this rule will be decided without public notification. Transpower is likely to be the only affected person determined in accordance with section 95B of the Resource Management Act 1991.
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Standards

NU-S1	Maximum <i>structure height</i> (<i>poles</i> and towers, including combined height of <i>pole</i> and <i>antenna</i>)
Residential Zones	For towers: 15m For <i>poles</i>: For a single user of a pole 15m or 5m above the permitted <i>height</i> standard of the zone in which the <i>structure</i> is located, whichever is the greater. For two or more uses of the pole, the permitted height above, plus an additional 5m. Except that: 1. Omni directional 'whip', GPS, or dipole <i>antenna</i> that complies with dimensions in NU-R11(d) are excluded from the 'combined <i>height</i>' (i.e. only the pole needs to comply with the maximum <i>structure height</i>). Lightning rods are exempt from maximum <i>height</i> standard.
Commercial Zones	For towers: 20m For <i>poles</i>: For a single user of a pole 20m or 5m above the permitted <i>height</i> standard of the zone in which the <i>structure</i> is located, whichever is the greater. For two or more uses of the pole, the permitted height above, plus an additional 5m. Except that: 1. Omni directional 'whip', GPS, or dipole <i>antenna</i> that complies with dimensions in NU-R11(d) are excluded from the 'combined <i>height</i>'

	(i.e. only the <i>pole</i> needs to comply with the maximum <i>structure height</i>). Lightning rods are exempt from maximum <i>height</i> standard.
Rural Zones Open Space Zones General Industrial Zone Special Purpose Zones	25m, or 30m where there are two or more users of the same <i>pole</i>. Lightning rods are exempt from maximum height standard.
NU-S2	Buildings and structure height and setbacks
All Zones	Except where Standard NU-S1 applies, buildings and <i>structures</i> comply with the <i>building height</i>, setback (excluding network utility structures located in road), and <i>height in relation to boundary</i> standards for the zone.
NU-S3	Parking and access requirements
All Zones	Where a <i>network utility</i> is permanently staffed: 1. A minimum of 1 car park per full time equivalent must be provided (for sites in Carterton or South Wairarapa Districts only); 2. Any new car parks must meet the requirements for on-site vehicle parking spaces in TR-S16 to TR-S22; and 3. Any new vehicle access point must meet the requirements of TR-S6 to TR-S11.
NU-S4	Radio frequency fields
All Zones	If generating radiofrequency fields, an activity must not exceed the maximum exposure level of the general public in New Zealand Standards NZS2772.1: 1999 Radiofrequency fields - Maximum exposure levels - 3KHz to 300 GHz.
NU-S5	Electric and magnetic fields
All Zones	If generating electric and magnetic fields, the activity must not exceed the International Commission on Non-Ionising Radiation Protection Guidelines for limiting exposure to time varying electric and magnetic fields (1Hz - 100kHz) (Health physics, 2010, 99(6);

	818-836) and recommendations from the World Health Organisation monograph Environmental Health Criteria (No 238, June 2007).
NU-S6	Light
All Zones	Activities must meet the light standards in LIGHT Chapter.
NU-S7	Noise
All Zones	Activities must meet the noise standards in NOISE Chapter.

TR – Transport

An efficient and effective transport network is critical to the functioning and economic support of the Wairarapa, to convey people, goods, and services in a safe and effective manner by any mode of transport. The Wairarapa's land transport network comprises state highways, roads, pedestrian and cycle networks, public transport facilities, and the rail network.

The District Plan seeks to ensure that activities generate a type or level of traffic that is compatible with the roads they are located on. It also seeks to ensure that on-site transport facilities such as vehicle crossings, parking, manoeuvring, loading, and cycle facilities are appropriately located, designed, and linked to the transport network to ensure the safety and efficiency of the transport network and people's health and wellbeing.

Activities that generate high volumes of traffic may have significant adverse effects on the transport network and adversely affect the amenity of adjacent land use activities. As such, high traffic generating activities warrant case-by-case management and assessment. The cumulative effects of less intensive activities also need to be carefully managed.

The rail corridor is also a key part of the Wairarapa's transport network and is anticipated to increase in importance over the life of the plan, and therefore its efficient, effective, and safe operation must be protected from potential adverse effects of activities, such as road crossings.

Hood Aerodrome is a strategic component of the Wairarapa aviation industry, and the Transport chapter includes controls to manage the height of structures and trees within the *Obstacle Limitation Surface* for safety within flight paths.

The Transport Chapter contains provisions that deal with on-site transport facilities and access, the operation, maintenance and repair of the transport network, and the effects of high traffic generating activities. Provisions addressing noise related reverse sensitivity effects on the State Highway and Hood Aerodrome are in the Noise Chapter.

The zoning applying to roads and railway corridor is the same zone as the land nearest to each point in the road and railway corridor. Where the zone is different either side of the road or railway corridor, then the boundary between the zones is the centreline of the road or railway corridor.

Unless otherwise specified in the District Plan, the Transport rules apply to all activities. Activities are subject to compliance with all relevant Transport rules. Where activities meet the specific standards and thresholds set out in this chapter, the transportation component of the activity will be permitted. Activities that do not meet the standards or which generate higher amounts of traffic than permitted by the provisions in this chapter will require resource consent.

There may be a number of objectives, policies and rules that apply to an activity, building, structure, or site. Resource consent may therefore be required under rules in this chapter as well as other chapters. Unless specifically stated in a rule, resource consent is required under each relevant rule. The steps to determine the status of an activity are set out in the General Approach section in the How the Plan Works chapter.

Objectives

TR-O1	Well-connected, integrated, safe, and accessible transport network
The transport network is a well-connected, integrated, safe, and accessible system that: a. meets and is responsive to current and future needs; b. is efficient and effective in transporting people, goods, and services by all transport modes; c. supports healthy and liveable communities with a variety of transport options that are accessible; d. integrates with subdivision, land use, and development; e. supports transport mode options to increase the use and accessibility of public transport, walking, and cycling and reduces dependency on private motor vehicles where that is, or can be made, practicable and safe; and f. enables emergency service vehicles to respond to emergency call outs effectively and efficiently.	
TR-O2	Adverse effects of the transport network
Adverse effects on the environment from the construction, operation, maintenance, and development of the transport network are avoided, remedied, or mitigated.	
TR-O3	Effects of activities on the transport network
The safe, effective, and efficient operation of the transport network is not compromised or constrained by incompatible land use, subdivision, and development, including High Traffic Generating Activities.	

Policies

General	
TR-P1	Multi-modal transport system
Support a multi-modal transport system that promotes alternative means of safe, efficient and effective transport, including cycling and walking and public transport facilities to enable people of all ages to move within the district and reduce the effects of vehicle-based transport systems and greenhouse gas emissions by:	

a. maximising safe and accessible opportunities for walking, cycling, and public transport use; b. Promoting multi-modal options to meet with any best practice guidance current at the time of consenting; and requiring cycle parking as appropriate for the proposed use and end of trip cycle facilities where cycle parking is required to be provided.	
TR-P2	Good design outcomes
The transport network is maintained or improved in a way that: a. promotes integrated planning and supports strategic directions; b. roads and vehicle crossings meet minimum design standards to allow for safe, effective, and efficient traffic movement and can safely accommodate the intended number of users and the intended functioning of the road or crossing; c. is consistent with the relevant Design Guide in Appendices APP3, APP4, or APP5 and Council's Engineering Development Standard 2023 and promotes good urban design, including connectivity, decreasing travel distances, and linking to existing transport networks; d. considers and responds to safety and accessibility, including Crime Prevention Through Environmental Design (CPTED) principles. e. Promotes the use of public transport, walking and cycling through the provision of a safe, accessible and connected multimodal network.	
TR-P3	Role of transport corridors
Identify and manage a classification of roads and other transport corridors within the Wairarapa based on the One Network Framework to ensure that the function of each corridor is recognised and protected when managing subdivision and land use.	
TR-P4	On-site facilities
Require on-site facilities including loading, parking, manoeuvring and vehicle, pedestrian, and cycle access to meet minimum standards and facilitate multi-modal transport use, or where these are not met, ensure they are appropriate for the demands of the activities and development carried out on the site and avoids, remedies, or mitigates any adverse effects on the safe, effective, and efficient functioning of the transport network.	
TR-P5	Transport network connections
Require development (new or changes to existing lawfully established activities) to meet minimum standards when connecting to road, cycling, pedestrian, and public transport corridors, or where these are not met, ensure development avoids, remedies, or mitigates	

any adverse effects on the safe, effective, and efficient functioning of the transport network and provides a safe, suitable, legal, and practicable access to and from a transport corridor.	
TR-P6	Managing effects of the transport network
Provide for the development and safe operation of the transport network, including the state highway network and rail network, while avoiding, remedying, or mitigating the adverse effects of the development and use of roads, including state highways, on adjacent activities.	
TR-P7	High Traffic Generating Activities
Require new, and changes to existing high traffic generating activities which propose to access and utilise the districts' roads to be assessed in an Integrated Transport Assessment prepared by a suitably qualified traffic specialist that demonstrates how any adverse effects on the road transport network will be avoided, remedied or mitigated, and assesses: - the road's capacity and the likely effect of the proposed use on the road and its users; - the effect on ongoing maintenance of the road and the need for road maintenance agreements; - whether opportunities for alternative access and/or routes exist; - appropriate traffic management and travel demand management mechanisms; - whether it is appropriate to stage the activity and/or undertake improvements to the transport network; and cumulative effects.	
Rail	
TR-P8	Rail corridor safety
Ensure the safe and efficient operation of the rail network by providing for safe visibility and appropriate infrastructure at road/rail level crossings. This includes protecting sight lines and managing vehicle access adjacent to level crossings.	
Hood Aerodrome	
TR-P9	Protection of Hood Aerodrome
Protect the operation of Hood Aerodrome and other key air transport facilities from the potential adverse effects created by the proximity of nearby sensitive land use activities.	
TR-P10	Effects of Hood Aerodrome
Provide for the continued functioning and future development of Hood Aerodrome and other key air transport facilities while managing the adverse effects caused by the operation of Hood Aerodrome and other key air transport facilities on adjacent activities.	

Wairarapa Five Towns Trail Network	
TR-P11	Wairarapa Five Towns Trail Network
Enable and encourage the establishment and operation of the Wairarapa Five Towns Trail Network.	

Rules

TR-R1	All land use activities
All zones	1. Activity status: Permitted Where: a. Compliance is achieved with TR-S1 - TR-S28;
All zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with TR-S1 - TR-S28; Matters of discretion: 1. The effect of non-compliance with the relevant standard and the matters of discretion of any standard that is not met. 2. The construction, use, location, design, and number of vehicle crossings or intersections. 3. Sightlines. 4. The safety and suitability of the access for the activity. 5. The ability to obtain alternative access. 6. The safe, efficient, and effective operation of the transport network, including State Highways.

TR-R2	Construction, alteration, maintenance, and repair of accessways, vehicle crossings, parking, and loading areas
All zones	1. Activity status: Permitted Where: b. Compliance is achieved with TR-S1 - TR-S28; i. There is no new <i>vehicle crossing</i> onto a State Highway; and ii. All <i>sites</i> and activities have legal and physical access to and from a <i>road</i>.
All zones	2. Activity status: Restricted discretionary

	Where: c. Compliance is not achieved with TR-R2(1). Matters of discretion: 1. The effect of non-compliance with the relevant standard and the matters of discretion of any standard that is not met. 2. The construction, use, location, design, and number of vehicle crossings or intersections. 3. Sightlines. 4. The safety and suitability of the access for the activity. 5. The ability to obtain alternative access. 6. The safe, efficient, and effective operation of the transport network, including State Highways. Note 1: Any access proposed onto a section of a State Highway which has been declared a Limited Access Road will also require a Licenced Crossing Place approval from Waka Kotahi NZ Transport Agency under the Government Rooding Powers Act 1989. Note 2: If a resource consent application is made under this rule for a new vehicle crossing onto a State Highway, Waka Kotahi NZ Transport Agency will be considered an affected person in accordance with Section 95E of the RMA and notified of the application, where written approval is not provided.
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TR-R3		Construction, alteration, maintenance, and repair of the transport network
	All zones	1. Activity status: Permitted Where: a. Compliance is achieved with TR-S1 - TR-S28; and b. There is no new <i>road</i> intersection with a State Highway.
	All zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with TR-R3(1). Matters of discretion: 1. The effect of non-compliance with the relevant standard and the matters of discretion of any standard that is not met. 2. The construction, use, location, design, and number of intersections. 3. Sightlines.

	4. The safe, efficient, and effective operation of the transport network, including State Highways. Note: If a resource consent application is made under this rule for a new intersection onto a State Highway, Waka Kotahi NZ Transport Agency will be considered an affected person in accordance with Section 95E of the RMA and notified of the application, where written approval is not provided.
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TR-R4	Construction of roads, vehicle crossings, and accessways in close proximity to a railway
All zones	1. Activity status: Restricted discretionary Where: a. It is proposed to create a <i>road</i>, <i>vehicle crossing</i>, or an accessway over or under the railway; or b. It is proposed to create a vehicle crossing or an accessway or intersection within 30m of a road/rail level crossing. Matters of discretion: 1. The use, location, design, and number of <i>vehicle crossings</i> or <i>accessways</i>. 2. The ability to obtain alternative access. 3. The safe, efficient, and effective operation of the <i>road</i> and railway. Note: If a resource consent application is made under this rule, KiwiRail will be considered an affected person in accordance with Section 95E of the RMA and notified of the application, where written approval is not provided.

TR-R5	Sight lines at railway level crossings
All zones	1. Activity status: Permitted Where: Compliance is achieved with TR-S30
All zones	1. Activity status: Restricted discretionary Where: a. Compliance is not achieved with TR-R5(1). Matters of discretion:

	1. the potential for adverse effects on the safety and efficiency of the rail network. 2. applications under this rule must provide, in addition to the standard information requirements, evidence of engagement with KiwiRail.
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TR-R6	High Traffic Generating Activities
All zones	1. Activity status: Restricted discretionary Where: a. Any new activity, or change to an existing activity (excluding existing service stations), that generates an average daily traffic volume or peak hour traffic volume that exceeds the thresholds in Standard TR-S29 Table TR-16. b. Any change to an existing service station involves one or more additional refuelling spaces. For all activities where TR-R5(1)(a) apply: a. An Integrated Transport Assessment shall be prepared by an independent, suitably qualified, and experienced transport engineer; and b. The type of Integrated Transport Assessment (either Full or Basic) shall be as determined by the status of the application under all other applicable rules as per Standard TR-S29 Table TR-18. Matters of discretion: 1. The safe, efficient, and effective operation of the transport network. 2. Site access. 3. Accessibility for pedestrians, cycle facilities, and public transport. 4. Strategic frameworks. 5. Mitigation of effects through Travel Demand Management. Note: 2. Guidance for the content of a Full or Basic Integrated Transport Assessment is provided in Appendix TR-1. Consultation with Council is recommended to confirm the scope of the Integrated Transport Assessment. Activities that do not exceed the thresholds in Standard TR-S29 Table TR-16 to be classed as a High Traffic Generating Activity require an

	assessment of traffic effects if they require resource consents under other rules in the District Plan.
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TR-R7		<i>Buildings, structures, masts, or trees in Aerodrome Obstacle Limitation Surface</i>
	All zones	1. Activity status: Permitted Where: a. Any <i>building, structure</i>, mast, or tree does not penetrate the Aerodrome Obstacle Limitation Surfaces 1:50 approach slopes, the transitional slopes, or the horizontal surface.
	All zones	2. Activity status: Discretionary Where: a. Compliance is not achieved with TR-R7(1).

TR-R8		Any activity not otherwise listed in this chapter
	All zones	1. Activity status: Permitted Where: a. Compliance is achieved with TR-S1 - TR-S28.
	All Zones	2. Activity status: Restricted discretionary Where: a. Compliance is not achieved with TR-R8(1). Matters of discretion: 1. The effect of non-compliance with the relevant standard and the matters of discretion of any standard that is not met.

Standards

Road design		
TR-S1	Road design	
All zones	- Any <i>accessway</i> to a <i>site</i> or sites with potential to accommodate more than 15 <i>residential units</i> shall be formed as a road in accordance with the Council's Engineering Development Standard 2023 and vested with Council. - Any shared <i>accessway</i> shall have legally enforceable arrangements for maintenance of the access at the time it is created. - All roads shall be formed in accordance with the <i>Council's Engineering Development Standard 2023</i>.	Matters of discretion: - Effects on the safe, efficient, and effective operation of the transport network. - Design of the access or road. - On-going maintenance of the access. - Council's Engineering Development Standard 2023. - Firefighting access.
TR-S2	Minimum road intersection separation distances	
All Zones	The minimum separation between road intersections shall comply with Table TR-2.	Matters of discretion: Effects on the safe, efficient, and effective operation of the transport network.
	Table TR-2 Minimum intersection separation distances	
	Posted Speed Limit (km/h)	Minimum intersection separation (m)
	100	450
	80	320
	60	220
	50	100
	40	75
	30 or less	60

Lighting		
TR-S3	Lighting for parking and loading areas	
All zones	1. Lighting shall be provided during the hours of darkness for all: a. non-residential <i>parking areas</i> used in the hours of darkness; b. residential <i>parking areas</i> with more than 6 spaces; and c. <i>loading areas</i> used in the hours of darkness. Note. Refer to Light Chapter for standards relating to lighting.	Matters of discretion: 1. Effects on the safe operation of the transport network. 2. Lighting level. 3. Uniformity of lighting. 4. Light spill. 5. Hours of operation.
TR-S4	Street lighting provision	
All Zones except Rural Zones, Māori Purpose Zone, and Future Urban Zone	1. All public <i>roads</i> serving 3 or more residential <i>allotments</i> shall be provided with night lighting. Note. Refer to Light Chapter for standards relating to lighting.	Matters of discretion: 1. Effects on the safe operation of the transport network. 2. Uniformity of lighting.
Access		
TR-S5	Site access	
All zones	1. Accessways shall be formed in accordance with the <i>Council's Engineering Development Standard 2023</i>.	Matters of discretion: 1. Effects, including cumulative effects, on the safety, efficiency, and effectiveness of the transport network resulting from the nature, use, location, design, and

		construction of the accessway. 2. Council’s Engineering Development Standard 2023.																																							
All zones	2. Accessways shall comply with Table TR-3: Minimum and maximum widths of accessways	Matters of discretion: 1. Effects, including cumulative effects, on the safety, efficiency, and effectiveness of the transport network resulting from the nature, use, location, design, and construction of the accessway.																																							
Table TR-3 Minimum and maximum widths of accessways																																									
<table><tr><th>Activity</th><th>Number of residential units</th><th>Number of parking spaces provided</th><th>Minimum legal width (m)</th><th>Minimum formed width (m)</th><th>Maximum formed width (m)</th></tr><tr><td rowspan="3">Residential</td><td>1-3</td><td></td><td>4.6</td><td>3.5</td><td>6.0</td></tr><tr><td>4-8</td><td></td><td>5.0</td><td>3.5*</td><td>6.0</td></tr><tr><td>9-15</td><td></td><td>6.5</td><td>5.5</td><td>6.0</td></tr><tr><td rowspan="2">Commercial and Industrial</td><td></td><td>1-15</td><td>8.0</td><td>5.5</td><td>9.0</td></tr><tr><td></td><td>> 15</td><td>8.0</td><td>6.0</td><td>10.0</td></tr><tr><td>Rural</td><td>1-15</td><td></td><td>10.0</td><td>4.0</td><td>8.0</td></tr></table>			Activity	Number of residential units	Number of parking spaces provided	Minimum legal width (m)	Minimum formed width (m)	Maximum formed width (m)	Residential	1-3		4.6	3.5	6.0	4-8		5.0	3.5*	6.0	9-15		6.5	5.5	6.0	Commercial and Industrial		1-15	8.0	5.5	9.0		> 15	8.0	6.0	10.0	Rural	1-15		10.0	4.0	8.0
Activity	Number of residential units	Number of parking spaces provided	Minimum legal width (m)	Minimum formed width (m)	Maximum formed width (m)																																				
Residential	1-3		4.6	3.5	6.0																																				
	4-8		5.0	3.5*	6.0																																				
	9-15		6.5	5.5	6.0																																				
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		> 15	8.0	6.0	10.0																																				
Rural	1-15		10.0	4.0	8.0																																				
Notes: * Passing bays are required when the length of the <i>accessway</i> exceeds 25m.																																									
TR-S6	Vehicle crossing design																																								
All Zones	Vehicle crossings shall comply with the following:	Matters of discretion: 1. Effects, including cumulative effects, on the																																							

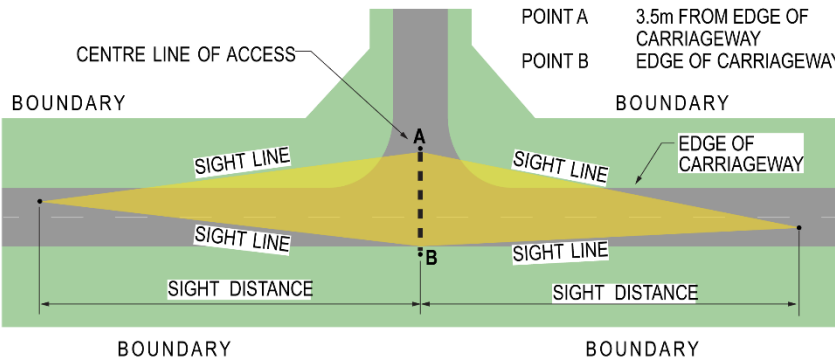
	1. Table TR-4: Maximum number of vehicle crossings per site road frontage; 2. Table TR-5: Minimum sight distance requirements; 3. Table TR-6: Minimum separation between vehicle crossings and from intersections; and 4. Figure TR-5: Minimum separation distance for a new vehicle crossing from a pedestrian or cycle crossing facility.	safety, efficiency, and effectiveness of the transport network resulting from the nature, use, location, design, and construction of the vehicle crossing.																	
	Table TR-4 Maximum number of vehicle crossings per site road frontage <table border="1"> <thead> <tr> <th rowspan="2">Frontage length (m)</th><th colspan="2">Road frontage type</th></tr> <tr> <th>State Highway, Transit Corridor</th><th>All other roads</th></tr> </thead> <tbody> <tr> <td>0 - 16</td><td>1</td><td>1</td></tr> <tr> <td>> 16 - 60</td><td>1</td><td>2</td></tr> <tr> <td>> 60 - 200</td><td>1</td><td>2</td></tr> <tr> <td>> 200</td><td>2</td><td>3</td></tr> </tbody> </table>		Frontage length (m)	Road frontage type		State Highway, Transit Corridor	All other roads	0 - 16	1	1	> 16 - 60	1	2	> 60 - 200	1	2	> 200	2	3
Frontage length (m)	Road frontage type																		
	State Highway, Transit Corridor	All other roads																	
0 - 16	1	1																	
> 16 - 60	1	2																	
> 60 - 200	1	2																	
> 200	2	3																	

Table TR-5 Minimum sight distance requirements		
Posted speed limit (km/h)	Urban roads	Rural roads
30 or less	50m	
40	70m	
50	100m	
60	125m	
60		160m
70		190m
80		225m

	100		300m	
	Notes: Sight distance measured in accordance with Figure TR-3.			

Figure TR-3 Sight distance measurement

*OPERATING SPEED >> 85TH PERCENTILE SPEED ON FRONTAGE ROAD. THIS CAN BE TAKEN AS THE SPEED LIMITED PLUS 15% IF SURVEY DATA IS NOT AVAILABLE.
**DISTANCES ARE BASED ON THE APPROACH SIGHT DISTANCE AND SAFE INTERSECTION SIGHT DISTANCE TABLES IN NAASRA, INTERSECTIONS AT GRADE (1) ASSUMING REACTION TIMES OF 1.5 SECONDS ON LOCAL ROADS WITH OPERATING SPEEDS UP TO 60KM/H AND 2.0 SECONDS FOR ALL OTHER SPEEDS AND ALL COLLECTOR AND ARTERIAL ROADS.



NOTES:

SITE DISTANCES SHALL BE MEASURED FROM A POINT 1.15m (MOTORISTS EYE LEVEL) ABOVE FINISHED SURFACE OF THE ACCESS CROSSING PLACE AND 1.15m ABOVE THE ROAD SURFACE.

THERE SHALL BE NO OBSTRUCTIONS TO VISIBILITY INSIDE THE AREA BOUNDED BY SIGHT LINES.

- Notes:
1. Sight lines shall be from driver's eye height to driver's eye height (1.15m) above ground level within the sight triangle.
 2. Sight distances AC and AD shall be measured along the centre line of the carriageway.
 3. Point A: Intersection of lane centreline and driveway centreline.
 4. Point B: Position of centreline of driveway where sight distance is measured (note - this is measured from the edge lane line and where there is no edge lane line, from the edge of seal) and is 3.5m for residential houses and 5m for all other activities.
 5. Point C and D: Position on centreline of lane where sight distance is measured.

Table TR-6 Minimum separation between vehicle crossings and from intersections

Posted speed limit (km/h)	Minimum separation from intersection	Minimum separation from vehicle crossing on the same or opposite side of the road
50 or less	20m	9m
60	30m	20m
70	60m	40m
80	90m	100m
100	200m	200m

Notes:

Minimum separation distance shall be measured in accordance with Figure TR-4.

Figure TR-4 Minimum separation of vehicle crossing from intersection

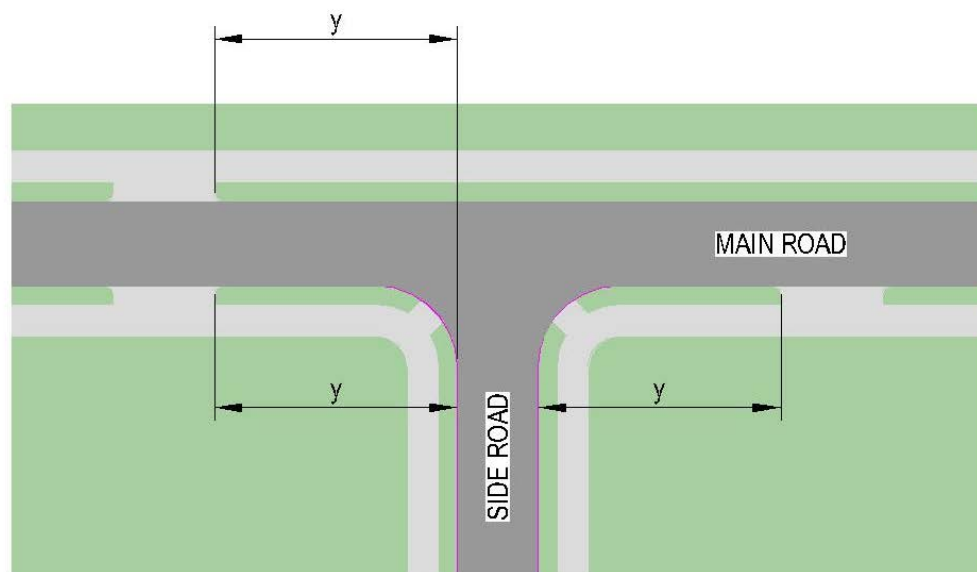
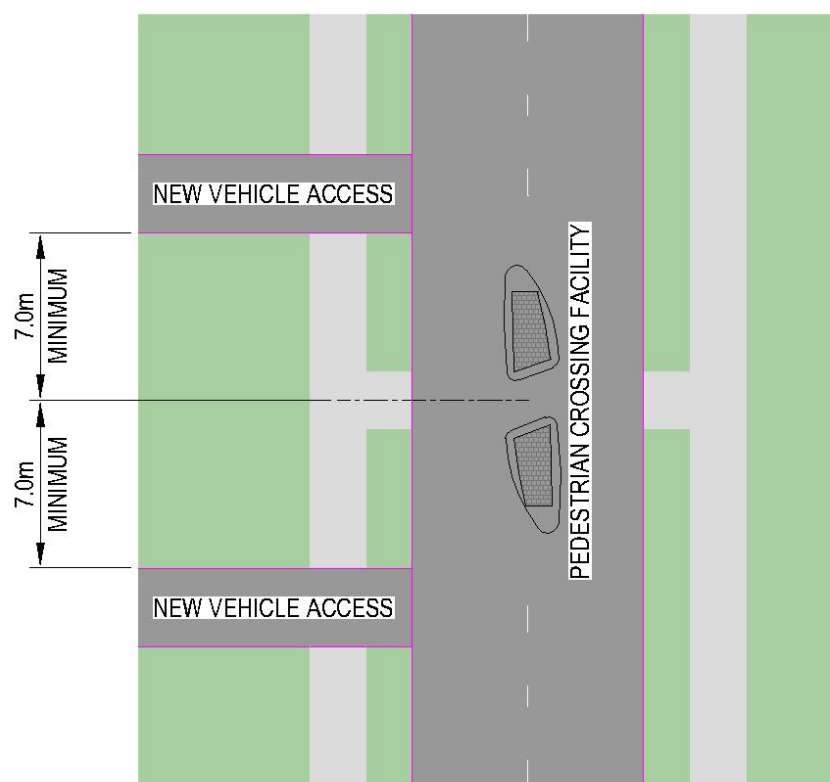


Figure TR-5 Minimum separation distance for a new vehicle crossing from a pedestrian or cycle crossing facility



TR-S7 Visibility splays

All
Zones

1. *Vehicle accessways* shall provide a visibility splay that complies with Table TR-7.

Matters of discretion:

1. Effects on the safe operation of the transport network, including pedestrians and cyclists.
2. Compatibility with existing patterns within Historic Heritage Precincts.

Table TR-7 Visibility splay design parameters

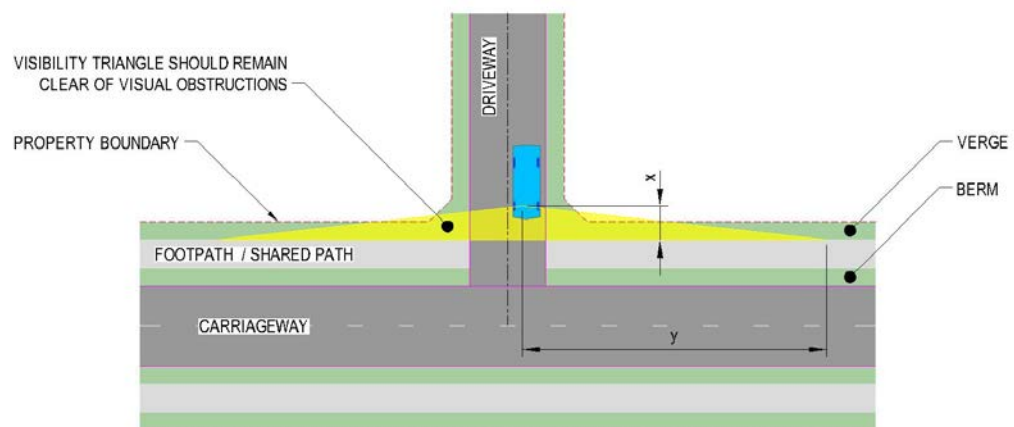
Path Type	Path User Speed (km/h)	X (m)	Y (m)
Footpaths	5	5*	3
	10	5*	7
Shared Paths	15	5	12

	20	5	18
Cycle Path	25	5	26

Notes:

*This value can be reduced to 2.5m at domestic driveways.

Figure TR-6 Visibility splays



Notes

X = safe stopping distance for a vehicle prior to encroaching the path
(measured from the path user location towards the property;

allows drivers to see path users in time to stop before reaching the path.

Y= safe stopping distance for path users travelling at a comfortable speed to stop in time to avoid collision (if a driver does not give way to them).

TR-S8	Vehicle crossing formation	
All zones except Rural Zones, Māori Purpose Zone, and Future Urban Zone	1. All <i>vehicle crossing</i> points shall be formed, sealed, and drained in accordance with the requirements for vehicle crossings and surfacing in Council's Engineering Development Standard 2023.	Matters of discretion: 1. Effects on the safe, efficient, and effective operation of the transport network. 2. Access design, including width of access formation. 3. Drainage design and effects on drainage. 4. Council's Engineering Development Standard 2023. 5. Compatibility with heritage character in Historic Heritage Precincts.
Rural Zones, Māori Purpose Zone, and Future Urban Zone	2. Any <i>vehicle crossing</i> to a sealed <i>road</i> shall be formed, surfaced with concrete, chip seal or asphaltic concrete, and drained: a. for a minimum distance of 30m from the edge of the <i>road</i> carriageway for shared accessways. b. from the edge of the road carriageway to the property boundary for a single accessway.	
All zones	3. All <i>vehicle crossings</i> shall be designed and constructed so that roading drainage is continuous across the length of the crossing in accordance with the requirements for vehicle crossings in Council's Engineering Development Standard 2023.	
All zones	4. All crossings to a state highway shall be sealed from the edge of the carriageway for a minimum distance of 30m.	
TR-S9	Vehicle crossing alignment	
All zones	1. All <i>vehicle crossing</i> points shall be designed so that: a. The crossing centreline intersects with the property boundary at an angle of between 45° and 90°; and	Matters of discretion: 1. Effects of access alignment on road safety or sight distances.

	The crossing centreline intersects with the carriageway at an angle of 90° plus or minus 15°.		
TR-S10	Rural accessway design		
Rural Zones, Māori Purpose Zone, and Future Urban Zone	1. Any vehicle crossing with an average daily volume of vehicle movements of less than 100 shall be formed in accordance with the requirements of Table TR-8. 2. Any vehicle crossing with an average daily volume of vehicle movements of 100 or more shall be formed as a road intersection.	Matters of discretion: 1. Effects on the safety of the vehicle crossing and the adjacent transport network. 2. Ability to accommodate the largest size of vehicle anticipated to use the access. 3. Effects on the ability to provide adequate emergency vehicle access to the property/properties.	
	Table TR-8 Rural vehicle crossing design		
	Average volume of vehicle movements using access per day	One Network Framework (ONF) Classification or Average Volume of traffic using the adjoining road (vpd)	Access design standard
	<= 30	Rural road (low volume) or < 2000	Diagram C (Figure TR-7)
		Rural Connector >= 2000	Diagram D (Figure TR-8)
	31 – 100	Rural road (low volume) < 2000	Diagram D (Figure TR-8)
		Rural Connector or >= 2000	Diagram E (Figure TR-9)
	> 100 or serves more than 10 properties	>= 2000	Design as intersection

Figure TR-7 Diagram C

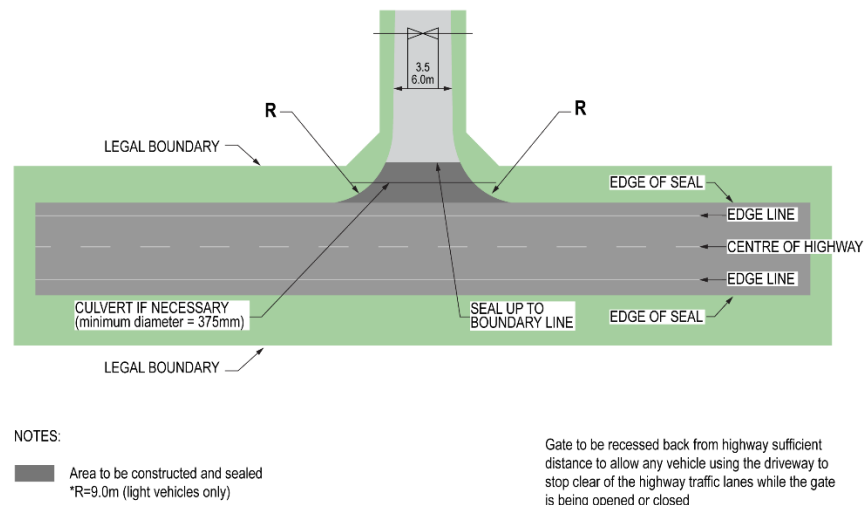
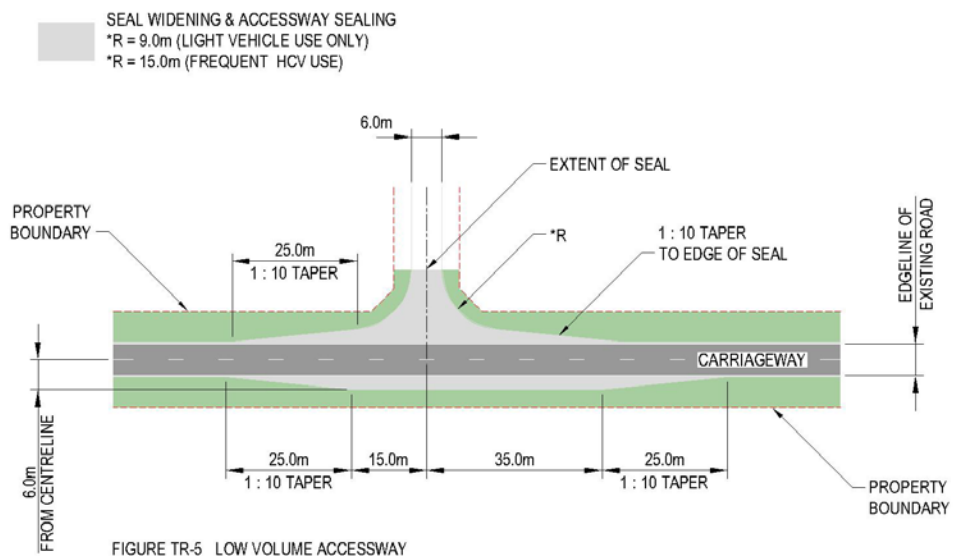
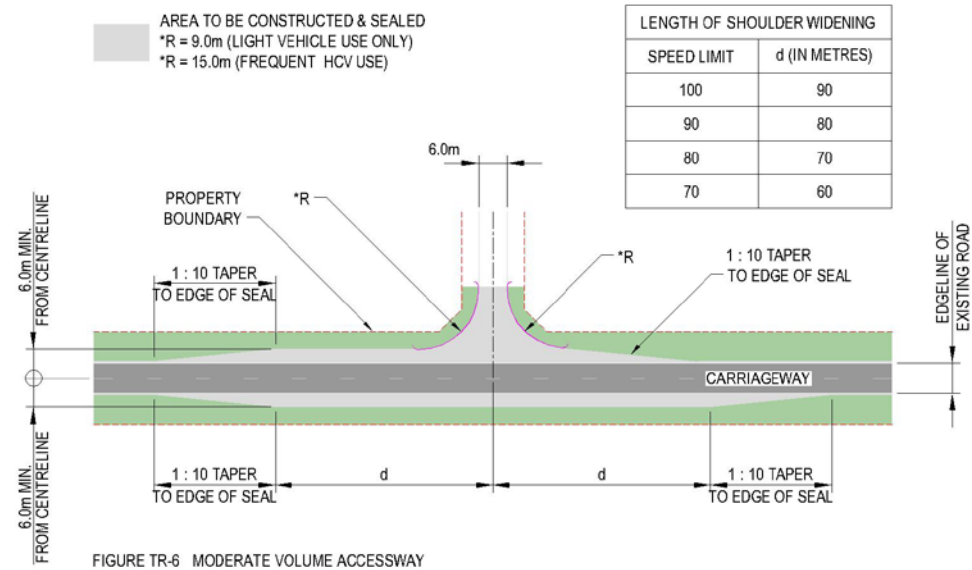
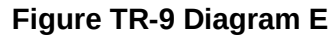


Figure TR-8 Diagram D





TR-S11	Accessway gradient
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All Zones

1. The maximum gradient for any *accessway* used for vehicle access shall be 1 in 6.
2. In residential zones where an *accessway* serves no more than 2 residential units, the maximum gradient may be increased to 1 in 5 provided:
 - a. the average gradient over the full length of the *accessway* does not exceed 1 in 6;
 - b. the maximum gradient is no more than 1 in 6 within 6m of the *road* boundary; and
 - c. the *accessway* is sealed with a non-slip surfacing. For the purpose of this rule gradient (maximum and average) shall be measured on the centreline of the *accessway*.

Matters of discretion:

1. Effects on the efficiency of land-use, safety, and maintenance of the accessway and of the adjacent transport network.
2. Effects on congestion resulting from any inability of cars or certain types of cars to readily use the accessway.
3. Effects on the ability to provide adequate emergency vehicle access to the property/properties.

TR-S12	Turning and passing	
All Zones	1. A turning area shall include a turning head as per Clause 3.C.14.3 of the Council Development Engineering Standard 2023 and shall be provided on any <i>accessway</i> that: a. provides access to 3 or more lots; or b. is longer than 50m. 2. Passing opportunities or bays with a minimum width of 5.5m and length of 15m shall be provided at intervals of not more than 50m in urban areas and 100m in rural areas where visibility is available from bay to bay.	Matters of discretion: 1. Effects on the safety of the <i>accessway</i> and adjacent road network associated with reversing vehicles. 2. Effects on congestion resulting from any inability of cars or certain types of cars to readily use the <i>accessway</i>. 3. Effects on the ability to provide adequate emergency vehicle access to the property/properties. 4. Distances between passing opportunities. 5. Location of passing opportunities.
TR-S13	Stormwater management	
All Zones except Rural Zones, Māori Purpose Zone, and Future Urban Zone	1. <i>Accessways</i> shall include stormwater control in accordance with Council's Engineering Development Standard 2023.	Matters of discretion: 1. Effects on stormwater flows and management. 2. Council's Engineering Development Standard 2023.

Rural Zones, Māori Purpose Zone, and Future Urban Zone	2. Where an accessway is less than or equal to 40m from a residential unit, it shall be formed and sealed with stormwater control. 3. Where an accessway is greater than 40m from a residential unit it shall be: a. formed to an all weather standard with stormwater control when the gradient is less than 1:10; or b. formed and sealed with stormwater control where the gradient is greater than 1:10.	
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TR-S14	Firefighting access	
All Zones	1. Any accessway to a site located in an area where no fully reticulated water supply system is available, or having a length greater than 50m when connected to a road that has a fully reticulated water supply system including hydrants, shall: a. be designed to achieve the vehicle crossing design and formation standards in TR-S6 and the access design in TR-S5; b. have a minimum formed width of 4m; c. have a minimum height clearance of 4m; d. have a turning area suitable for a fire truck; and e. be designed to be free of obstacles that could hinder access for emergency service vehicles.	Matters of discretion: 1. The safe, effective, and efficient functioning of the vehicle access for firefighting access. 2. Need for onsite access for appliances. 3. Design of turning areas. 4. Site and topographical constraints.

Accessibility		
TR-S15	Accessible routes	
All Zones	1. For all non-residential activities providing parking an accessible route shall be provided between the main building entrance and any allocated parking for people with disabilities. 2. Accessible parking bays shall be located as close as practical to the accessible entrance or to an accessible lift to the building or activity.	Matters of discretion: 1. The ability for people with disabilities to safely and effectively park and enter and exit a vehicle and gain access to the building. 2. Proximity to the accessible entrance. 3. Any building or site constraints. 4. Access gradients. 5. Access widths. 6. Access surfacing. NOTE: Desirable minimum design standards are set out in NZS4121:2001 Design for Access and Mobility.

Car parking		
TR-S16	Minimum number of parking bays	
All Zones in Masterton District	1. No minimum requirement.	
All zones in Carterton and South Wairarapa Districts	2. Every activity shall provide sufficient off-street parking for vehicles associated with the activity and vehicles expected to visit or be stored on the site in connection with the activity, in accordance with Table TR-9 below.	Matters of discretion: 1. The safe, resilient, efficient, and effective functioning of the transport network. 2. The parking needs of the activity. 3. The safety and movement of pedestrians, cyclists, public transport, and general traffic.

	3. Where any activity is changed or any building erected or altered, sufficient vehicle parking shall be provided to meet the demands generated by the altered activity or building, in accordance with Table TR-9 below. 4. Vehicle <i>parking bays</i> shall be provided for activities in accordance with Table TR-9. If an activity is not listed, then the standard for the activity listed that is closest in nature to that proposed activity shall be applied. Parking requirements do not apply to temporary activities. 5. On sites where there are multiple activities, and each activity requires vehicle parking in terms of this Plan, the total parking required shall be the combined total requirement for all activities. Notes: 6. Where the calculation of required vehicle <i>parking bays</i> results in a fraction of a whole space, any fraction less than or equal to one half shall be disregarded, and any fraction over one half shall count as one space. 7. The area of required spaces, access drives, or aisles provided within a building shall be excluded from the <i>gross floor area</i> (GFA) of the building.	4. Accessibility of the site by active transport and public transport. 5. Public health and safety. 6. The safety and usability of the <i>parking bays</i>. 7. Site limitations, configuration of buildings, and activities. 8. The complementary nature of parking demands on sites serving multiple activities.						
	Table TR-9 Minimum number of <i>parking bays</i> <table><tr><th>Activity</th><th><i>Parking bays</i> required</th></tr><tr><td>Visitor accommodation (excluding residential visitor accommodation)</td><td>1 per accommodation unit, room or campsite, plus 1 per 2 employees</td></tr><tr><td>Childcare centre</td><td>1 per employee, plus 1 per 10 persons to be accommodated in the centre</td></tr></table>		Activity	<i>Parking bays</i> required	Visitor accommodation (excluding residential visitor accommodation)	1 per accommodation unit, room or campsite, plus 1 per 2 employees	Childcare centre	1 per employee, plus 1 per 10 persons to be accommodated in the centre
Activity	<i>Parking bays</i> required							
Visitor accommodation (excluding residential visitor accommodation)	1 per accommodation unit, room or campsite, plus 1 per 2 employees							
Childcare centre	1 per employee, plus 1 per 10 persons to be accommodated in the centre							

	Commercial activities (including, but not limited to retail, supermarkets, and business services)	1 per 45m ² GFA, plus 1 per 100m ² outdoor display area
	Educational facilities (primary and secondary)	1 per employee
	Educational facilities (tertiary)	1 per employee plus 1 per 10 students
	Emergency service facilities	1 per 100m ² GFA, plus 1 per on duty staff member (excluding volunteers)
	Entertainment facility	1 per 3 persons the facility is designed to accommodate
	Healthcare activities	4 per practitioner
	Hospital	1 per bed the facility is designed to accommodate, plus 1 per 2 staff members on site
	Industrial activities	1 per 50m ² GFA
	Place of assembly	1 per 4 persons the place is designed to accommodate
	Residential activities	1 per residential unit
	<i>Food and beverage activities</i> (excluding bars and taverns)	1 per 4 persons the facility is designed to accommodate
	Bars and taverns	1 per 10m ² GFA
	Supported residential care facilities	1 per 4 beds the facility is designed to accommodate, plus 1 per employee on site
	Sports fields and playing fields	1 for every 3 participants (design capacity)
	Quarrying activities	No minimum
Note 1: GFA means Gross Floor Area and includes office space associated with the primary industrial activity not commercial offices or retail space.		

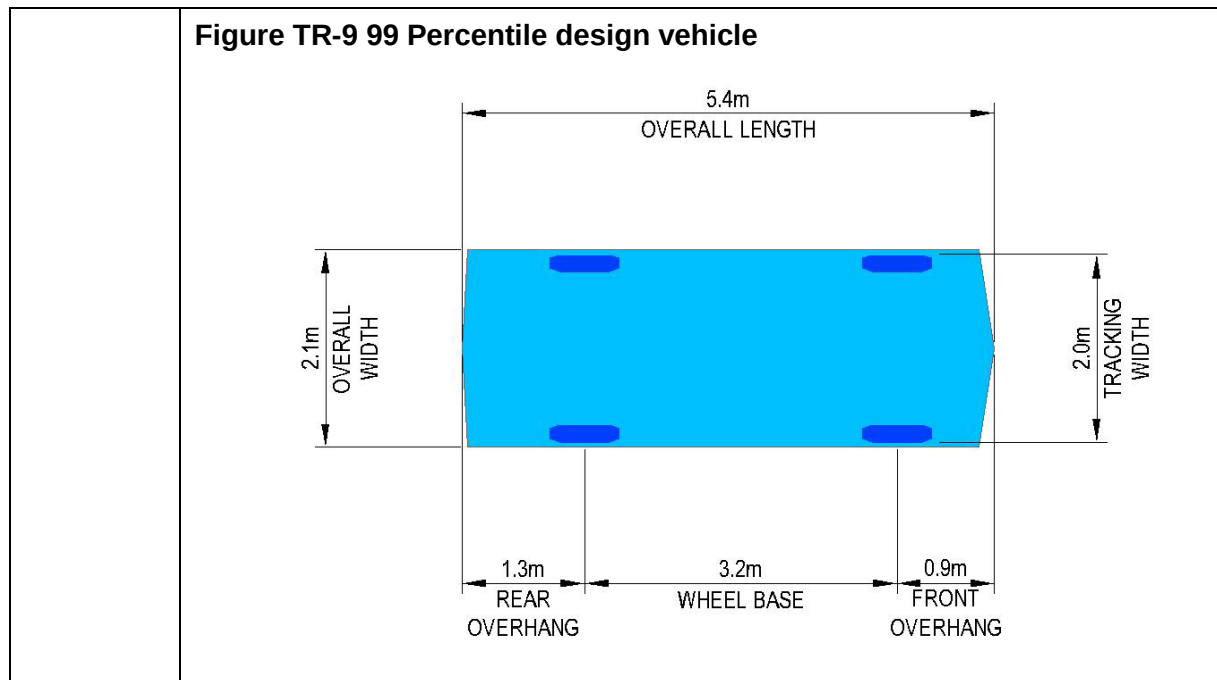
	Note 2: Where an existing building within the Commercial and Mixed Use Zones is being used by a permitted activity the requirements outlined above do not need to be met. For the purposes of the above parking requirements the following definitions apply: Outdoor display area – (parking requirement) an outdoor space provided for the display of retail goods or services for purchase and excludes parking, landscaping, or other similar required areas. Place of assembly – any facility and associated land and buildings for the general assembly of people engaged in deliberation, education, worship, or entertainment and includes, but is not exclusive to indoor recreation facilities, theatre, marae, cinemas, halls, conference facilities, churches, and education facilities.	
TR-S17	Accessible parking	
All Zones	1. Where on-site parking is provided, the minimum number of accessible <i>parking bays</i> shall be provided in accordance with Table TR-10. 2. Where parking is not otherwise provided, all non-residential activities with a combined GFA greater than 2,000m² shall provide accessible <i>parking bays</i>, even if no other <i>parking bays</i> are provided. If no other car <i>parking bays</i> are provided, the amount of accessible <i>parking bays</i> required shall be calculated by determining how many accessible parking bays would be required if one standard <i>parking bay</i> per 100m² GFA were provided. 3. Where parking is not otherwise provided, all residential activities shall provide accessible parking at a rate of two spaces per 25 residential units on a pro-rata basis. Note: Where the calculation of required vehicle parking bays results in a fraction of a whole space, any fraction less than or	Matters of discretion: 1. The parking demands of the activity. 2. The complementary nature of parking demands on sites serving multiple activities. 3. The safety and movement of pedestrians, cyclists, public transport, and general traffic. 4. Accessibility of the site by active transport and public transport. 5. The safety and usability of the <i>parking bays</i>. 6. Site limitations, configuration of buildings, and activities.

	equal to one half shall be disregarded, and any fraction over one half shall count as one space.				
	Table TR-10 Minimum number of accessible <i>parking bays</i>				
	Total number of <i>parking bays</i>		Number of accessible bays		
	<20		1		
	20-50		2		
	For every additional 50 car parks or part thereof		1		
TR-S18	Vehicle <i>parking bay</i> dimensions				
All Zones	All <i>parking bays</i> shall have dimensions that meet the minimum requirements of Table TR-11, except for parking bays associated with quarrying activities, which are not subject to any minimum requirements.		Matters of discretion: 1. Effects on the safety and efficiency of the site and the transport network. 2. Adequacy of manoeuvring space for all vehicles anticipated to use the site. 3. Number of reverse manoeuvres required to enter or depart from a <i>parking bay</i> .		
	Table TR-11 Minimum <i>parking bay</i> dimensions				
	User Type	Parking angle (degrees)	Stall width (m) ⁴	Stall depth (m) ⁵	Aisle width (m)
	All users	Parallel	2.2	5.6 unobstructed 6.5 obstructed	3.0 one-way 6.0 two way
	Long term parking ¹	30	2.5	4.5	2.9
		45	2.5	5.3	3.7
		60	2.5	5.8	4.6
		90	2.5	5.6	5.8

	Medium term parking ²	30	2.6	4.5	2.9
		45	2.6	5.3	3.5
		60	2.6	5.8	4.3
		90	2.6	5.6	5.8
	Short term parking ³	30	2.7	4.5	3.0
		45	2.7	5.3	4.2
		60	2.7	5.8	5.1
		90	2.7	5.6	6.2
	Accessible parking	30	3.6	4.5	3.0
		45	3.6	5.3	4.2
		60	3.6	5.8	4.3
		90	3.6	5.6	6.2
	Notes:				
	1. Tenant, employee, and commuter parking (generally all-day parking).				
	2. Medium-term town centre parking, sports facilities, entertainment centres, hotels, motels.				
	3. Short term town centre parking, shopping centres, supermarkets, hospitals, and medical centres, activities involving drop off or collection of children or goods.				
	4. Stall width shall be increased by 300mm where a <i>parking bay</i> abuts a permanent obstruction such as a wall, column or other permanent obstruction. Where there is such an obstruction on both sides of a <i>parking bay</i> , the minimum stall width shall be increased by 600mm.				
	5. Stall depth may be reduced by the corresponding vehicle overhang length if a low kerb allows overhang, up to 600mm, but this overhang shall not encroach another <i>parking bay</i> , path, or landscaping.				
	6. <i>Parking bays</i> (other than parallel) immediately adjacent to paths or landscaping shall include wheel stop barriers located at least 600mm from the path or landscaping to avoid or mitigate obstruction of paths or damage to landscaping by parked vehicles.				

TR-S19	Blind aisles	
All Zones	1. Blind aisles shall be extended by a minimum of 1m beyond the last <i>parking bay</i> and the last <i>parking bay</i> widened by 300mm if it is bounded by a wall or space. Where practical, the end space should be widened by the same amount as the aisle is lengthened. 2. TR-S19.1 shall not apply to any blind aisles in parking areas associated with quarrying activities.	Matters of discretion: 1. Effects on the safety and efficiency of the site and the transport network. 2. Building constraints such as walls or columns.
TR-S20	Parking bay gradients	
All Zones	1. The maximum gradient within a standard <i>parking bay</i>, including motorcycle parking shall be as follows: a. 1 in 20 measured parallel to the angle of parking; and b. 1 in 16 measured in any other direction. 2. The maximum gradient within any accessible <i>parking bay</i> shall be 1 in 40 in any direction. 3. TR-S20.1 and TR-S20.2 shall not apply to any parking bays associated with quarrying activities.	Matters of discretion: 1. Effects on the safety and efficiency of the site and the transport network. 2. Topographic constraints.
TR-S21	Parking bay construction and formation	
All Zones	1. For sites with fewer than four <i>parking bays</i>, the surface shall be formed to an all-weather standard and drained. 2. For sites with more four or more <i>parking bays</i>, the surface shall be formed, sealed, and drained. 3. <i>Parking bays</i> shall be marked on all sealed <i>parking areas</i>. 4. TR-S21.1 – TR-S21.3 shall not apply to any parking bays associated with quarrying activities.	Matters of discretion: 1. Effects on the safety and efficiency of the site and the transport network. 2. Surface formation. 3. Drainage. 4. Markings. 5. Compatibility with heritage character in Historic Heritage Precincts.

TR-S22	Reverse manoeuvres	
All Zones	1. Sufficient manoeuvring space shall be provided on site to ensure that no vehicle is required to reverse: a. onto or off any State Highway; b. onto or off any transit corridor; c. onto or off any road with a marked cycle lane; d. across any shared use path; or e. across any cycle path. 2. Sufficient manoeuvring space shall be provided on site to ensure that a 99 percentile design vehicle is not required to reverse onto or off any Urban Connector road. 3. Sufficient manoeuvring space shall be provided on site to ensure that a 99 percentile design vehicle is not required to reverse onto or off any urban road where: a. four or more <i>parking bays</i> are serviced via a single accessway; or b. the activity is on a rear site. c. TR-S22.1 – TR-S22.3 shall not apply to any quarrying activities.	Matters of discretion: 1. Effects on the safe, efficient, and effective operation of the transport network, including pedestrian and cycle safety. 2. Compatibility with heritage character in Historic Heritage Precincts.



Cycle parking														
TR-S23	Minimum number of cycle parking spaces													
All Zones	1. The minimum number of cycle parking spaces shall be provided in accordance with Table TR-12.	Matters of discretion: 1. Effects on the safety, effectiveness and efficiency of the transport network, including the cycling network. 2. The availability of cycle parking in the vicinity of the activity. 3. Site limitations.												
Table TR-12 Minimum number of cycle parking spaces <table> <tr> <th>Activity</th><th>Short stay / visitor</th><th>Long stay / staff</th></tr> <tr> <td>Recreation activities, community facilities</td><td>0.1 per person that the site is designed to accommodate</td><td>Minimum 1, 0.1 per staff member*</td></tr> <tr> <td>Quarrying activities</td><td>0</td><td>0</td></tr> <tr> <td>Retail activity</td><td>Minimum 1, 0.1 per 100m² GFA</td><td>Minimum 1, 0.1 per 100m² GFA</td></tr> </table>			Activity	Short stay / visitor	Long stay / staff	Recreation activities, community facilities	0.1 per person that the site is designed to accommodate	Minimum 1, 0.1 per staff member*	Quarrying activities	0	0	Retail activity	Minimum 1, 0.1 per 100m ² GFA	Minimum 1, 0.1 per 100m ² GFA
Activity	Short stay / visitor	Long stay / staff												
Recreation activities, community facilities	0.1 per person that the site is designed to accommodate	Minimum 1, 0.1 per staff member*												
Quarrying activities	0	0												
Retail activity	Minimum 1, 0.1 per 100m ² GFA	Minimum 1, 0.1 per 100m ² GFA												

	Healthcare facility	Minimum 1, 1 per 100m ² GFA	Minimum 1, 0.1 per staff member*
	Educational facility	Minimum 1	Minimum 1, 0.1 per staff member*
	Industrial activity	0	Minimum 1, 0.1 per staff member*
	Other commercial activities (including, but not limited to, offices)	Minimum 1, 0.05 per 100m ² GFA	Minimum 1, 0.1 per 100m ² GFA
* The number of staff members is the maximum number of full-time or part-time staff members on the site at any one time. Note 1: Short stay / visitor cycle parking requirements do not apply in the Town Centre Zone. Note 2: Where an existing building within the Town Centre or Neighbourhood Centre Zones is being used by a permitted activity the requirements outlined above do not need to be met.			

TR-S24	Cycle parking design	
All Zones	1. All cycle stands shall: a. be securely anchored to an immovable object; b. support the bicycle frame and front wheel; and c. allow the bicycle frame to be secured. 2. Cycle parking facilities shall be available during the hours of operation and shall not be diminished by the subsequent erection of any structure, storage of goods, landscape planting, or any other use. 3. Cycle parking facilities shall: a. be easily accessible for users;	Matters of discretion: 1. Effects on the safety, effectiveness, and efficiency of the transport network, including the cycling network. 2. Site limitations including building configurations. 3. User requirements in relation to security or duration of parking. 4. Compatibility with heritage character in Historic Heritage Precincts.

	b. not impede pedestrian thoroughfares including areas used by people whose mobility or vision is restricted; and c. be clear of vehicle parking or manoeuvring areas. d. TR-S24.1 – TR-S24.3 shall not apply to any cycle parking provided in association with any quarrying activities.									
TR-S25	Trip-end facilities									
All Zones	1. All activities shall provide trip end facilities for active modes in accordance with Table TR-13, except for quarrying activities where no minimum trip end facilities shall be required.	Matters of discretion: 1. Effects on the safety, effectiveness, and efficiency of the transport network, including the cycling network. 2. Site limitations including building configurations. 3. User requirements in relation to security or duration of parking.								
TR-13 Minimum end trip facilities										
<table><tr><th>Number of staff</th><th>Trip end facilities</th></tr><tr><td><25</td><td>None</td></tr><tr><td>25-50</td><td>1 shower 1 locker per 10 staff</td></tr><tr><td>>50</td><td>1 shower per 50 staff or part thereof 1 locker per 10 staff</td></tr></table>			Number of staff	Trip end facilities	<25	None	25-50	1 shower 1 locker per 10 staff	>50	1 shower per 50 staff or part thereof 1 locker per 10 staff
Number of staff	Trip end facilities									
<25	None									
25-50	1 shower 1 locker per 10 staff									
>50	1 shower per 50 staff or part thereof 1 locker per 10 staff									

Loading				
TR-S26	Loading and standing space dimensions			
All non-residential activity	1. One loading space per site shall be provided with dimensions suitable for the largest vehicle anticipated on the site and in accordance with Table TR-14. 2. Where more than one large vehicle is anticipated on a site, then standing space or additional loading spaces for each additional vehicle shall be provided. 3. TR-S26.1 and TR-S26.2 shall not apply to any quarrying activities.		Matters of discretion: 1. Effects on the safety and efficiency of the site and the transport network. 2. Site limitations including building configurations. 3. Loading and servicing demands.	
Residential Activity	4. One loading space for a Small Rigid Vehicle shall be provided for any residential site with more than 10 residential units.			
	TR-14 Loading space dimensions			
	Vehicle Type	Width (m)	Length (m)	Height clearance (m)
	B99	3.0	6.0	3.5
	SRV	3.5	6.4	3.5
	MRV	3.5	8.8	4.5
	HRV	3.5	12.5	4.5
	AV	3.5	20.0	4.5
	Notes: 1. B99 design vehicle dimensions are based on NZS2890.1:2009. 2. SRV, MRV, HRV, and AV dimensions are based on NZS2890.2: 2018.			
TR-S27	Loading and standing space access			
All Zones	1. Circulation accessways to loading spaces shall be designed to accommodate the swept path of the		Matters of discretion: 1. Effects on the safety and efficiency of the site and the transport network.	

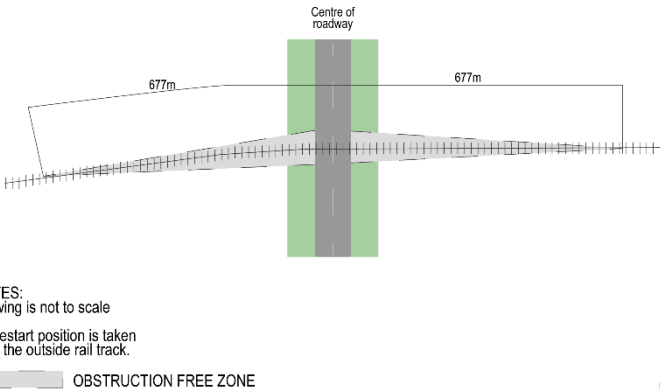
	largest vehicle anticipated on site and provide clearances of: 0.5m between the vehicle body and vertical obstructions; and 1m separation between vehicle bodies on two-way accessways. 2. Any required standing space shall not obstruct any space used for on-site queuing, loading, parking, or manoeuvring space. 3. Accessway gradients shall be in accordance with Table TR-15. 4. TR-S27.1 - TR-S27.3 shall not apply to any quarrying activities.	2. Site limitations including building configurations.																		
	Table TR-15 Loading space accessway gradients <table> <tr> <th>Vehicle Type</th><th>Maximum Gradient</th><th>Maximum rate of change of gradient</th></tr> <tr> <td>B99</td><td>1:6.5 (15.4%)</td><td>1:12 (8.3%) in 4m of travel</td></tr> <tr> <td>SRV</td><td>1:6.5 (15.4%)</td><td>1:16 (6.25%) in 7m of travel</td></tr> <tr> <td>MRV</td><td>1:6.5 (15.4%)</td><td>1:16 (8.3%) in 7m of travel</td></tr> <tr> <td>HRV</td><td>1:6.5 (15.4%)</td><td>1:16 (8.3%) in 10m of travel</td></tr> <tr> <td>AV</td><td>1:6.5 (15.4%)</td><td>1:16 (8.3%) in 10m of travel</td></tr> </table> Notes: SRV, MRV, HRV, and AV dimensions are based on NZS2890.2: 2018.		Vehicle Type	Maximum Gradient	Maximum rate of change of gradient	B99	1:6.5 (15.4%)	1:12 (8.3%) in 4m of travel	SRV	1:6.5 (15.4%)	1:16 (6.25%) in 7m of travel	MRV	1:6.5 (15.4%)	1:16 (8.3%) in 7m of travel	HRV	1:6.5 (15.4%)	1:16 (8.3%) in 10m of travel	AV	1:6.5 (15.4%)	1:16 (8.3%) in 10m of travel
Vehicle Type	Maximum Gradient	Maximum rate of change of gradient																		
B99	1:6.5 (15.4%)	1:12 (8.3%) in 4m of travel																		
SRV	1:6.5 (15.4%)	1:16 (6.25%) in 7m of travel																		
MRV	1:6.5 (15.4%)	1:16 (8.3%) in 7m of travel																		
HRV	1:6.5 (15.4%)	1:16 (8.3%) in 10m of travel																		
AV	1:6.5 (15.4%)	1:16 (8.3%) in 10m of travel																		
TR-S28	Loading and standing spaces - construction and formation																			
Rural zones, Māori Purpose Zone, and Future Urban Zone	- For sites with four or fewer loading and standing areas, the loading and standing areas shall be formed to an all-weather standard, drained, and have a maximum gradient of 1:20 (5%). - For sites with more than four loading and standing areas, the loading and standing areas shall be sealed,	Matters of discretion: - Effects on the safety and efficiency of the site and the transport network. - Surfacing. - Drainage. - Gradient. - Signs and markings.																		

	drained, and have a maximum gradient of 1:20 (5%). 3. TR-S28.1 and TR-S28.2 shall not apply to any quarrying activities. Notes: Loose, large grade metal does not constitute an all weather standard.	
All other zones	4. Loading and standing areas shall be sealed, drained and have a maximum gradient of 1:20 (5%). 5. Loading areas shall be signed and marked.	Matters of discretion: 1. Effects on the safety and efficiency of the site and the transport network. 2. Surfacing. 3. Drainage. 4. Gradient. 5. Signs and markings.

High traffic generating thresholds				
TR-S29	High traffic generating thresholds			
All Zones	Table TR-16 HTGP Thresholds			
	Type of Zone	Average Daily Traffic Generation Threshold	Peak Hourly Traffic Generation Threshold	Heavy Vehicle Movement Threshold
	General Residential Zone, Settlement Zone, Open Space and Recreation Zones	200 vpd	25 vph	10 hvpd
	All other zones	400 vpd	50 vph	50 hvpd
	The following table provides guidance on expected traffic generation for different activities to help determine whether an <u>Integrated Transport Assessment (ITA)</u> is likely to be required.			

	Table TR-17 Average Daily Traffic Generation Screening Table		
	Activity	200 vpd	400 vpd
	Residential Development	25 residential units	50 residential units
	Retirement Living	80 units	160 units
	Preschool	50 children	100 children
	Schools (excluding preschools)	Full ITA	
	Healthcare (excluding hospitals)	Basic ITA	
	Hospitals	Full ITA	
	Office	750m ² GFA	1,500m ² GFA
	Industrial (excluding transport depot)	2,500m ² GFA	5,000m ² GFA
	Transport Depot	Full ITA	
	Trade Supplier	750m ² GFA	750m ² GFA
	General Retail	200m ² GFA	400m ² GFA
	Large Format Retail	500m ² GFA	1,000m ² GFA
	Supermarket	Basic ITA	
	Café/Bar	50m ² GFA	100m ² GFA
	Service Station	Basic ITA	

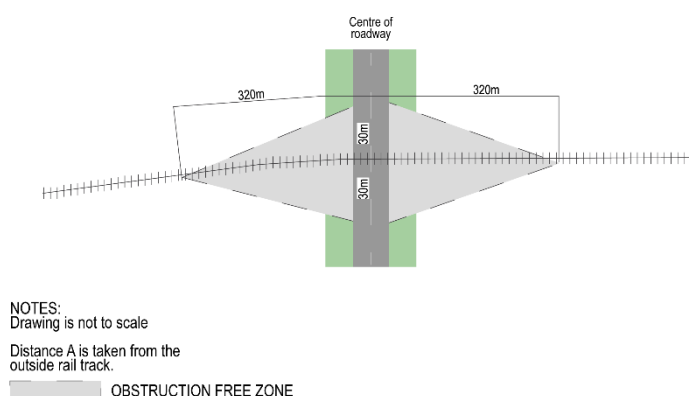
	Table TR-18: ITA Type Requirement	
	Highest activity status of application	Type of ITA Required
	Permitted	Basic
	Controlled	Basic
	Restricted discretionary	Full
	Discretionary	Full
	Non-complying	Full

TR-S30	Sight lines at railway level crossings										
All Zones	Restart sight triangles at level crossings On sites adjacent to all rail level crossings, no building, structure, planting or visual obstruction shall be located within the shaded areas shown in Figure 1. These are defined by a sight triangle taken 5 metres from the outside rail and distance A along the railway track. Distance A depends on the type of control (Table 1). Figure 1: Restart sight triangles for all level crossings  Table 1: Required restart sight distances for Figure 1 <table border="1"> <thead> <tr> <th colspan="3">Required approach visibility along tracks A (m)</th></tr> <tr> <th>Signs only</th><th>Alarms only</th><th>Alarms and barriers</th></tr> </thead> <tbody> <tr> <td>677m</td><td>677m</td><td>60m</td></tr> </tbody> </table> Advice Note: The restart sight line triangles ensure that a road vehicle driver stopped at a level crossing can see far enough along the railway to be able to start off, cross and clear the level crossing safely before the arrival of any previously unseen train. Of particular concern are developments that include shelter belts, tree planting, or a series of building extensions. These	Required approach visibility along tracks A (m)			Signs only	Alarms only	Alarms and barriers	677m	677m	60m	
Required approach visibility along tracks A (m)											
Signs only	Alarms only	Alarms and barriers									
677m	677m	60m									

conditions apply irrespective of whether any visual obstructions already exist.

Approach sight triangles at level crossings with Give Way signs: On sites adjacent to rail level crossings controlled by Give Way Signs, no building, structure, planting or other visual obstruction shall be located within the shaded areas shown in Figure 2.

Figure 2: Approach sight triangles for level crossings with "Give Way" signs



Advice Note: The approach sight triangles ensure that clear visibility is achieved around rail level crossings with Give Way signs so that a driver approaching a rail level can either:

- See a train and stop before the crossing; or
- Continue at the approach speed and cross the level crossing safely.

Of particular concern are developments that include shelter belts, tree planting, or a series of building extensions. These conditions apply irrespective of whether any visual obstructions already exist.

No approach sight triangles apply for level crossings fitted with alarms and/or barrier arms. However, care should be taken to avoid developments that have the potential to obscure visibility of these alarm masts.

This is particularly important where there is a curve in the road on the approach to the level crossing, or where the property boundary is close to the edge of the road surface and there is the potential for vegetation growth.

TR-APP1 Integrated Transport Assessment Requirements				
	Description	Details Required	Basic ITA	Full ITA
1	Background	Description of proposal, purpose of ITA	√	√
2	Existing environment	Description of: site location site context surrounding land use	√	√
3	Existing transport infrastructure	Description of: site access and service arrangements surrounding road network/road hierarchy public transport network and facilities cycle network and facilities pedestrian network and facilities	√	√
4	Existing travel patterns	Description of: traffic volumes (annual, seasonal, daily, hourly as appropriate) intersection performance (turning volumes, queue lengths, delays, level of service) crash analysis (Minimum of five years)	√	√
5	Committed environment changes	Approved developments in the surrounding area Transport infrastructure improvement	√	√

TR-APP1 Integrated Transport Assessment Requirements				
	Description	Details Required	Basic ITA	Full ITA
6	Proposal Details	Description of: proposed activity site layout (access, circulation and parking) any proposed transport infrastructure staging (if applicable) servicing/loading arrangements end of trip facilities for active modes	√	√
7	Travel Demand Management	Travel Demand Management measures for any interventions and actions to influence travel behaviour, with the aim of minimising travel demand or redistributing demand from traditional car usage to more sustainable transport modes	√	√
8	Travel choice assessment	a. demonstrates how the use of public transport and active modes will be maximised; and b. demonstrates how the use of private vehicles will be minimised;	√	√
9	Expected Travel Demands	Assessment of: traffic generation (daily, peak hours) heavy vehicle movements traffic distribution on the transport network Mode split	√	√
10	Transportation Effects	Assessment of effects on: safety for all travel modes traffic volumes effects on frontage road wider transport network (Full ITA1)	√	√

TR-APP1 Integrated Transport Assessment Requirements				
	Description	Details Required	Basic ITA	Full ITA
11	Mitigation Measures	Description of any proposed mitigation measures	√	√
12	District Plan	Assessment of compliance with District Plan Transport Rules	√	√
13	Strategic Framework	Assessment against relevant local, regional and national transport plans and strategies		√
14	Conclusions and recommendations	Summary of assessment with conclusions Recommended conditions of consent, if any	√	√

Notes:

It is recommended that the extent of any wide area assessment and the assessment methodology is agreed with Council in advance of lodging a resource consent application.

The level of detail in the basic or full ITA should be commensurate with the scale and significance of the proposal.

TR-APP2 Aerodrome Obstacle Limitation Surface Specifications

An Obstacle Limitation Surface (OLS) is an internationally accepted area to protect aircraft operations in and around an aerodrome. The obstacle limitation surfaces of an aerodrome are defined surfaces in the airspace above and adjacent to the aerodrome. The surfaces are primarily intended to protect the critical areas for the arrival and departure of aircraft using a runway.

The Civil Aviation Authority of New Zealand (CAANZ) Part 139 Advisory Circulars provide guidance on what OLS areas should include.

The areas originate from the ends and edges of the runway strip area which is a protection area around the runway.

CAANZ Advisory Circulars (ACs) provide acceptable means of compliance and guidance material for aerodrome operators on OLS in two documents:

- Advisory Circular AC139-6 Aerodrome Design Requirements: All Aeroplanes Conducting Air Transport Operations and All Aeroplanes above 5700 kg MCTOW
- Advisory Circular AC139-7 - Aerodrome Standards and Requirements: Aeroplanes at or below 5700 kg MCTOW–Non Air Transport Operations

Hood aerodrome has three runways with the main paved runway 60/24 designed to AC139-6 and grass runways 06/24 and 10/28 designed to AC139-7.

The following tables provide the OLS specifications for Hood Aerodrome. Reference should also be made to the Planning Maps.

Runway 06/24 – Paved

Runway 06/24	Paved Runway Configuration (1250 x 30m)	
Design Guidelines	CAA Advisory Circular AC139-6 Aerodrome Design Requirements: All Aeroplanes Conducting Air Transport Operations and All Aeroplanes above 5700 kg MCTOW	
Design Basis	1. Dimensions and slopes based on Tables 4-1 (Approach Runway) and Table 4-2 (Takeoff Runway) for a Code 3 Non-precision approach runway. 2. The runway strip is 75 metres each side of the centre line. 3. Only one surface is shown on the plan which combines the most demanding geometrical constraints of the approach and take-off fans.	
Geometry Take-off & Landing Fans	Length of inner edge:	150m (approach/ take-off)

	Distance from runway end/threshold:	60 m (approach/ take-off)
	Divergence:	1:6.6 (approach)
	Final Width:	4,695 m (approach)
	Length:	15,000 m (approach/ take-off)
	Slope:	1:50 (take-off)
	1. The origin of the take-off and landing fans are coincident as specified in the advisory circular, at the end of the runway strip.	

Runway 10/28 – Grass

Runway 10/28	Grass Runway Configuration (1042 x 30m) Published in the Aeronautical Information Publication (AIP) for Masterton (NZMS)	
Design Guidelines	CAA Advisory Circular AC139-7 - Aerodrome Standards and Requirements: Aeroplanes at or below 5700 kg MCTOW–Non Air Transport Operations	
Design Basis	1. Day VFR Runway 2. The runway strip is 55 metres overall. 3. Only one surface is shown on the plan, which combines the most demanding geometrical constraints of the two areas.	
Dimensions and slopes	Length of inner edge:	30m
	Distance from runway end/threshold:	30m
	Divergence:	1:20
	Final Width:	175m
	Length:	1,200m
	Slope:	1:20

Runway 6/24 - Grass

Runway 06/24	Grass Runway Configuration (1060 x 30m) Published in the Aeronautical Information Publication (AIP) for Masterton (NZMS)	
Design Guidelines	CAA Advisory Circular AC139-7 - Aerodrome Standards and Requirements: Aeroplanes at or below 5700 kg MCTOW–Non Air Transport Operations	
Design Basis	1. Day VFR Runway 2. The runway strip is 55 meters overall. 3. Only one surface is shown on the plan, which combines the most demanding geometrical constraints of the two areas.	
Geometry	Length of inner edge:	30m
	Distance from runway end/threshold:	30m
	Divergence:	1:20
	Final Width:	175m
	Length:	1200m
	Slope:	1:20



WAIRARAPA
COMBINED
DISTRICT PLAN
REVIEW

*Te Mahere
Rautaki
a-rohe o
Wairarapa*

Submission Form 5

Submission on the Proposed District Plan

Thank you for taking the time to make a submission on the Proposed District Plan. If you prefer to submit your feedback online, you can do so via the website - www.wairarapaplan.co.nz/feedback

ABOUT PREPARING A SUBMISSION ON THE PROPOSED DISTRICT PLAN

YOU MUST USE THE PRESCRIBED FORM

- Clause 6, Schedule 1 of the Resource Management Act 1991 (RMA) requires submissions to be on the prescribed form.
- The prescribed form is set out in Form 5, Schedule 1 of the Resource Management (Forms, Fees, and Procedure) Regulations 2003.
- This template is based on Form 5. While you do not have to use this template, your submission must be in accordance with Form 5.
- If you want to submit on a designation, use Form 21.

YOUR SUBMISSION AND CONTACT DETAILS WILL BE MADE PUBLICLY AVAILABLE

- In accordance with clause 7 of Schedule 1 of the RMA, the Council will make a summary of your submission publicly available. The contact details you provide will also be made publicly available, because under clause 8A of Schedule 1 of the RMA any further submission supporting or opposing your submission must be forwarded to you by the submitter (as well as being sent to Council).
- Section 352 of the RMA allows you to choose your email to be your address for service. If you select this option, you can also request your postal address be withheld from being publicly available. To choose this option please tick the relevant boxes below.

REASONS WHY A SUBMISSION MAY BE STRUCK OUT

Please note that your submission (*or part of your submission*) may be struck out if the Council is satisfied that at least one of the following applies to the submission (*or part of your submission*):

- it is frivolous or vexatious
- it discloses no reasonable or relevant case
- it would be an abuse of the hearing process to allow the submission (or the part) to be taken further
- it contains offensive language
- it is supported only by material that purports to be independent expert evidence, but has been prepared by a person who is not independent or who does not have sufficient specialised knowledge or skill to give expert advice on the matter.

Submitter details

Full name of Submitter: KiwiRail Holdings Limited

Contact person (*if applicable*): Sheena McGuire

Postal Address (*or alternative method of service under section 352 of the RMA*):

PO Box 593

Email: environment@kiwirail.co.nz Phone: 0272277780

Please tick your preferred method of contact
(*Please select only one*):

☒ EMAIL ☐ POSTAL

I have selected email as my preferred method of contact,
and I would also like my postal address withheld from
being publicly available (*tick box if applicable*) ☐



Submission Form 5

Scope of submission

The specific provisions of the Proposed District Plan that my submission relates to are: *[give details]*

See attached

Continue on a separate sheet if necessary

Submission

My submission is: *[include whether you support or oppose the specific provisions or wish to have them amended; and reasons for your views]*

See attached

Continue on a separate sheet if necessary

I seek the following decision from the District Councils: *[give precise details]*

See attached

Continue on a separate sheet if necessary

Hearing Submissions: *[select appropriate box]*

I wish to be heard in support of my submission.

X

I do not wish to be heard in support of my submission.

If others make a similar submission, I will consider presenting a joint case with them at a hearing.

X

If others make a similar submission, I will not consider presenting a joint case with them at a hearing.

Signature of Submitter: SMcGuire

Date: 14/12/2023

(or person authorised to sign on behalf of submitter)

A signature is not required if you make your submission by electronic means.



Trade Competition (select the appropriate wording)

If you are a person who could gain an advantage in trade competition through the submission, your right to make a submission may be limited by **clause 6(4)** of Schedule 1 of the Resource Management Act 1991.

I could ☐ / could not ☒ gain an advantage in trade competition through this submission.

If you **could** gain an advantage in trade competition through this submission, please complete the following:

I am ☐ / I am not ☐ directly affected by an effect of the subject matter of the submission that

(a) adversely affects the environment; and

(b) does not relate to trade competition or the effects of trade competition.

Submit

Please return this form and any attachments via email submissions@wairarapaplan.co.nz, delivery or post to:

Attn: **Planning Team**
Masterton District Council
PO Box 444, Masterton 5840

Attn: **Planning Team**
Masterton District Council
161 Queen St, Masterton 5810

VISIT
WAIARAPAPLAN.CO.NZ
TO STAY INFORMED ON DEVELOPMENTS

Note: Masterton District Council is receiving all submissions on the Proposed District Plan on behalf of the Masterton, Carterton and South Wairarapa District Councils

For office use only

Submission number:	Date received:

14 December 2023

Wairarapa District Councils

By email to: feedback@wairarapaplan.co.nz

SUBMISSION ON PROPOSED WAIRARAPA COMBINED DISTRICT PLAN

NAME OF SUBMITTER: KiwiRail Holdings Limited (KiwiRail)

ADDRESS FOR SERVICE: Level 1
Wellington Railway Station
Bunny Street
PO Box 593
WELLINGTON 6140

Attention: Sheena McGuire

Ph: 027 227 7780

Email: environment@kiwirail.co.nz

KiwiRail submission on Proposed Wairarapa Combined District Plan

KiwiRail Holdings Limited (KiwiRail) is the State-Owned Enterprise responsible for the construction, maintenance, and operation of the national railway network. This includes managing railway infrastructure and land, as well as rail freight and passenger services within New Zealand. KiwiRail is also the Requiring Authority for land designated for 'Railway Purposes' (or similar) in District Plans throughout New Zealand.

KiwiRail's national railway network (which comprises of 3,700km of track, over 200 locomotives, 18,100 hectares of land and 1,350 modern and heritage buildings)¹ is a nationally and regionally significant infrastructure asset. The rail network is critical to the safe and efficient movement of freight and passengers throughout New Zealand, and forms an essential part of the national transportation network and the wider supply chain. New Zealanders have invested significantly in the rail network and it is a critical public asset.

The benefits of rail to the New Zealand economy were estimated in 2019 to be in the order of \$1.7 – 2.1 billion.² The economic significance of rail and the critical role it plays in reducing New Zealand's carbon emissions has been recognised by the Government through its continued investment in rail infrastructure. Transport modal shifts to more climate-friendly modes of transport, like rail, are critical to reduce carbon emissions. As a result, rail is experiencing a renaissance as evidenced by the significant investment being made by the Government to reinvigorate the railway network, demonstrating a strong and continued confidence in rail's current and future potential.

¹ Half Year Annual Report 2022 and Unaudited Financial Statements for the Six Months Ended 31 December 2021 (KiwiRail, 2022) at page 5.

² The value of Rail in New Zealand – Report for the Ministry of Transport (EY, Wellington, 2021) at page 8.



In the most recent budget, the Government allocated \$369.2 million to restore a resilient and reliable national rail service.³ This funding will enable KiwiRail to continue networks services and continue network services for all rail users and provide the platform for projected growth on rail.

The Wairarapa Line is a designated rail corridor that extends through the South Wairarapa, Carterton and Masterton districts and is a key part of the KiwiRail network nationally. There has been substantial government investment in the Wairarapa Line as part of the Wellington Metro Upgrade Programme with a focus on network safety and capacity improvements. The Wairarapa Line carries significant and growing forestry traffic between Waingawa near Masterton and the Wellington Port. The Wairarapa Line also connects people living in the Wairarapa to Wellington, carrying an average of 1,252 passengers during daily morning peak patronage (June 2019). This is projected to significantly increase following the planned Wairarapa Line fleet renewal and service increase, and additional network capacity improvements. With the projected population growth in the Wairarapa, an increased demand on passenger rail is anticipated and KiwiRail seeks to protect its ability to develop, operate, maintain and upgrade the Wairarapa Line into the future.

To achieve this, KiwiRail encourages land uses near the railway corridor that do not compromise the short or long-term ability to operate a safe and efficient rail network, both day and night. Where sensitive activities are proposed on land near the railway corridors, appropriate controls should be imposed to ensure the long-term amenity of sensitive uses. Associated with that is the risk of objections and complaints leading to restraints on the operation, maintenance and enhancement of the rail corridor. Safety is a key concern for KiwiRail so ensuring sightlines and level crossings are protected is also critical.

KiwiRail's submission on the Proposed Wairarapa Combined District Plan (Proposed Plan) is set out in the attached table. The comments largely follow the structure of the Plan but there are some areas where comments are grouped into topic or issue areas. In terms of relief sought, insertions are marked in **bold** and underlined, while any recommended deletions of text are shown in *italics* and ~~struck-out~~. All requested changes include any consequential changes to the Plan to link and/or accommodate the requested change in the stated, or alternate location.

KiwiRail is available to meet with the Council to discuss any elements of the comments provided within this table, to provide any clarification that may assist in decisions on the changes requested.

KiwiRail wish to be heard in relation to the submissions and if other parties make similar submissions, KiwiRail would consider presenting a joint case with those parties at the hearing.

Regards,



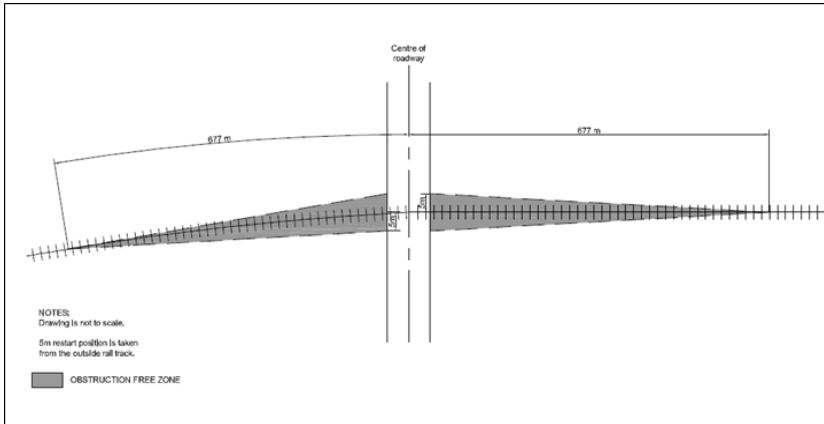
Sheena McGuire
Senior RMA Advisor
KiwiRail Holdings Limited

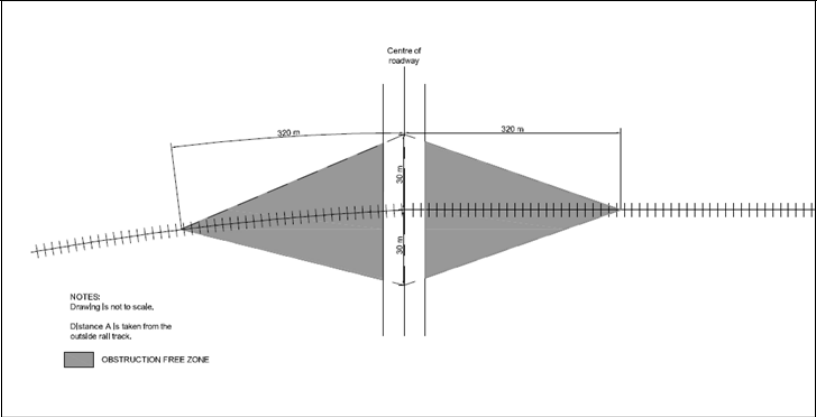
Submission Number	Section of Plan	Specific Provision	Support/Oppose/ Seek Amendment	Reasons for Submission	Relief Sought (as stated or similar to achieve the requested relief)
Part 1: Introduction and general provisions					
1.	Definitions	Functional need	Support	KiwiRail supports definition as proposed.	Retain as proposed
2.		Infrastructure	Seek amendment	This definition, which as the same meaning as the RMA definition, is supported by KiwiRail, noting rail structures are included. I note the numbering is not consistent with the RMA definition and requires correction.	Correct numbering to align with RMA definition.
3.		Network utility	Support	KiwiRail supports reference to Network Utility Operator which includes KiwiRail.	Retain as proposed
4.		Network utility operator	Support	KiwiRail supports the use of the RMA meaning of Network Utility Operator, which includes a person who constructs and operates a railway line.	Retain as proposed
5.		Noise sensitive activity	Seek amendment	KiwiRail seeks amendment to this definition to ensure it captures all activities, night and day, which are sensitive to noise. Disturbance from rail operations can occur at any time and KiwiRail seeks to ensure new and altered nearby noise sensitive activities are adequately protected. KiwiRail also seeks amendment to list activities as opposed to facilities for consistency and clarity.	Amend as follows: Means any lawfully established : a. Any habitable room in a residential activity unit (including visitor accommodation, boarding houses, papakāinga and retirement accommodation); b. Any educational activity (teaching areas and sleeping rooms only); c. Any healthcare activity, including hospitals facility (rooms used for overnight patient medical care only); d. Any congregations within any places of worship; and e. activity at a marae.
6.		Operational need	Support	KiwiRail supports definition as proposed.	Retain as proposed
7.		<u>Rail Corridor Noise Control Overlay</u>	New definition	KiwiRail seeks the inclusion of a definition of Rail Corridor Noise Control Overlay. This submission point aligns with other KiwiRail submission points on the Noise Chapter and Planning Maps seeking the inclusion of a new policy, rule, standard and mapped overlay for noise controls within proximity to the rail corridor.	Add new definition as follows: <u>Rail Corridor Noise Control Overlay means the area potentially affected by noise between a railway corridor boundary and a distance of 100m. Rail Corridor Noise Control Overlay shown on the planning maps identifies areas that have the potential to experience high noise levels from rail traffic. New buildings and alterations to habitable rooms in buildings used for sensitive land uses are required to demonstrate that adverse noise effects have been appropriately managed by demonstrating compliance with the standards specified in Appendix A.</u>
8.		<u>Rail Vibration Alert Area Overlay</u>	New definition	KiwiRail seeks the inclusion of a new definition of Rail Vibration Alert Area Overlay for clarity. This submission point aligns with other KiwiRail submission points on the Noise Chapter and Planning Maps seeking the inclusion of new introductory text and a mapped overlay.	Add new definition as follows: <u>Rail Vibration Alert Area Overlay means the area potentially affected by vibration between a railway corridor boundary and a distance of 60m.</u>
9.		<u>Reverse sensitivity</u>	New definition	KiwiRail seeks that the term 'Reverse sensitivity' is defined in the Plan for clear interpretation. The term is shown in italics in the Plan as if it should be defined and there was a definition provided in the Draft Plan. KiwiRail seeks that a definition is included as provided.	Add new definition as follows: <u>Reverse sensitivity means the potential for the development, upgrading, operation and maintenance of an existing lawfully established activity to be compromised, constrained or curtailed by the more recent establishment or alteration of another activity which may be sensitive to the actual, potential or perceived environmental effects generated by an existing activity.</u>
10.		Sensitive activities	Support	KiwiRail supports definition as proposed.	Retain as proposed
11.		Transport network	Support	KiwiRail supports the inclusion of a definition for 'Transport network' that includes the rail network.	Retain as proposed
12.		Upgrade	Support	The specific ability to improve or increase the safety or efficiency of existing infrastructure as defined as upgrading, is supported.	Retain as proposed

Submission Number	Section of Plan	Specific Provision	Support/Oppose/ Seek Amendment	Reasons for Submission	Relief Sought (as stated or similar to achieve the requested relief)
13.					
Part 2 – District-wide matters					
Strategic Direction					
INF – Infrastructure					
14.	Objectives	INF-O1	Support	KiwiRail supports this strategic objective which recognises the benefits of infrastructure and need to protect infrastructure from incompatible land use, subdivision and development.	Retain as proposed
Energy, Infrastructure and Transport					
NU – Network Utilities					
15.	Introduction		Oppose in part	KiwiRail opposes paragraph two of the introduction which states ‘Transport related network utilities including the road and rail network are not addressed in this chapter. They are covered by the Transport Chapter.’ Rail infrastructure is not only an important part of the transport network, but it is also a network utility – as is confirmed by the Plan definitions for ‘Network utility’ and ‘Network utility operator’. Typically, network utility and transport chapters within district plans <i>both</i> apply to the rail network. Rail infrastructure is well defined as a network utility and the provisions are suited to rail activities. The rail corridor is also well defined as part of the transport network and some of the transport provisions are specific to the rail corridor such as controls for development within proximity to level crossings. KiwiRail considers it is not appropriate to exclude rail infrastructure from the Network Utility Chapter, as it would mean that important objectives and policies regarding the benefits of the rail network and the importance of protecting the rail network from reverse sensitivity would not apply to rail. This would also create confusion in plan interpretation and implementation as it would be a different approach to district plans throughout New Zealand. KiwiRail asserts that the rail network is a network utility and seek amendment to the introduction section to clarify this. KiwiRail has reviewed the network utility provisions below as applicable to the rail network.	Amend as follows: The Wairarapa relies on network utilities, including energy transmission and distribution, radio-communications, telecommunications, meteorological facilities, and water and wastewater reticulation. A network utility operator, as defined by the Act, or other operators may provide these utilities. Transport related network utilities including the road and rail network are not also addressed in this chapter. They are covered by the Transport Chapter. Network utilities are critical for the ongoing functioning of the Wairarapa. They contribute significantly to the community’s health and safety, as well as to its economic, environmental, and social wellbeing. The benefits of network utilities to the efficient functioning of modern society are therefore substantial. ...
16.	Objectives	NU-O1	Support	KiwiRail supports NU-O1 as it is important to recognise the benefits of network utilities, such as rail infrastructure, and provide for such infrastructure.	Retain as proposed
17.		NU-O2	Support	KiwiRail supports this objective that recognises functional and operational need of network utilities and the local, regional and national significance of network utilities, as well as the need to manage their adverse effects.	Retain as proposed
18.		NU-O3	Support	KiwiRail supports NU-O3. The rail network can be vulnerable to adverse effects, including reverse sensitivity effects, when incompatible subdivision, land use and development is located adjacent to an established rail line.	Retain as proposed
19.	Policies	NU-P1	Support	KiwiRail supports policy that recognises the benefits of network utilities and enables the operation, maintenance, repair, minor upgrading, remove and upgrading of network utilities. KiwiRail further supports providing for the functions and responsibilities of network utilities as lifeline utilities which applies to rail.	Retain as proposed
20.		NU-P3	Support	KiwiRail supports NU-P3. It is important to recognise benefits of new technologies for network utilities.	Retain as proposed

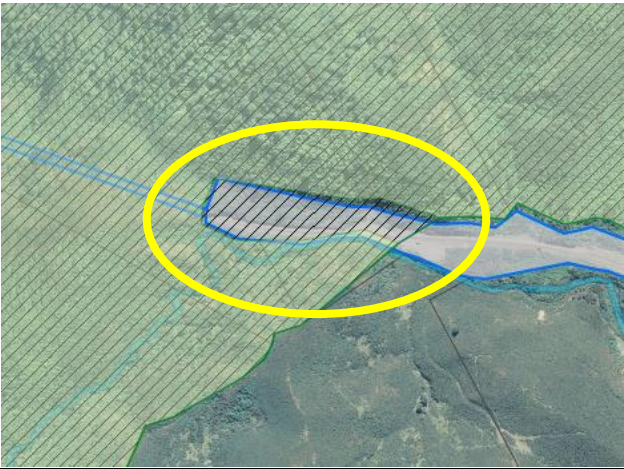
Submission Number	Section of Plan	Specific Provision	Support/Oppose/ Seek Amendment	Reasons for Submission	Relief Sought (as stated or similar to achieve the requested relief)
21.		NU-P4	Support	KiwiRail supports policy for the management of adverse effects of network utilities.	Retain as proposed
22.		NU-P5	Support	The rail network is linear and not easily relocated, and the impact of rail activities cannot always be avoided or internalised. KiwiRail supports recognition of this in policy as well as the necessity and needs of network utilities.	Retain as proposed
23.		NU-P7	New policy	KiwiRail seeks inclusion of a new policy for the protection of network utilities from the adverse effects of land use, subdivision, development and urban growth. The amendment sought is necessary to achieve NU-O3.	Add new policy as follows: <u>Managing adverse effects including reverse sensitivity on network utilities</u> <u>Manage the establishment or alteration of activities near existing lawfully established network utilities, including by:</u> <u>a. managing new activities through setbacks and design controls where it is necessary to achieve appropriate protection of a network utility;</u> <u>b. managing new activities that are sensitive to noise adjoining network utilities including state highways and the railway corridor; and</u> <u>c. managing land disturbance, subdivision, and activities in the vicinity of a network utility to maintain the safe and efficient operation, maintenance, upgrading and development of the network utility.</u>
24.	Rules	NU-R1	Support	KiwiRail supports the Permitted Activity status of the operation, maintenance, repair, and removal of network utilities subject to standards. Where compliance with standards cannot be achieved, KiwiRail supports the matters of discretion which includes the functional and operational needs of network utilities, the location, and the benefits of network utilities.	Retain as proposed
25.		NU-R2	Support	KiwiRail supports the Permitted Activity status of new underground network utilities and upgrading of existing underground network utilities.	Retain as proposed
26.		NU-R3	Support	KiwiRail supports the Permitted Activity status of upgrading existing above ground network utilities subject to standards. Clause b. includes the realignment, relocation or replacement of network utilities which would apply to rail. KiwiRail supports the matters of discretion which includes the functional and operational needs of network utilities, the location, and the benefits of network utilities.	Retain as proposed
27.		NU-R5	Support	KiwiRail supports provision for temporary network utilities in all zones as a permitted activity, subject to standards.	Retain as proposed
28.		NU-R6 NU-R10	Support	KiwiRail supports provision for substations and minor utility structures which are required to be erected within the rail corridor around the country.	Retain as proposed
29.		NU-R15	Support	KiwiRail supports the Permitted Activity status of aboveground network utilities subject to standards. KiwiRail supports the matters of discretion which includes the functional and operational needs of network utilities, the location, and the benefits of network utilities.	Retain as proposed
TR – Transport					
30.	Introduction		Oppose in part	KiwiRail opposes in part paragraph 6 of the introduction section as it fails to mention the rail corridor in relation to noise related reverse sensitivity effects. KiwiRail seeks amendment to include reference to the rail network which is vulnerable to reverse sensitivity effects much like state highways. KiwiRail is seeking amendment to the Noise Chapter to adequately address this and justify the relief sought to the introduction section.	Amend as follows: An efficient and effective transport network is critical to the functioning and economic support of the Wairarapa, to convey people, goods, and services in a safe and effective manner by any mode of transport. The Wairarapa's land transport network comprises state highways, roads, pedestrian and cycle networks, public transport facilities, and the rail network.

Submission Number	Section of Plan	Specific Provision	Support/Oppose/ Seek Amendment	Reasons for Submission	Relief Sought (as stated or similar to achieve the requested relief)
					... The Transport Chapter contains provisions that deal with on-site transport facilities and access, the operation, maintenance and repair of the transport network, and the effects of high traffic generating activities. Provisions addressing noise related reverse sensitivity effects on the State Highway, <u>rail network</u> and Hood Aerodrome are in the Noise Chapter.
31.	Objectives	TR-O1	Support	KiwiRail supports the objective for a safe, efficient and effective transport network.	Retain as proposed
32.		TR-O2	Support	The rail network is linear and not easily relocated, and the impact of rail activities cannot always be avoided or internalised. KiwiRail supports recognition of this and direction to remediate or mitigate adverse effects when effects cannot be avoided.	Retain as proposed
33.		TR-O3	Support	It is important to recognise the value of a safe, efficient and accessible transport network and that this network must be protected from incompatible activities.	Retain as proposed
34.	Policies	TR-P3	Support	KiwiRail supports TR-P3. The role of transport corridors and protection of these corridors is essential for the safe and efficient operation of the rail network.	Retain as proposed
35.		TR-P5	Support	Avoiding, remedying or mitigating adverse effects on the safe and efficient functioning of the transport network is critical for rail corridor safety. KiwiRail supports policy which recognises this.	Retain as proposed
36.		TR-P6	Support	KiwiRail supports managing the effects of the transport network while providing for the development and safe operation of the network, as outlined in TR-P6.	Retain as proposed
37.		TR-P8	Seek amendment	KiwiRail supports policy which seeks to protect sightlines at level crossings. It is unclear what infrastructure the policy intends to capture and KiwiRail seeks amendment for clarity of the intent of the policy and what it specifically seeks to achieve.	Amend as follows: Provide safe visibility and appropriate infrastructure at road/rail level crossings. <u>Ensure the safe and efficient operation of the rail network by:</u> a. <u>protecting sight lines at rail level crossings by managing adjacent land use and development;</u> b. <u>controlling new or increased use of vehicle access to sites adjacent to level crossing; and</u> c. <u>avoiding new at-grade level crossings.</u>
38.	Rules	TR-R2	Support	KiwiRail supports the Permitted Activity status of the construction, alteration, maintenance and repair of the transport network subject to standards. Where compliance cannot be achieved, KiwiRail supports matter of discretion 4. The safe, efficient, and effective operation of the transport network.	Retain as proposed
39.		TR-R3	Support	KiwiRail supports the Restricted Discretionary status of above and below grade crossings, and vehicle crossings within 30m of a level crossing to ensure the safe and efficient operation of the rail network is not compromised. If consent is required under this rule, KiwiRail support the consultation requirement to ensure KiwiRail has the opportunity to review and approve these applications.	Retain as proposed
40.		TR-R4 New standard	Seek amendment	KiwiRail generally supports this rule however, seeks amendment for consistency with our model rule and standard which has been adopted in district plans throughout the country. KiwiRail seeks inclusion of a new standard with diagrams and advice notes to assist with implementation of the rule. I attach enlarged copies of the provided diagrams to this submission.	Replace rule as follows: <u>TR-R4 Sight lines at railway level crossings</u> <u>All zones</u> <u>Activity status: Permitted</u> <u>Where:</u> <u>Compliance is achieved with TPT-SX.</u> <u>Activity status where compliance is not achieved:</u>

Submission Number	Section of Plan	Specific Provision	Support/Oppose/ Seek Amendment	Reasons for Submission	Relief Sought (as stated or similar to achieve the requested relief)									
				In order to effectively protect sight lines at level crossings the replacement rule and new standard are proposed. Compliance with the standard would provide for development as a Permitted Activity, with non-compliance requiring a Restricted Discretionary Activity consent, with discretion restricted to the aspects provided in the new standard.	<u>Restricted Discretionary</u> <u>Matters of discretion are:</u> <u>1. The potential for adverse effects on the safety and efficiency of the rail network.</u> <u>2. Applications under this rule must provide, in addition to the standard information requirements, evidence of engagement with KiwiRail.</u> Insert new standard as follows: <u>TPT-S8: Sight triangles at railway level crossings</u> <u>Restart sight triangles at level crossings</u> <u>On sites adjacent to all rail level crossings, no building, structure, planting or visual obstruction shall be located within the shaded areas shown in Figure 1. These are defined by a sight triangle taken 5 metres from the outside rail and distance A along the railway track. Distance A depends on the type of control (Table 1).</u>  <u>Figure 1: Restart Sight Triangles for all Level Crossings</u> <u>Table 1: Required Restart Sight Distances for Figure 1</u> <table><tr><th colspan="3"><u>Required approach visibility along tracks A (m)</u></th></tr><tr><th><u>Signs only</u></th><th><u>Alarms only</u></th><th><u>Alarms and barriers</u></th></tr><tr><td><u>677m</u></td><td><u>677m</u></td><td><u>60m</u></td></tr></table> <u>Advice Note:</u> <u>The restart sight line triangles ensure that a road vehicle driver stopped at a level crossing can see far enough along the railway to be able to start off, cross and clear the level crossing safely before the arrival of any previously unseen train.</u> <u>Of particular concern are developments that include shelter belts, tree planting, or a series of building extensions. These conditions apply irrespective of whether any visual obstructions already exist.</u> <u>Approach sight triangles at level crossings with Give Way signs</u> <u>On sites adjacent to rail level crossings controlled by Give Way Signs, no building, structure, planting or other visual obstruction shall be located within the shaded areas shown in Figure 2.</u>	<u>Required approach visibility along tracks A (m)</u>			<u>Signs only</u>	<u>Alarms only</u>	<u>Alarms and barriers</u>	<u>677m</u>	<u>677m</u>	<u>60m</u>
<u>Required approach visibility along tracks A (m)</u>														
<u>Signs only</u>	<u>Alarms only</u>	<u>Alarms and barriers</u>												
<u>677m</u>	<u>677m</u>	<u>60m</u>												

Submission Number	Section of Plan	Specific Provision	Support/Oppose/Seek Amendment	Reasons for Submission	Relief Sought (as stated or similar to achieve the requested relief)
					 Figure 2: Approach Sight Triangles for Level Crossings with “Give Way” Signs Advice Note: <u>The approach sight triangles ensure that clear visibility is achieved around rail level crossings with Give Way signs so that a driver approaching a rail level can either:</u> <u>See a train and stop before the crossing; or</u> <u>Continue at the approach speed and cross the level crossing safely.</u> <u>Of particular concern are developments that include shelter belts, tree planting, or a series of building extensions. These conditions apply irrespective of whether any visual obstructions already exist.</u> <u>No approach sight triangles apply for level crossings fitted with alarms and/or barrier arms. However, care should be taken to avoid developments that have the potential to obscure visibility of these alarm masts.</u> <u>This is particularly important where there is a curve in the road on the approach to the level crossing, or where the property boundary is close to the edge of the road surface and there is the potential for vegetation growth.</u>
Hazards and Risks					
NH – Natural Hazards					
41.	Objectives	NH-O1	Support	KiwiRail supports the intent of this objective to ensure the risk and consequences from natural hazards on property and infrastructure are not increased.	Retain as proposed
42.	Policies	NH-P8	Support	KiwiRail accepts that there are hazard overlays which apply to the rail corridor including river corridors, overland flow paths, ponding and liquefaction. KiwiRail supports policy which allows for the upgrade of infrastructure and new infrastructure where there is a functional and operational need to be established in hazard areas where the hazard risk is not increased.	Retain as proposed
43.		NH-P9	Support	KiwiRail supports policy that provides for earthworks within flood hazard areas provided they don't impede flood pathways or increase risk to properties and people.	Retain as proposed

Submission Number	Section of Plan	Specific Provision	Support/Oppose/ Seek Amendment	Reasons for Submission	Relief Sought (as stated or similar to achieve the requested relief)
44.	Rules	NH-R8	Support	KiwiRail accepts the Restricted Discretionary Activity status of infrastructure within low hazard areas and Discretionary Activity status within moderate or high hazard areas noting a matter of discretion includes NH-P8.	Retain as proposed
Historical and Cultural Values					
HH – Historic Heritage					
45.	Policies	HH-P3 HH-P5	Support	There are three heritage items within the rail corridor including the Greytown Railway Station, Carterton Railway Station and Solway Railway Station. KiwiRail supports enabling maintenance and repair activities, and seismic and building safety alterations to heritage items.	Retain as proposed
46.		HH-P4	Support	KiwiRail supports policy that provides for additions and alterations to, and partial demolition of heritage items if values are protected.	Retain as proposed
47.	Rules	HH-R1	Support	KiwiRail supports the Permitted Activity status of maintenance and repair of a heritage item.	Retain as proposed
48.		HH-R3	Support	KiwiRail supports the Permitted Activity status of additions and alterations to, and partial demolition of heritage items subject to standards.	Retain as proposed
Natural Environmental Values					
NATC – Natural Character					
49.	Policies	NATC-P3	Support	KiwiRail supports this policy which seeks to enable earthworks within 25m of significant waterbodies if the works are infrastructure maintenance works.	Retain as proposed
50.		NATC-P5	Support	KiwiRail supports policy which allows structures within proximity to significant waterbodies where there is a functional or operational need for locating within this setback.	Retain as proposed
51.		NATC-P6	Support	KiwiRail supports modification of vegetation where it involves pest plant species.	Retain as proposed
52.	Rules	NATC-R1	Support	KiwiRail supports the Permitted Activity status of earthworks within 25m of a significant waterbody for infrastructure maintenance purposes.	Retain as proposed
53.		NATC-R2	Support	KiwiRail supports the Permitted Activity status for modification of vegetation where it involves pest plant species.	Retain as proposed
Subdivision					
SUB – Subdivision					
54.	Objectives	SUB-O2	Support	KiwiRail supports the objective to require sites to connect to the public reticulated stormwater system where there is capacity or demonstrate there is an alternative means of on-site servicing.	Retain as proposed
55.		SUB-O3	Seek amendment	KiwiRail supports the objective to integrate subdivision and development with infrastructure to ensure it doesn't undermine the effective and efficient provision of infrastructure. KiwiRail seeks amendment to specify rail as well as roads within this objective.	Amend as follows: Subdivision and development are provided for where they integrate with the existing and planned development of land, roads, and infrastructure, and avoid fragmentation or development that undermines the effective and efficient provision of infrastructure, <u>rail</u> and roads.
56.	Policies	SUB-P7	Support	KiwiRail supports avoidance of subdivision which could compromise the efficient and effective operation of the transport network and reverse sensitive effects on infrastructure.	Retain as proposed

Submission Number	Section of Plan	Specific Provision	Support/Oppose/ Seek Amendment	Reasons for Submission	Relief Sought (as stated or similar to achieve the requested relief)
57.	Rules	SUB-R1 SUB-R2 SUB-R3 SUB-R4 SUB-R5	Support	KiwiRail supports the following matters of control and discretion: - Any change to the effects on the transport network or three waters infrastructure. - Separation distances, barriers, acoustic treatment, and orientation of buildings. - Management of potential reverse sensitivity effects on existing land uses, including network utilities, or significant hazardous facilities.	Retain subdivision matters as proposed.
NFL – Natural Features and Landscapes					
58.	Overlay	Outstanding Natural Features and Landscapes Overlay	Seek amendment	Part of the Taraua/Rimutaka Forest Parks ONFL1 overlay extends over the established, operational Wairarapa Line. Having reviewed SCHEDULE 7 values which define this overlay, KiwiRail does not consider it appropriate to include the operational rail corridor within this overlay which is characterised by highly natural vegetation and landscape.	Amend overlay to remove designated rail corridor in yellow circled area below: 
General District-Wide Matters					
LIGHT – Light					
59.	Objectives	LIGHT-O3	Support	KiwiRail supports this objective that provides for artificial lighting to be used for operational and functional purposes and to provide for the security and safety of people and properties.	Retain as proposed
60.	Policies	LIGHT-P4	Support	KiwiRail supports this policy which requires artificial lighting to be located, designed and operated to ensure the safe and efficient operation of the transport network.	Retain as proposed
61.	Rules	LIGHT-R1	Support	KiwiRail supports the Permitted Activity status of outdoor artificial light and glare subject to standards.	Retain as proposed
62.	Standards	LIGHT-S1	Seek amendment	KiwiRail generally supports this standard for light spill and lighting design. KiwiRail seeks amendment to this standard to include rail as well as roads.	Amend as follows: ... Exception: The provisions do not apply to specific types of activities or lighting which have a functional need or operational need, such as navigational aids, <u>rail signals and lights</u> and vehicle lights. ... Matters of discretion: ... 2. The effects of light direction on the safe and efficient operation of the road <u>or rail</u> network.
NOISE – Noise					
63.	Introduction	Noise Chapter Introduction	Seek amendment	KiwiRail seeks the inclusion of a new Rail Vibration Alert Area Overlay to identify areas susceptible to rail vibration, within 60m of the rail corridor boundary. KiwiRail seeks the inclusion of a description of the mapped overlay and its purpose within the introduction section of the Noise Chapter.	Amend as follows: ... Noise sensitive land uses can be impacted by the development of new and upgraded key transport infrastructure. Where new noise sensitive

Submission Number	Section of Plan	Specific Provision	Support/Oppose/ Seek Amendment	Reasons for Submission	Relief Sought (as stated or similar to achieve the requested relief)
					activities are established alongside existing and busy roads, this can result in adverse effects to human health as a result of sleep disturbance. New buildings should be designed to mitigate potential effects to human health from established transport routes. Noise sensitive activities will be defined and managed to mitigate potential effects on human health occurring from operational noise from established transport routes. <u>A Rail Vibration Alert Overlay has been applied which identifies the vibration-sensitive area within 60 metres each side of the railway designation boundary as properties within this area may experience rail vibration effects. No specific district plan provisions apply in relation to vibration controls as a result of this Rail Vibration Alert Area. The Rail Vibration Alert Overlay is to advise property owners of the potential vibration effects but leaves with the site owner to determine an appropriate response.</u>
64.	Objectives	NOISE-O2	Support	KiwiRail supports this objective and its intention to avoid reverse sensitivity effects from noise sensitivity activities on noise generating activities.	Retain as proposed
65.	Policies	NOISE-P1	Support	KiwiRail supports policy that enables noise-generating activities in appropriate areas.	Retain as proposed
66.		<u>NOISE-P9</u>	New policy	The Plan contains policy NOISE-P4 which seeks to ensure noise sensitivity activities are appropriately located and separated from state highways and/or adverse effects on human health are managed by requiring noise insulation. KiwiRail seeks that there is a specific policy addressing reverse sensitivity effects on the rail corridor which is also vulnerable to the effects of inappropriate land use and development located near the rail corridor. The rail network is a 24 hour a day, seven day a week operation, and the frequency, length and weight of trains operating within the designated rail corridor can change without community consultation. Noise effects can interrupt people's amenity and enjoyment of their residence or workplace, as well as people's ability to sleep. Appropriate mitigation, installed to ensure that the health and wellbeing of those living and working near to the rail network is not adversely affected, is pivotal to ensure that undue restrictions are not placed on the operation of the rail network. KiwiRail seeks the inclusion of a new policy requiring noise insulation for new/alterd noise sensitive activities located near the rail network. KiwiRail notes that we submitted on the Draft Plan to include a suite of rail corridor noise provisions as well as providing further information to council officers in April 2023. It is disappointing that these efforts did not result in the inclusion of provisions to address reverse sensitivity effects on the rail corridor. As KiwiRail has previously outlined, there has been substantial government investment in the Wairarapa Line as part of the Wellington Metro Upgrade Programme with a focus on network safety and capacity improvements. The Wairarapa Line carries significant and growing forestry traffic between Waingawa and the Wellington Port. The Wairarapa Line also connects people living in the Wairarapa to Wellington. This is projected to significantly increase following the planned Wairarapa Line fleet renewal and service increase, and additional network capacity improvements. With the projected population growth in the Wairarapa, an increased demand on passenger rail is anticipated, in addition to freight demand, and KiwiRail seeks to protect its ability to develop, operate, maintain and upgrade the rail corridor in the future. Addressing reverse sensitivity effects through district plan provisions is crucial in protecting the corridor and is safe and efficient operation.	Amend as follows: <u>NOISE-P9 Noise insulation within the Rail Corridor Noise Control Overlay</u> <u>Ensure noise sensitive activities are appropriately located and separated from the rail corridor and/or that any adverse noise, amenity, and adverse human health effects are avoided, remedied, or mitigated by requiring acoustic insulation measures within the Rail Corridor Noise Control Overlay</u>

Submission Number	Section of Plan	Specific Provision	Support/Oppose/ Seek Amendment	Reasons for Submission	Relief Sought (as stated or similar to achieve the requested relief)
67.	Rules	Exemptions	Support	KiwiRail supports the exclusion of rail activities as specified in clause c.	Retain as proposed
68.	Rules Standards Appendices	<u>NOISE-R15 Noise sensitive activities within the Rail Corridor Noise Control Overlay</u> <u>NOISE-S4 Noise insulation standards for noise sensitive activities within the Rail Corridor Noise Control Overlay</u> <u>NOISE-APP1 Construction schedule for indoor noise control</u>	New rule New standard New appendix	KiwiRail seeks the inclusion of noise provisions requiring acoustic insulation and appropriate mechanical ventilation to be installed in new (or altered) noise sensitive activities within 100m of the railway corridor. KiwiRail's model rule and standard framework is provided in Appendix A. KiwiRail's Section 32 Report on Noise and Vibration has also been provided to support these provisions. The rail network is a 24 hour a day, seven day a week operation, and the frequency, length and weight of trains can change without community consultation. Noise can have an impact on the internal amenity of a building. Appropriate mitigation, installed to ensure that the health and wellbeing of those living and working near to the rail network are not adversely affected, is crucial to ensure that undue restrictions are not placed on the operation of the rail network. KiwiRail seeks the inclusion of a new rule, standard and appendix which sets out the level of mitigation required to be achieved to ensure an appropriate level of internal amenity in buildings for noise sensitive activities. This is most effectively achieved at the time of construction. The further removed from the rail corridor a building is, the less additional mitigation may be required. The noise level proposed is in accordance with the World Health Organisation standards, with an adjustment reflecting that trains are intermittent and that often there is a degree of community acceptance of train noise. The mitigation proposed reflects that in some circumstances, e.g smaller residential sites near the rail corridor, requiring a greater setback from the rail boundary as a means of addressing noise effects may not always be practicable. The rule seeks to ensure that building development options can still maximise the use of a site, while at the same time having standards for mitigating noise effects arising from the rail corridor. Where the permitted standards are not complied with, consent is required as a Restricted Discretionary Activity. Part 2 of the Act supports the efficient use and development of the rail network while also enabling people and communities to provide for their well-being and their health and safety. An appropriate balance needs to be achieved between ensuring the rail network is efficiently utilised and adjacent development can be facilitated, without compromising safety of people and communities.	Insert new rule and standard as provided in Appendix A.
69.	Planning maps	<u>Rail Corridor Noise Control Overlay</u>	Add new overlay to planning maps	Noise from the rail corridor can give rise to adverse health effects on sensitive land uses located within 100m of the corridor boundary. The research and guidelines relating to these effects are widely accepted internationally and applied in New Zealand. KiwiRail seeks the inclusion of a new Rail Corridor Noise Control Overlay to identify areas susceptible to rail noise, within 100m of the rail corridor boundary.	Add Rail Corridor Noise Control Overlay to the planning maps as provided in the submitted GIS shapefile.
70.	Planning maps	<u>Rail Vibration Alert Overlay</u>	Add new overlay to planning maps	KiwiRail seeks the inclusion of a new Rail Vibration Alert Area Overlay to identify areas susceptible to rail vibration, within 60m of the rail corridor boundary. KiwiRail has provided a GIS shapefile of the overlay and seeks this be included on the planning maps.	Add Rail Vibration Alert Area Overlay to the planning maps as provided in the submitted GIS shapefile.
SIGN – Signs					
71.	Objectives	SIGN-O1	Support	KiwiRail supports this objective which seeks to ensure transport safety.	Retain as proposed
72.	Policies	SIGN-P1	Support	KiwiRail supports this policy which aims to allow signs that support the safe functioning of the transport network.	Retain as proposed

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73.		SIGN-P6	Support	KiwiRail supports this policy which aims to ensure that signs don't obstruct, distract or cause nuisance to traffic, pedestrians, or the efficiency and safety of the transport network.	Retain as proposed
Part 3 – Area-Specific Matters					
Residential Zones					
GRZ – General Residential Zone					
74.	Standards	GRZ-S3	Seek amendment	The GRZ Chapter does not contain a specific rail corridor building setback standard. Instead, the rail corridor boundary is assessed as a side or rear yard site boundary and a 3m and 1.5m building setback applies. Setbacks are a common planning tool used to ensure the safe and efficient operation of activities such as the railway corridor, particularly when it may come into conflict with adjacent land uses. In the case of rail, a setback provides a safe physical distance between a building and the railway corridor boundary. Heavy freight trains run on the Wairarapa Line through the Wairarapa districts. Without a sufficient setback, people painting their buildings, clearing gutters or doing works on their roof will need to access or foul the rail corridor. If a person or object encroaches onto the rail corridor, there is a substantial risk of injury or death for the person entering the rail corridor. A setback control has obvious safety benefits for the users of the land adjoining the rail corridor and users of the rail corridor. It also has efficiency benefits for rail operations, by mitigating against the risk of train services being interrupted by unauthorised persons or objects entering the rail corridor. KiwiRail is concerned that without appropriate setback requirements, there is significant risk of adverse health and safety effects impacting people locating in proximity to the railway corridor. KiwiRail seeks a new clause within GRZ-S3 to require a 5m setback for structures and buildings from the rail corridor. Matters of discretion are also sought in the case that the setback cannot be achieved and resource consent is required.	Amend as follows: ... Side and rear boundary setbacks: - For front sites, two boundaries (side or rear boundaries) shall be subject to 3m setbacks, and one boundary shall be subject to a 1.5m setback. - For rear sites, two boundaries (side or rear boundaries) shall be subject to 3m setbacks, and two boundaries shall be subject to 1.5m setbacks. 0m for common wall boundaries. <u>Rail corridor setbacks:</u> <u>No part of any building or structure may be located within a 5m setback from a boundary shared with a rail corridor.</u> ... Matters of discretion: ... - The relevant matters contained in the Residential Design Guide. <u>The safe and efficient operation of the rail network;</u> <u>Compatibility with the surrounding environment; and</u> <u>The reason for the reduced setback.</u>
75.		GRZ-S4	Seek amendment	The GRZ Chapter does not contain a specific rail corridor building setback standard. Instead, the rail corridor boundary is assessed as a side or rear yard site boundary and a 3m and 1.5m building setback applies. Setbacks are a common planning tool used to ensure the safe and efficient operation of activities such as the railway corridor, particularly when it may come into conflict with adjacent land uses. In the case of rail, a setback provides a safe physical distance between a building and the railway corridor boundary. Heavy freight trains run on the Wairarapa Line through the Wairarapa districts. Without a sufficient setback, people painting their buildings, clearing gutters or doing works on their roof will need to access or foul the rail corridor. If a person or object encroaches onto the rail corridor, there is a substantial risk of injury or death for the person entering the rail corridor. A setback control has obvious safety benefits for the users of the land adjoining the rail corridor and users of the rail corridor. It also has efficiency benefits for rail operations, by mitigating against the risk of train services being interrupted by unauthorised persons or objects entering the rail corridor.	Amend as follows: ... <u>Rail corridor setbacks:</u> <u>No part of any building or structure may be located within a 5m setback from a boundary shared with a rail corridor.</u> Matters of discretion: ... - The relevant matters contained in the Residential Design Guide. <u>The safe and efficient operation of the rail network;</u> <u>Compatibility with the surrounding environment; and</u> <u>The reason for the reduced setback.</u>

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				KiwiRail is concerned that without appropriate setback requirements, there is significant risk of adverse health and safety effects impacting people locating in proximity to the railway corridor. KiwiRail seeks a new clause within GRZ-S4 to require a 5m setback for accessory building and minor residential units from the rail corridor. Matters of discretion are also sought in the case that the setback cannot be achieved and resource consent is required.	
Rural Zones					
GRUZ – General Rule Zone					
76.	Standards	GRUZ-S3	Support	KiwiRail supports this standard which requires buildings or structures to be setback 10m from any other boundary which includes the rail corridor.	Retain as proposed
Commercial and Mixed Used Zones					
MUZ – Mixed Use Zone					
77.	Standards	MUZ-S3	Seek amendment	The MUZ Chapter does not contain a specific rail corridor building setback standard and there is no yard setback that applies to the corridor. Setbacks are a common planning tool used to ensure the safe and efficient operation of activities such as the railway corridor, particularly when it may come into conflict with adjacent land uses. In the case of rail, a setback provides a safe physical distance between a building and the railway corridor boundary. Heavy freight trains run on the Wairarapa Line through the Wairarapa districts. Without a sufficient setback, people painting their buildings, clearing gutters or doing works on their roof will need to access or foul the rail corridor. If a person or object encroaches onto the rail corridor, there is a substantial risk of injury or death for the person entering the rail corridor. A setback control has obvious safety benefits for the users of the land adjoining the rail corridor and users of the rail corridor. It also has efficiency benefits for rail operations, by mitigating against the risk of train services being interrupted by unauthorised persons or objects entering the rail corridor. KiwiRail is concerned that without appropriate setback requirements, there is significant risk of adverse health and safety effects impacting people locating in proximity to the railway corridor. KiwiRail seeks a new clause within MUZ-S3 to require a 5m setback for buildings and structures from the rail corridor. Matters of discretion are also sought in the case that the setback cannot be achieved and resource consent is required.	Amend as follows: 1. Buildings or structures must not be located within: a. 3m of any boundary with a Residential, Rural, or Open Space and Recreation Zone; b. 5m of any surface waterbody; c. 25m of a significant waterbody; and d. <u>5m of a boundary shared with a rail corridor.</u> ... Matters of discretion: ... 8. The relevant matters contained in the Residential Design Guide. 9. <u>The safe and efficient operation of the rail network;</u> 10. <u>Compatibility with the surrounding environment; and</u> 11. <u>The reason for the reduced setback.</u>
TCZ – Town Centre					
78.	Standards	TCZ-S3	Seek amendment	The TCZ Chapter does not contain a specific rail corridor building setback standard and there is no yard setback that applies to the corridor. Setbacks are a common planning tool used to ensure the safe and efficient operation of activities such as the railway corridor, particularly when it may come into conflict with adjacent land uses. In the case of rail, a setback provides a safe physical distance between a building and the railway corridor boundary. Heavy freight trains run on the Wairarapa Line through the Wairarapa districts. Without a sufficient setback, people painting their buildings, clearing gutters or doing works on their roof will need to access or foul the rail corridor. If a person or object encroaches onto the rail corridor, there is a substantial risk of injury or death for the person entering the rail corridor.	Amend as follows: 1. Buildings or structures must not be located within: a. 3m of any boundary with a Residential, Rural, or Open Space and Recreation Zone; b. 5m of any surface waterbody; c. <u>5m of a boundary shared with a rail corridor.</u> ... Matters of discretion: ... 8. The relevant matters contained in the Residential Design Guide. 9. <u>The safe and efficient operation of the rail network;</u> 10. <u>Compatibility with the surrounding environment; and</u>

Submission Number	Section of Plan	Specific Provision	Support/Oppose/ Seek Amendment	Reasons for Submission	Relief Sought (as stated or similar to achieve the requested relief)
				A setback control has obvious safety benefits for the users of the land adjoining the rail corridor and users of the rail corridor. It also has efficiency benefits for rail operations, by mitigating against the risk of train services being interrupted by unauthorised persons or objects entering the rail corridor. KiwiRail is concerned that without appropriate setback requirements, there is significant risk of adverse health and safety effects impacting people locating in proximity to the railway corridor. KiwiRail seeks a new clause within TCZ-S3 to require a 5m setback for buildings and structures from the rail corridor. Matters of discretion are also sought in the case that the setback cannot be achieved and resource consent is required.	11. <u>The reason for the reduced setback.</u>
Industrial Zones					
GIZ – General Industrial Zone					
79.	Standards	GIZ-S3	Seek amendment	The GIZ Chapter does not contain a specific rail corridor building setback standard and there is no yard setback that applies to the corridor. Setbacks are a common planning tool used to ensure the safe and efficient operation of activities such as the railway corridor, particularly when it may come into conflict with adjacent land uses. In the case of rail, a setback provides a safe physical distance between a building and the railway corridor boundary. Heavy freight trains run on the Wairarapa Line through the Wairarapa districts. Without a sufficient setback, people painting their buildings, clearing gutters or doing works on their roof will need to access or foul the rail corridor. If a person or object encroaches onto the rail corridor, there is a substantial risk of injury or death for the person entering the rail corridor. A setback control has obvious safety benefits for the users of the land adjoining the rail corridor and users of the rail corridor. It also has efficiency benefits for rail operations, by mitigating against the risk of train services being interrupted by unauthorised persons or objects entering the rail corridor. KiwiRail is concerned that without appropriate setback requirements, there is significant risk of adverse health and safety effects impacting people locating in proximity to the railway corridor. KiwiRail seeks a new clause within GIZ-S3 to require a 5m setback for buildings and structures from the rail corridor. Matters of discretion are also sought in the case that the setback cannot be achieved and resource consent is required.	Amend as follows: 1. Buildings or structures must not be located within: a. 5m of any boundary adjoining another zone; b. 5m of any surface waterbody; and c. 5m of any significant waterbody d. <u>5m of a boundary shared with a rail corridor.</u> ... Matters of discretion: ... 4. Whether there are topographical or other site constraints that make compliance with the permitted standard impractical. 5. <u>The safe and efficient operation of the rail network;</u> 6. <u>Compatibility with the surrounding environment; and</u> 7. <u>The reason for the reduced setback.</u>
Open Space and Recreation Zones					
NOSZ – Natural Open Space Zone					
80.	Standards	NOSZ-S3	Seek amendment	The NOSZ Chapter does not contain a specific rail corridor building setback standard and there is no yard setback that applies to the corridor. Setbacks are a common planning tool used to ensure the safe and efficient operation of activities such as the railway corridor, particularly when it may come into conflict with adjacent land uses. In the case of rail, a setback provides a safe physical distance between a building and the railway corridor boundary. Heavy freight trains run on the Wairarapa Line through the Wairarapa districts. Without a sufficient setback, people painting their buildings, clearing gutters or doing works on their roof will need to access or foul the rail corridor. If a person or object encroaches onto the rail corridor, there is a substantial risk of injury or death for the person entering the rail corridor.	Amend as follows: 2. Buildings or structures must not be located within: a. 5m of any boundary adjoining another zone; b. 5m of any surface waterbody; and c. 5m of any significant waterbody d. <u>5m of a boundary shared with a rail corridor.</u> ... Matters of discretion: ... 7. For the waterbody setbacks, the effects on the values of the waterbody. 8. <u>The safe and efficient operation of the rail network;</u> 9. <u>Compatibility with the surrounding environment; and</u>

Submission Number	Section of Plan	Specific Provision	Support/Oppose/ Seek Amendment	Reasons for Submission	Relief Sought (as stated or similar to achieve the requested relief)
				A setback control has obvious safety benefits for the users of the land adjoining the rail corridor and users of the rail corridor. It also has efficiency benefits for rail operations, by mitigating against the risk of train services being interrupted by unauthorised persons or objects entering the rail corridor. KiwiRail is concerned that without appropriate setback requirements, there is significant risk of adverse health and safety effects impacting people locating in proximity to the railway corridor. KiwiRail seeks a new clause within NOSZ-S3 to require a 5m setback for buildings and structures from the rail corridor. Matters of discretion are also sought in the case that the setback cannot be achieved and resource consent is required.	10. <u>The reason for the reduced setback.</u>
OSZ – Open Space Zone					
81.	Standards	OSZ-S3	Seek amendment	The OSZ Chapter does not contain a specific rail corridor building setback standard and there is no yard setback that applies to the corridor. Setbacks are a common planning tool used to ensure the safe and efficient operation of activities such as the railway corridor, particularly when it may come into conflict with adjacent land uses. In the case of rail, a setback provides a safe physical distance between a building and the railway corridor boundary. Heavy freight trains run on the Wairarapa Line through the Wairarapa districts. Without a sufficient setback, people painting their buildings, clearing gutters or doing works on their roof will need to access or foul the rail corridor. If a person or object encroaches onto the rail corridor, there is a substantial risk of injury or death for the person entering the rail corridor. A setback control has obvious safety benefits for the users of the land adjoining the rail corridor and users of the rail corridor. It also has efficiency benefits for rail operations, by mitigating against the risk of train services being interrupted by unauthorised persons or objects entering the rail corridor. KiwiRail is concerned that without appropriate setback requirements, there is significant risk of adverse health and safety effects impacting people locating in proximity to the railway corridor. KiwiRail seeks a new clause within OSZ-S3 to require a 5m setback for buildings and structures from the rail corridor. Matters of discretion are also sought in the case that the setback cannot be achieved and resource consent is required.	Amend as follows: 1. Buildings or structures must not be located within: a. 5m of any boundary adjoining another zone; b. 5m of any surface waterbody; and' c. 5m of any significant waterbody d. <u>5m of a boundary shared with a rail corridor.</u> ... Matters of discretion: ... 7. For the surface waterbody setbacks, the effects on the values of the surface waterbody. 8. <u>The safe and efficient operation of the rail network;</u> 9. <u>Compatibility with the surrounding environment; and</u> 10. <u>The reason for the reduced setback.</u>
SARZ – Sport and Active Recreation Zone					
82.	Standards	SARZ-S3	Seek amendment	The SARZ Chapter does not contain a specific rail corridor building setback standard and there is no yard setback that applies to the corridor. Setbacks are a common planning tool used to ensure the safe and efficient operation of activities such as the railway corridor, particularly when it may come into conflict with adjacent land uses. In the case of rail, a setback provides a safe physical distance between a building and the railway corridor boundary. Heavy freight trains run on the Wairarapa Line through the Wairarapa districts. Without a sufficient setback, people painting their buildings, clearing gutters or doing works on their roof will need to access or foul the rail corridor. If a person or object encroaches onto the rail corridor, there is a substantial risk of injury or death for the person entering the rail corridor. A setback control has obvious safety benefits for the users of the land adjoining the rail corridor and users of the rail corridor. It also has efficiency benefits for rail	Amend as follows: 1. Buildings or structures must not be located within: a. 5m of any boundary adjoining another zone; b. 5m of any surface waterbody; and' c. 5m of any significant waterbody d. <u>5m of a boundary shared with a rail corridor.</u> ... Matters of discretion: ... 7. For the waterbody setbacks, the effects on the values of the waterbody. 8. <u>The safe and efficient operation of the rail network;</u> 9. <u>Compatibility with the surrounding environment; and</u> 10. <u>The reason for the reduced setback.</u>

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				operations, by mitigating against the risk of train services being interrupted by unauthorised persons or objects entering the rail corridor. KiwiRail is concerned that without appropriate setback requirements, there is significant risk of adverse health and safety effects impacting people locating in proximity to the railway corridor. KiwiRail seeks a new clause within SARZ-S3 to require a 5m setback for buildings and structures from the rail corridor. Matters of discretion are also sought in the case that the setback cannot be achieved and resource consent is required.	
Special Purpose Zones					
FUZ – Future Urban Zone					
83.	Standards	FUZ-S3	Seek amendment	The FUZ Chapter does not contain a specific rail corridor building setback standard. Instead, the rail corridor boundary is assessed as a side or rear yard site boundary and a 3m and 1.5m building setback applies. Setbacks are a common planning tool used to ensure the safe and efficient operation of activities such as the railway corridor, particularly when it may come into conflict with adjacent land uses. In the case of rail, a setback provides a safe physical distance between a building and the railway corridor boundary. Heavy freight trains run on the Wairarapa Line through the Wairarapa districts. Without a sufficient setback, people painting their buildings, clearing gutters or doing works on their roof will need to access or foul the rail corridor. If a person or object encroaches onto the rail corridor, there is a substantial risk of injury or death for the person entering the rail corridor. A setback control has obvious safety benefits for the users of the land adjoining the rail corridor and users of the rail corridor. It also has efficiency benefits for rail operations, by mitigating against the risk of train services being interrupted by unauthorised persons or objects entering the rail corridor. KiwiRail is concerned that without appropriate setback requirements, there is significant risk of adverse health and safety effects impacting people locating in proximity to the railway corridor. KiwiRail seeks a new clause within FUZ-S3 to require a 5m setback for buildings and structures from the rail corridor. Matters of discretion are also sought in the case that the setback cannot be achieved and resource consent is required.	Amend as follows: ... <u>Rail corridor setbacks:</u> 3. <u>No part of any building or structure may be located within a 5m setback from a boundary shared with a rail corridor.</u> Matters of discretion: ... 7. Methods to avoid or mitigate reverse sensitivity effects 8. <u>The safe and efficient operation of the rail network;</u> 9. <u>Compatibility with the surrounding environment; and</u> 10. <u>The reason for the reduced setback.</u>
Designations					
84.		KRH-C-01	Support	KiwiRail supports KRH-C-01 which details the rail designations in the Carterton District. KiwiRail supports the text in the Designations Chapter and the mapped extent as shown on the planning maps.	Retain as proposed
85.		KRH-M-01	Support	KiwiRail supports KRH-M-01 which details the rail designations in the Masterton District. KiwiRail supports the text in the Designations Chapter and the mapped extent as shown on the planning maps.	Retain as proposed
86.		KRH-S-01	Support	KiwiRail supports KRH-S-01 which details the rail designations in the South Wairarapa District. KiwiRail supports the text in the Designations Chapter and the mapped extent as shown on the planning maps.	Retain as proposed

NOISE-R15: Noise sensitive activities within the Rail Corridor Noise Control Overlay	
<u>All zones</u> <u>Activity Status: Permitted</u> <u>Where:</u> <u>Any new building or alterations to an existing building containing a noise sensitive activity which complies with the noise standards in NOISE-S4.</u>	<u>All zones</u> <u>Activity Status where activity conditions are not met: Restricted Discretionary</u> <u>Matters of discretion are:</u> <u>1. Adverse effects on health and amenity of people indoors within the ‘Railway Corridor Noise Overlay.</u> <u>2. Alternative options for building design or location that would achieve compliance with the standards in Table-S4.</u> <u>3. Adverse effects on the continuing operation of the railway corridor as a result of non-compliance with the standards in Table-S4.</u> <u>4. The reverse sensitivity effects on the rail network, including the extent to which the activity will unduly constrain the ongoing operation, maintenance and upgrade of the rail network.</u> <u>5. Any natural or built features of the site or surrounding area that will mitigate noise effects.</u> <u>6. The outcome of any consultation with KiwiRail.</u>

NOISE-S4: Noise insulation standards for noise sensitive activities within the Rail Corridor Noise Control Overlay

Indoor railway noise

1. Any new building, or alteration to an existing building, that contains a noise sensitive activity where the building or alteration is:

a. designed, constructed and maintained to achieve indoor design noise levels resulting from the railway not exceeding the maximum values in in Table-S4; or

b. at least 50 metres from the railway network, and is designed so that a noise barrier entirely blocks line-of-sight from all parts of doors and windows to all points 3.8 metres above railway tracks; or

c. is a single-storey framed residential building with habitable rooms designed, constructed and maintained in accordance with the construction schedule NOISE-APP1.

Table-S4

Building type	Occupancy / activity	Maximum railway noise level LAeq(1h)
Residential	Sleeping spaces	35 dB
	All other habitable rooms	40 dB
Education	Lecture rooms / theatres, music studios, assembly halls	35 dB
	Teaching areas, conference rooms, drama studios, sleeping areas	40 dB
	Library	45 dB
Health Clinics	Overnight medical care, wards	40 dB
	Consulting rooms, theatres, nurses' stations	45 dB
Cultural	Places of worship, marae	35 dB

Mechanical ventilation

2. If opening windows must be closed to achieve the design noise levels in Table-S4, the building must be designed, constructed and maintained with a mechanical ventilation system that:

Matters of discretion are:

1. Adverse effects on health and amenity of people indoors within the 'Railway Corridor Noise Overlay.

2. Alternative options for building design or location that would achieve compliance with the standards in Table-S4.

3. Adverse effects on the continuing operation of the railway corridor as a result of non-compliance with the standards in Table-S4.

4. The reverse sensitivity effects on the rail network, including the extent to which the activity will unduly constrain the ongoing operation, maintenance and upgrade of the rail network.

5. Any natural or built features of the site or surrounding area that will mitigate noise effects.

6. The outcome of any consultation with KiwiRail.

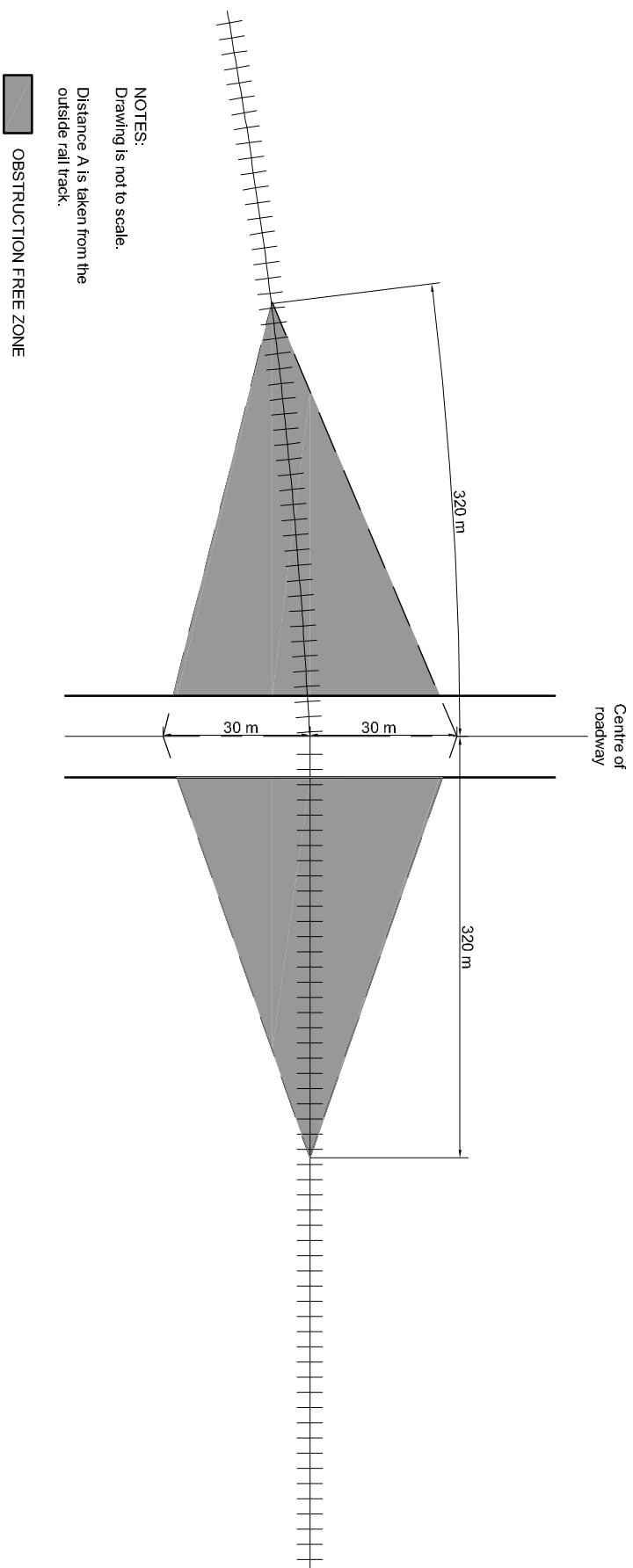
a. <u>For habitable rooms located within the Rail Corridor Noise Control Overlay containing a residential activity, achieves the following requirements:</u> i. <u>Provides mechanical ventilation that can operate continuously to satisfy clause G4 of the New Zealand Building Code and that provides at least 1 air changes per hour, but no less than 7.5L/s per occupant;</u> ii. <u>Provides cooling and heating that is controllable by the occupant and can maintain the inside temperature between 18°C and 25°C when assessed using a 2.5% design weather condition for the applicable location. An acceptable design weather set would include IRHACE Yearbook 2009 NIWA weather data; and</u> iii. <u>HVAC system installed in compliance with (a) and (b) above, must not generate more than 35 dB LAeq(30s) when measured 1 metre away from any grille or diffuser. The noise level must be measured after the system has cooled the rooms to the temperatures in (ii), or after a period of 30 minutes from the commencement of cooling (whichever is the lesser).</u> b. <u>Alternatively, in lieu of section (2)a. above, a design verified by a suitably qualified and experienced HVAC expert stating the design proposed will provide ventilation and internal space temperature controls to meet or exceed the outcomes described in parts (2)a.</u> c. <u>A commissioning report must be submitted to the Council prior to occupation of the building demonstrating compliance with all of the mechanical ventilation system performance requirements in (2).</u> <u>Design report</u> 3. <u>A report is submitted to the council demonstrating compliance with clauses (1) to (2) above (as relevant) prior to the construction or alteration of any building containing an activity sensitive to noise. Compliance with 1(a) and (c) must be confirmed by a Registered Acoustician and when doing so railway noise must be assumed to be 70 LAeq(1h) at a distance of 12 metres from the track, and must be deemed to reduce at a rate of 3 dB per doubling of distance up to 40 metres and 6 dB per doubling of distance beyond 40 metres.</u>	
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NOISE-APP1 Construction schedule for indoor noise control

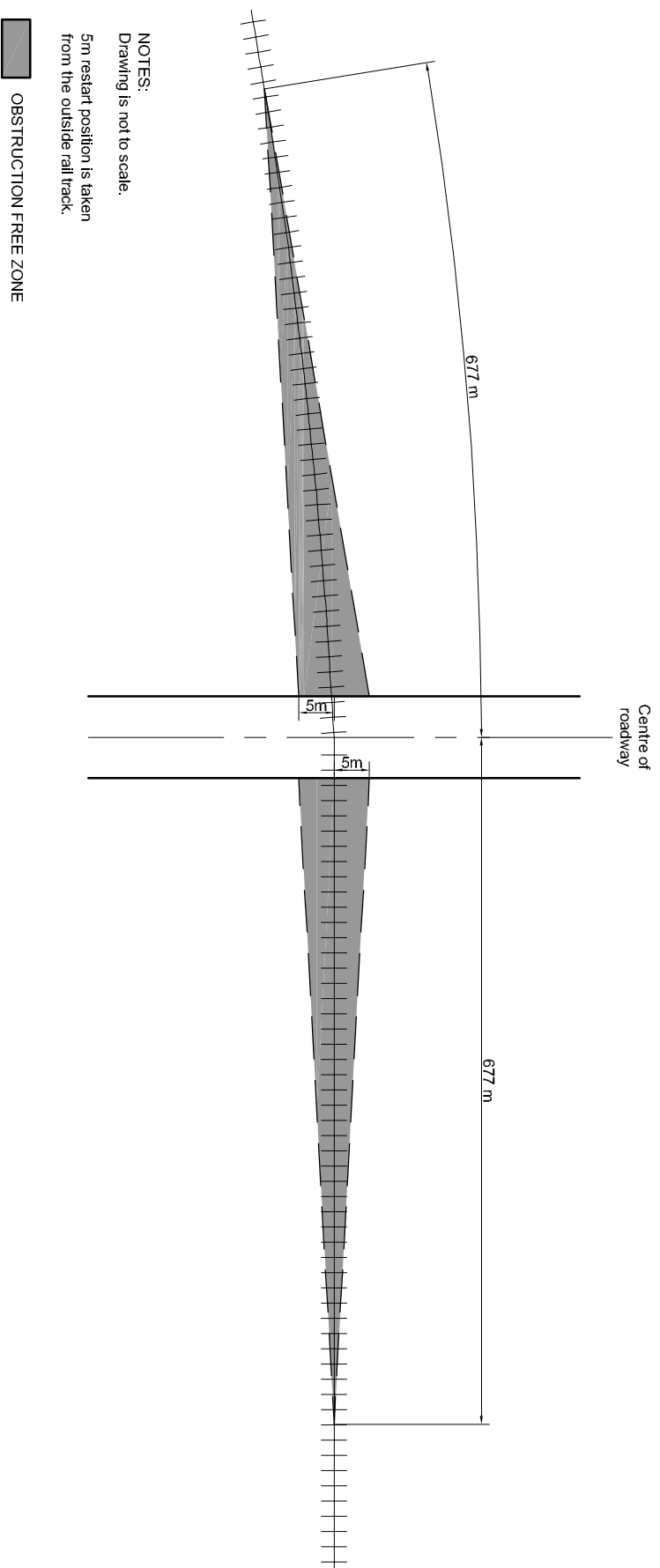
<u>Elements</u>	<u>Minimum construction for noise control in addition to the requirements of the New Zealand Building Code</u>	
<u>External walls</u>	<u>Wall cavity infill of fibrous insulation, batts or similar (minimum density of 9 kg/m3)</u>	
	<u>Cladding and internal wall lining complying with either Options A, B or C below:</u>	
	<u>Option A - Light cladding: timber weatherboard or sheet materials with surface mass between 8 kg/m2 and 30 kg/m2 of wall cladding</u>	<u>Internal lining of minimum 17 kg/m2 plasterboard, such as two layers of 10 mm thick high-density plasterboard, on resilient/isolating mountings</u>
	<u>Option B - Medium cladding: surface mass between 30 kg/m2 and 80 kg/m2 of wall cladding</u>	<u>Internal lining of minimum 17 kg/m2 plasterboard, such as two layers of 10 mm thick high-density plasterboard</u>
	<u>Option C - Heavy cladding: surface mass between 80 kg/m2 and 220 kg/m2 of wall cladding</u>	<u>No requirements additional to New Zealand Building Code</u>
<u>Roof/ceiling</u>	<u>Ceiling cavity infill of fibrous insulation, batts or similar (minimum density of 7 kg/m3)</u>	
	<u>Ceiling penetrations, such as for recessed lighting or ventilation, shall not allow additional noise break-in</u>	
	<u>Roof type and internal ceiling lining complying with either Options A, B or C below:</u>	
	<u>Option A - Skillion roof with light cladding: surface mass up to 20 kg/m2 of roof cladding</u>	<u>Internal lining of minimum 25 kg/m2 plasterboard, such as two layers of 13 mm thick high-density plasterboard</u>

	<u>Option B - Pitched roof with light cladding: surface mass up to 20 kg/m2 of roof cladding</u>	<u>Internal lining of minimum 17 kg/m2 plasterboard, such as two layers of 10 mm thick high-density plasterboard</u>
	<u>Option C - Roof with heavy cladding: surface mass between 20 kg/m2 and 60 kg/m2 of roof cladding</u>	<u>No requirements additional to New Zealand Building Code</u>
<u>Glazed areas</u>	<u>Aluminium frames with full compression seals on opening panes</u>	
	<u>Glazed areas shall be less than 35% of each room floor area</u>	
	<u>Either, double-glazing with:</u> • <u>a laminated pane of glass at least 6 mm thick; and</u> • <u>a cavity between the two panes of glass at least 12 mm deep; and</u> • <u>a second pane of glass at least 4 mm thick</u> <u>Or, any other glazing with a minimum performance of Rw 33 dB</u>	
<u>Exterior doors</u>	<u>Exterior door with line-of-sight, to any part of the state highway road surface or to any point 3.8 metres above railway tracks</u>	<u>Solid core exterior door, minimum surface mass 24 kg/m2, with edge and threshold compression seals; or other doorset with minimum performance of Rw 30 dB</u>
	<u>Exterior door shielded by the building so there is no line-of-sight to any parts of the state highway road surface or any points 3.8 metres above railway tracks</u>	<u>Exterior door with edge and threshold compression seals</u>

APPROACH SIGHT TRIANGLES AT RAILWAY LEVEL CROSSINGS



RESTART SIGHT TRIANGLES AT RAILWAY LEVEL CROSSINGS



KiwiRail Holdings Limited

Standard Railway Noise and Vibration
Reverse Sensitivity Provisions and
Section 32 Report

16 August 2023

Report Authors: Louise Taylor and Lisa Thorne



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KiwiRail Holdings Limited Section 32 Analysis of Rail Noise and Vibration Provisions

1. Introduction

KiwiRail Holdings Limited (**KiwiRail**) is the State-Owned Enterprise responsible for the construction, maintenance and operation of New Zealand's rail network. The rail network is critical to the safe and efficient movement of freight and passengers throughout New Zealand, and forms an essential part of the national transportation network and the wider supply chain.

KiwiRail is a network utility operator, and the Requiring Authority for railways throughout New Zealand. KiwiRail's rail network operates over 3500km of rail network and infrastructure, used by more than 900 freight trains every week, operating between Whangarei and Bluff. The rail network is utilised to carry imported and exported goods from New Zealand ports, timber and forestry products, bulk good such as dairy products and steel, domestic goods between cities, and domestic passengers, and demand for this service is expected to continue to grow. Passenger rail is also a growing source of traffic for the rail network. While passenger rail volumes are currently only located in New Zealand's main cities, expansion of passenger rail inter-regionally is a growing focus of national transport strategy.

This mix of freight and passenger rail traffic is critical to New Zealand's decarbonisation and public transport goals currently and into the future. For this reason, the rail network is recognised as nationally significant, and is often classified as regionally and/or nationally significant infrastructure in District Plans.

This report has been prepared in accordance with the requirements of s32 and Schedule 1 of the Resource Management Act 1991 (**Act**). It assesses and supports the inclusion of District Plan land use provisions to appropriately manage noise and vibration effects on sensitive activities in the vicinity of the rail network. In some cases, the provisions may require amendment to reflect the structure and style of the District Plan drafting (for example, utilising existing definitions, objectives or policies relating to the transport network or Activities Sensitive to Noise).

1.1 Value of Rail

The rail network is a significant contributor to the movement of freight within New Zealand, carrying 16% of total national freight, 25% of exports, and 18 million tonnes of freight every year. The 2021 Value of Rail in New Zealand report¹ found that the total value of rail in New Zealand was estimated to be between \$1.70 billion – \$2.14 billion each year, from:

- reduced greenhouse gas emissions and air pollution, by reducing 2.5 million tonnes of CO₂ emissions each year;
- time savings and reduced congestion; reducing cars and trucks on road, avoiding 26 million car trips a year in Auckland and Wellington alone, and removing 24,000 trucks from the road;
- improved road safety, including fewer injuries and fatalities, with 288 fewer injuries and fatalities each year; and
- lower road maintenance costs for taxpayers and greater fuel savings, saving between \$310–\$329 million each year.

Rail is an energy efficient mode of transport, and generates 70% fewer emissions than heavy road freight transport. KiwiRail is a leader in low emissions freight transport, supporting the national transition to net zero carbon by 2050. To achieve this, KiwiRail's Sustainability Strategy 2022–2025 contains specific carbon emission reduction objectives. With New Zealand's freight market projected to grow by 30% by 2030, rail will play an increasing part in handling the increase, providing greater resilience to the transport network, and reducing carbon emissions.

Acknowledging the benefits of rail (as outlined briefly above) and the role rail will play in decarbonising the freight network, the New Zealand Government has, to an extent not seen in a generation, chosen to fund, via the National Land Transport Fund, rail infrastructure, to ensure rail can scale effectively and efficiently to the needs of passengers and freight. Investment in rail (including new and improved infrastructure and rolling stock – locomotives, wagons and carriages) since 2019 now exceeds \$8b.

Given the nationally significant benefits and savings to the New Zealand economy, the greenhouse gas emission reductions, and air pollution reductions associated with rail freight, the adverse effects of failing to protect the rail network from reverse sensitivity are significant. At a national

¹ Ernst and Young, The Value of Rail in New Zealand, Report for the Ministry of Transport, February 2021

scale, for illustrative purposes, every 1% reduction in rail traffic caused by reverse sensitivity may equate to costs in the range of approximately \$17 to \$21 million per annum.

1.2 Proposed Provisions

KiwiRail proposes to introduce a suite of provisions to the District Plan to appropriately protect the railway network from reverse sensitivity by avoiding and mitigating adverse health and amenity effects associated with railway noise and vibration where sensitive uses locate in proximity to the railway corridor². As outlined in further detail below, similar provisions are already included in numerous operative plans throughout New Zealand.

These proposed provisions are provided in full in **Appendix 1** and are summarised below:

- Insert a new objective and two policies providing for the importance of the rail network and the potential for reverse sensitivity effects when activities sensitive to noise are in close proximity; [if needed, depending on nature of plan change or proposed district plan, including any existing policies which are in place regarding management of reverse sensitivity or activities sensitive to noise near infrastructure / industry]
- Insert a new definition for 'Activity Sensitive to Noise' In the Definitions Section (if required);
- Insert new vibration alert layer to District Plan maps;
- Insert new 100m rail corridor buffer to District Plan maps (called "Rail Noise Control and Vibration Alert Area") to which the rules below will apply:
- Insert new rules and standards for noise and vibration in the vicinity of the railway corridor:
 - Railway noise standards for Activities Sensitive to Noise within 100m of a rail network boundary (i.e. within the Rail Noise Control and Vibration Alert Area); and
 - Construction design standards for indoor noise control for Activities Sensitive to Noise within 100m of a rail network boundary (i.e. within the Rail Noise Control and Vibration Alert Area).
- Require resource consent for a Restricted Discretionary Activity where these standards are not met. Provide matters of discretion by which resource consent applications will be assessed against.

² "Railway Corridor" means the area captured within the KiwiRail designation.

- Include an advice note that applies within the Rail Noise Control and Vibration Alert Area, and which alerts the plan user that activities within this Area may be subject to vibration effects from rail activities. No standards or other rules apply in relation to vibration.

1.2 Supporting Information and Assessment

The development of these provisions and the assessment in this Section 32 Report is informed by:

- an expert Noise and Vibration Memorandum by Stephen Chiles, dated July 2023, and attached as **Appendix 2**; and
- an expert Economic Assessment of Options to Manage Rail Noise and Vibration Effects (Economic Assessment) by Insight Economics, dated July 2023, and attached as **Appendix 3**.

The Noise and Vibration Memorandum characterises the noise and vibration associated with the operation of the rail network, and analyses the adverse health effects associated with rail noise and vibration both internationally and in New Zealand. It includes an assessment of appropriate levels for exposure to railway sound and vibration in the New Zealand context to avoid or mitigate sensitivity to rail noise and vibration in proximity to the KiwiRail network. This has informed the preparation and analysis of the proposed provisions, and particularly the appropriateness of the proposed Rail Noise Control and Vibration Alert Area and associated setbacks, acoustic standards, and the consideration of vibration standards.

The Economic Assessment analyses the economic costs and benefits associated with the proposed provisions against a 'do nothing approach', and KiwiRail proposed provisions approach (being option G in this report), and a 100m setback approach (being Option E in this report). This includes the economic costs and benefits of health and amenity effects, building design/location, policy implementation, administration and compliance, opportunity costs of potentially forgoing noise sensitive development, and compromised rail operation and efficiency as a result of reverse sensitivity. The Economic Assessment quantifies an estimate of the net costs and benefits per kilometre of track, which confirms that the preferred option has the highest net economic benefit of the three options assessed.

1.3 Requirements of Section 32 of the Act

This report provides an evaluation of the proposed objective and options to achieve the objectives in accordance with section 32 of the Act. Under the Act, a section 32 evaluation must:

- Examine whether the proposed objectives of the proposal are the most appropriate way to achieve the purpose of the Act (s32(1)(a));

- Examine whether the proposed provisions are the most appropriate way to achieve the objectives by identifying other reasonably practicable options, assessing the efficiency and effectiveness of options and summarising the reasons for deciding on provisions (s32(1)(b));
- Relative to considering the efficiency and effectiveness of the provisions in achieving the objective, include an assessment of the benefits and costs of the effects anticipated from implementing the provisions (s32(2));
- Contain a level of detail that corresponds to the scale and significance of the environmental, economic, social, and cultural effects that are anticipated from implementing the proposal (s32(1)(c)); and
- Where amendments are sought to a plan change that is already proposed or a plan which already exists, evaluate the proposal against both the objectives of the proposal and the objectives of the existing plan or plan change (s32(3)). As this assessment applies to District Plans generally, additional evidence is likely to be required in terms of s32(3) for specific plans or plan changes.

Each of these matters is assessed in this report (other than s32(3)), and on that basis the proposed provisions are considered the most appropriate way to achieve the sustainable management purpose of the Act.

2. Resource Management Issue

2.1 Operational Rail Noise

Railway noise levels are dependent on the type and condition of train and traffic volumes, speeds, track geometry and condition, and terrain and other factors. When considering railway noise levels the assumed railway traffic volumes are also important. With full geospatial details and information on railway activity, various standard acoustics computer modelling packages can be used to predict railway noise levels, depending on the situation. However, there is currently no standardised approach to this modelling for railway sound in New Zealand, nor consistent use of a particular method.

In 2009 KiwiRail commissioned Marshall Day Acoustics to provide a recommended method for the prediction and control of rail noise. The recommendations of Marshall Day Acoustics have provided the basis for the methods developed and considered in this report. This is assessed and explained in greater detail in the Noise and Vibration Memorandum provided at Appendix 2 to this report.

The method proposed by Marshall Day Acoustics, and outlined in detail in the Noise and Vibration Memorandum uses a 1 hour averaging method, to appropriately capture the noise maximums likely from the rail network. Specifically, it utilises the following assumed noise levels from rail activities at certain distances:

The following provides an illustration of typical railway sound levels based on an assumption of approximately two freight train movements in a one-hour period, in a flat area without screening. This is based on data summarised by Marshall Day Acoustics. More recent (unpublished) measurements for various New Zealand train types confirm these sound levels are in a realistic range.

Distance from track	Sound level
10 metres	71 dB L _{Aeq} (1h)
20 metres	68 dB L _{Aeq} (1h)
30 metres	66 dB L _{Aeq} (1h)
40 metres	64 dB L _{Aeq} (1h)
50 metres	62 dB L _{Aeq} (1h)
60 metres	60 dB L _{Aeq} (1h)
70 metres	59 dB L _{Aeq} (1h)
80 metres	58 dB L _{Aeq} (1h)
90 metres	56 dB L _{Aeq} (1h)
100 metres	56 dB L _{Aeq} (1h)

Table 1: Typical rail sound levels (Noise and Vibration Memorandum)

The Noise and Vibration Memorandum sets out that internal sound levels with windows ajar for ventilation will typically be around 15 dB less than the above external levels.

2.2 Reverse Sensitivity

Reverse sensitivity is the susceptibility of lawfully established effects-generating activities (which cannot internalise all of their effects) to complaints or objections arising from the location of new sensitive activities nearby those lawfully established activities.

In the context of the railway corridor, this can adversely affect the 3500km of rail network throughout New Zealand, where activities that are sensitive to noise and vibration establish in close proximity to the rail corridor without suitable mitigation. The rail corridor is existing, fixed in place, and actively used for rail services (freight and/or passenger).

Without appropriate land use controls in place to manage health and amenity effects and the resulting reverse sensitivity effects associated with new or altered land uses in the vicinity of the railway corridor, sensitive activities can be adversely affected by rail noise and vibration, and this has adverse reverse sensitivity effects on the efficient operation of the rail network.

The rail network is usually identified as “regionally significant infrastructure” or similar definition in District Plans, which makes clear its importance to the District, Region and in some cases Country in terms of transportation of freight, passengers and associated resilience.

The Economic Assessment quantifies the net benefits and costs on rail operations under a ‘do nothing’ scenario (being Option A in this report). The net costs related to impacts on rail operation are estimated as \$97,000 per kilometre of track. Conversely, the Economic Assessment confirms

there will be 0\$ net costs to rail operation resulting from the proposed provisions.

2.3 Health Effects of Rail Noise

Where noise effects from the railway corridor are not appropriately managed by land use controls, health and amenity effects can arise for Activities Sensitive to Noise located on land near the railway network throughout New Zealand.

It is widely accepted nationally and internationally that sound and vibration from rail networks have the potential to cause adverse health effects on people living nearby. This has been documented by authoritative bodies such as the World Health Organisation³ (**WHO**), including a publication by WHO Europe in October 2018 (**2018 WHO Guidelines**), which set out guidelines for managing environmental noise⁴. These WHO publications are underpinned by robust scientific research.

The 2018 WHO Guidelines are based on a critical review of academic literature and followed a rigorous protocol to determine the quality of evidence of adverse effects. With respect to noise from rail networks, the 2018 WHO Guidelines note the following adverse effects: ischaemic heart disease, hypertension, high annoyance and sleep disturbance. Based on the evidence of adverse effects, WHO makes recommendations to policymakers to reduce rail noise exposure to below a range of guideline values.

The Noise and Vibration Memorandum provides an analysis of the WHO Guidelines and applicability of those guidelines to New Zealand. Research published in 2019⁵ specifically addresses the applicability of international data on noise annoyance to New Zealand. For rail noise, this research was based on a survey of 244 people living in the vicinity of the North Island Main Trunk in South Auckland, including the section through Drury. The survey was based on the questions and methods set out in the international technical specification ISO/TS 15666⁶, which is the same approach used in most international studies. The research found that international noise response curves are generally applicable to the New Zealand context, although potentially New Zealanders may be slightly more noise sensitive.

³ World Health Organisation, Guidelines for community noise, 1999; World Health Organisation, Burden of disease from environmental noise, 2011.

⁴ World Health Organisation, Environmental noise guidelines for the European region, 2018.

⁵ Humpheson D. and Wareing R., 2019. Evidential basis for community response to land transport noise, Waka Kotahi Research Report 656. <https://nzta.govt.nz/resources/research/reports/656/>

⁶ International Standards Organisation ISO/TS 15666:2003 Acoustics – assessment of noise annoyance by means of social and socio-acoustic surveys.

Although there is current New Zealand and international research that may further refine the understanding of health effects associated with exposure to railway noise, the memorandum sets out that the existing 2018 WHO Guidelines already establishes there are adverse health effects that warrant intervention.

KiwiRail employs various other mechanisms to reduce rail noise and vibration from the railway corridor. These include the installation of ballast mat, rail grinding and tamping, ballast cleaning and replacement, and automated monitoring of rolling stock wheel condition. In terms of track condition, KiwiRail has comprehensive procedures including measurement of track condition/ geometry with a specialist survey vehicle several times a year, and maintenance systems acting on that data.

As explained by Dr Chiles in the Noise and Vibration Memorandum, noise attenuation walls are rarely available for mitigation purposes as typically the rail corridor is elevated and therefore such a wall would need to be unreasonably high to provide benefit. Therefore, not all noise and vibration effects can be completely internalised within the KiwiRail designation boundaries. These effects are the result of normal rail operation and maintenance and cannot be solely attributed to defects in track or rolling stock, and form part of the existing environment.

For new buildings and alterations or additions to existing buildings near to the railway network, it is relatively straight-forward to control internal noise through building location, design and systems (such as using acoustic insulation and mechanical ventilation). In most cases, it is practical to achieve acceptable internal noise levels using such measures. Therefore, with careful design of building location, orientation and materials, and/or the use of new or existing barriers such as acoustic walls and/or bunds, or locating new dwellings behind existing dwellings or landforms on a site, the adverse effects of noise can be appropriately avoided and/or mitigated.

The Noise and Vibration Memorandum sets out that in the New Zealand context:

...railway sound level criteria of 35 dB LAeq(1h) inside bedrooms and 40 dB LAeq(1h) inside other habitable spaces have previously been applied for protection from health effects. These values are slightly higher (more lenient) than the 2018 WHO Guidelines for regular sound events but would be more stringent for infrequent events. This comparison relates only to average sound levels, but corresponding relationships with health effects for different frequencies of railway events are uncertain/unknown. Therefore, currently there is not an evidence base available that would support significantly more or less stringent railway sound criteria than 35 dB LAeq(1h) inside bedrooms and 40 dB LAeq(1h) inside other habitable spaces for

protection of health.

The provisions proposed by KiwiRail is consistent with this approach, and adapted for the New Zealand context as an integral part of KiwiRail's broader noise management activities. The internal noise levels are therefore adopted in the proposed provisions, which provide a suite of options for compliance including building location, orientation and materials, and/or the use of barriers such as acoustic walls and/or bunds.

2.4 Effects of Rail Vibration

Norwegian Standard NS 8176⁷ provides a summary of annoyance and disturbance relationships associated with vibration from land-based transport. These relationships demonstrate that adverse effects occur at vibration exposures typically found around existing rail networks. The primary issue relates to people in buildings being disturbed due to feeling vibration. Furthermore, the same vibration can cause buildings to radiate noise inside. As for managing sound, routine track and rolling stock (wheel) maintenance can contribute to reducing vibration at source.

Vibration can vary significantly depending on ground conditions and localised features such as buried services and structures. Even with 'good' ground, track and rolling stock conditions there is still inherent vibration from railways that can cause disturbance.

The Noise and Vibration Memorandum sets out that:

Adverse effects of railway vibration can include annoyance and sleep disturbance for building occupants and damage to buildings. Damage to buildings (even cosmetic damage) occurs at greater vibration magnitudes than those which can cause annoyance.

Internationally, there has been less research into transportation vibration effects on people compared to research on transportation sound effects. However, the evidence that does exist on adverse health effects caused by railway vibration indicates they are material, and as such the relative paucity of research is not an indicator of the degree of effects. There is international research ongoing in this area. Research is also investigating health effects arising from the combination of railway sound and vibration.

⁷ Norwegian Standard NS 8176:2017 Vibration and shock – Measurement of vibration in buildings from land based transport. and guidance to evaluation of its effects on human beings.

In analysing the standards currently adopted nationally and internationally for assessing vibration effects, the Noise and Vibration Memorandum assesses vibration levels measured from different sources in New Zealand, and concludes that,

There is a knowledge gap as to the actual likelihood of cosmetic damage from railway vibration in New Zealand. However, all potential criteria for vibration effects on people are substantially more stringent, such that for buildings containing sensitive activities, cosmetic building damage might not require separate consideration.

For new buildings and alterations or additions to existing buildings near to the railway network, as with railway noise, vibration can be controlled through building location, and design. Therefore, with careful design of building location, orientation and materials, the adverse effects of vibration can be appropriately avoided and/or mitigated.

However, the exact design requirements to ensure compliance with appropriate vibration levels depend significantly on site-specific factors, including ground condition / soil type, topography or other environmental features. The level of controls required and the associated cost of implementing such controls can therefore differ significantly on a site-to-site basis.

Without further research into the requirements and cost of implementing such controls on a district-wide basis, there is insufficient existing data to confirm appropriate district-wide provisions which require physical controls for vibration.

For this reason, KiwiRail has instead pursued a “Rail Vibration Alert Layer” be added to the District Plan maps. Such alert layers ensure landowners and occupiers are aware that vibration effects may be present in this location (100m from the rail corridor). They can then make their own design and location decisions should they wish to mitigate such effects. This enables behaviour change and appropriate notice to landowners, while avoiding uncertain costs of controls at this time.

2.4 Economic Effects

The Economic Assessment estimates the likely costs and benefits of 3 options: Option 1 to ‘do nothing’ (Option A in the s32 assessment below), Option 2 being the proposed provisions (Option G in the s32 assessment below), and Option 3 being a 100m setback option (per kilometre of rail track) (Option E in the s32 assessment below). The net costs and benefits of each option based on the assumptions set out in the Economic Assessment are summarised below.

Costs/Benefits per km of Track	Option 1	Option 2	Option 3
Amenity & health benefits	-\$4,665,600	\$0	\$0
Impacts on rail operation	-\$97,000	\$0	\$0
Policy compliance costs	\$0	-\$1,728,000	\$0
Housing market impacts	\$0	\$0	-\$28,800,000
Option Net Benefits/Costs	-\$4,762,600	-\$1,728,000	-\$28,800,000

Table 2: Estimated net benefits and costs per kilometre of track (Economic Assessment)

The Economic Assessment notes there are different economic costs associated with the assessed options, and that when compared to a 'do nothing' or set back approach, the proposed approach has the lowest economic cost.

"Doing nothing" (Option 1/Option A) has a higher economic cost, primarily related to impacts on amenity and health, with some costs to rail operations. The Economic Assessment sets out that it is impossible to accurately assess the extent to which reverse sensitivity would disrupt the rail network and the consequential impacts on the economy. However the Economic Assessment sets out for illustrative purposes, at a national scale, *"every 1% reduction in rail traffic caused by reverse sensitivity from new Activities Sensitive to Noise establishing nearby would cost approximately \$17 to \$21 million per annum"*.

A 100m setback (Option 3/Option E) while avoiding any economic impacts on rail and human health, *"will have the greatest impacts on housing supply because it sterilises the use of land for Activities Sensitive to Noise within 100 metres of the rail network"*. The housing market costs associated with the loss of developable land are analysed in the Economic Assessment, and estimated net costs for a conservative typical mixed residential and non-noise sensitive activity scenario are approximately \$28,800,000 per kilometre of track.

The proposed approach (Option 2/Option G) is assessed in the Economic Assessment as having no economic impacts associated with human health and rail operation effects. However there will be policy, administrative, and compliance costs estimated at approximately \$1,728,000 per kilometre of track for a conservative typical mixed residential and non-noise sensitive activity scenario. These costs include the upfront costs to comply with the noise standards (acoustic assessment and the mitigation measures themselves), conservatively estimated as being \$3000 (for an acoustic assessment), plus 3% of the building value for the associated mitigation to achieve compliance.

Although this places some cost burden on those establishing activities sensitive to noise in the vicinity of the rail network, these are largely one-off upfront costs which are a small proportion of

the total build cost. Additionally, these costs are significantly lower than the costs to health associated with no mitigation, and significantly lower still than the opportunity costs to the housing market of prohibiting the activity in the vicinity of the rail network.

2.5 Duty to Avoid Unreasonable Noise

Section 16 of the Act requires that:

"Every occupier of land... shall adopt the best practicable option to ensure that the emission of noise from that land or water does not exceed a reasonable level", and

"A national environmental standard, plan, or resource consent made or granted for the purposes of any of sections 9, 12, 13, 14, 15, 15A, and 15B may prescribe noise emission standards, and is not limited in its ability to do so by subsection".

KiwiRail is a responsible infrastructure operator that endeavours to avoid, remedy or mitigate the adverse rail noise and vibration it produces, through its ongoing programme of upgrade, repairs and maintenance work to improve track conditions.

As discussed above, KiwiRail employs various mechanisms to reduce rail noise and vibration from the railway corridor. These include the installation of ballast mat, rail grinding and tamping, ballast cleaning and replacement, and automated monitoring of rolling stock wheel condition. KiwiRail has comprehensive procedures including measurement of track condition/geometry with a specialist survey vehicle several times a year, and maintenance systems acting on that data.

Not only is this important to KiwiRail as part of being a good neighbour, but it is also under a statutory obligation to use the best practicable option to avoid unreasonable noise (s16) and to avoid, remedy or mitigate adverse effects on the environment (s17).

The proposed provisions complement the above measures undertaken by KiwiRail in respect of its responsibilities under s 16 of the Act – to mitigate the remaining adverse effects that remain following the responsible management of noise and vibration by KiwiRail. They apply only to those developments which are bringing new or expanded sensitive activities to the existing activity operated by the KiwiRail – they do not impose new obligations on already established activities. As set out in the Economics Report, the provisions are also likely to result in a range of ancillary benefits to those dwellings where they are incorporated, including warmer, drier, and quieter homes that are also worth more.

Given the responsibility for the new activity lies with the neighbouring landowners, and the benefits

which come from the controls accrue to the new landowners, including in respect of overall property value, it is considered appropriate that the costs are assumed by those landowners. This is discussed further below in respect of Option H.

3. Approach to Issue

Mapping, land use rules and standards to avoid or mitigate adverse noise and vibration effects on sensitive activities are critical to protect sensitive activities from these effects. These standards are also fundamental to managing the potential for reverse sensitivity effects on the railway network as a result of this sensitivity. The location of incompatible sensitive activities in proximity to rail infrastructure can lead to noise and vibration effects on and complaints from sensitive users, affecting both the occupants in these areas, and affecting KiwiRail.

There are many examples in NZ district plans which seek to control the location and design of sensitive activities such as housing, healthcare and education facilities where such activities seek to locate near existing sources of noise and/or vibration. These include roads, railways, airports, ports, quarries, industrial sites, industrial and business zones, gun clubs and motorsport facilities. For sensitive activities near existing railways, examples of second-generation operative district plans containing controls include: Christchurch, Dunedin, Tauranga, Hamilton, Palmerston North and Hutt City. All these existing plans control land use standards to manage the adverse effects of noise and/or vibration.

The proposed provisions require that noise and vibration sensitive activities that may establish in proximity to the rail network are appropriately designed and sited to reduce the noise effect to an acceptable level. This will ensure that adverse effects on human health and amenity are appropriately managed, protects public health, provides certainty to those developing land adjacent to the rail corridor of the permitted standards, and protects nationally and regionally significant rail infrastructure from reverse sensitivity.

The proposed provisions are set out in full in **Appendix 1** and are summarised briefly below.

3.1 New Definitions

KiwiRail seeks the following definitions be added to the Definitions Section (if a suitably similar definition is not already in place in the District Plan):

Activity Sensitive to Noise: means any residential activity (including student or retirement accommodation), visitor accommodation, educational facility, child care facility, healthcare activity, and places of worship/marae.

3.2 New Objective and Policies

Insert a new objective and two policies providing for the importance of the rail network and the potential for reverse sensitivity effects when activities sensitive to noise are in close proximity:

- The Objective is to *'Ensure adverse reverse sensitivity, health and wellbeing effects arising from the development of Activities Sensitive to Noise adjacent to the railway network are appropriately avoided or mitigated'*.
- The policies are to:
 - *'Avoid reverse sensitivity effects on the ongoing and future operation and development of the railway network by ensuring new Activities Sensitive to Noise are designed or located to meet appropriate acoustic design standards'; and*
 - *'Manage effects on the health and wellbeing of communities through the design and location of Activities Sensitive to Noise adjacent to the railway network to meet appropriate acoustic design standards'.*

Where plans include existing objectives and/or policies which appropriately capture the matters above, or which could be amended or added to in order to integrate the objectives above, then this may be appropriate to ensure greater integration of the provisions into the particular plan.

3.3 New Rules and Standards

KiwiRail seeks the following rules and standards be added to the District Plan:

- For all zones at any point within 100 meters from the legal boundary of the KiwiRail Rail Corridor Designation (**Rail Noise Control and Vibration Alert Area**), all new buildings or alterations to existing buildings containing an Activity Sensitive to Noise, must meet:
 - Specified Internal noise standards ranging from:
 - 35 dB LAeq(1h) for sleeping spaces, lecture rooms/theatres, music studios, assembly halls, and places of worship and marae,
 - 40 dB LAeq(1h) for all other habitable rooms, and education teaching areas, conference rooms, drama studios and sleeping areas, and overnight medical care and wards, and

- 45 dB LAeq(1h) for libraries, and health clinics, consulting rooms, theatres and nurses' stations; or
 - The nearest exterior façade of the building accommodating the activity is at least 50m from the railway network and is protected by a specified noise barrier, or
 - It can be demonstrated by way of prediction or measurement that the noise at all exterior façades of the listed activity is no more than 15 dB above the relevant noise levels; and
 - For buildings which require windows to be closed to achieve the noise standards, mechanical ventilation standards must be met; and
 - A report is submitted to the council demonstrating compliance with the above rules prior to the construction or alteration of any building containing an activity sensitive to noise using specified assumptions.
- Require resource consent for a Restricted Discretionary Activity where these standards are not met. Provide matters of discretion by which resource consent applications will be assessed against which limit the assessment of effects to the extent of non-compliance, effects on health and wellbeing, reverse sensitivity effects, and the outcome of any consultation with KiwiRail.
- Include an advice note that applies within the Rail Noise Control and Vibration Alert Area, and which alerts the plan user that activities within this Area may be subject to vibration effects from rail activities. No standards or other rules apply in relation to vibration.

4. Assessment of Objective

Section 32(1)(a) requires an assessment of whether the proposed objective is the most appropriate way to achieve the purpose of the Act. The purpose of the Act is set out in Section 5 as:

- (1) *The purpose of this Act is to promote the sustainable management of natural and physical resources.*
- (2) *In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—*
 - (a) *sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
 - (b) *safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
 - (c) *avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

An assessment of the provisions against the proposed Objective against section 5 is set out in the table, below.

Table 3: Assessment of Objective under Section 5 of the Act

Proposed KiwiRail Provisions	Reason for Objective
Objective Ensure adverse reverse sensitivity, health and wellbeing effects arising from the development of Activities Sensitive to Noise adjacent to the railway network are appropriately avoided or mitigated. Policy Avoid reverse sensitivity effects on the ongoing and future operation and	The objective and supporting policies enable communities to provide for their health and wellbeing, and protects the railway network from reverse sensitivity. Where located in close proximity to the railway corridor, activities sensitive to noise are appropriately designed and sited so that adverse effects on health and wellbeing are appropriately managed, and railway infrastructure is appropriately protected from reverse sensitivity.

development of the railway network by ensuring new Activities Sensitive to Noise are designed or located to meet appropriate acoustic design standards. Policy Manage effects on the health and wellbeing of communities through the design and location of Activities Sensitive to Noise adjacent to the railway network to meet appropriate acoustic design standards.	This enables people to provide for the economic and social use of sites adjacent to the railway corridor, and to meet the reasonably foreseeable needs of the activity, while ensuring that adverse noise and vibration effects are avoided and mitigated. It is therefore considered that the proposed objective is the most appropriate way to achieve the purpose of the Act.
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5. Assessment of Proposed Noise and Vibration Provisions

Sections 32(1)(b) and 32(2) require an assessment of the proposed provisions to be undertaken to test their appropriateness and efficiency and effectiveness. This must include:

- whether the proposed provisions are the most appropriate way to achieve the objectives by identifying other reasonably practicable options, assessing their efficiency and effectiveness and summarising the reasons for deciding on provisions; and
- relative to considering the efficiency and effectiveness of the provisions in achieving the objective, include an assessment of the benefits and costs of the effects anticipated from implementing the provisions.

The cost and benefit assessment must identify and assess the costs and benefits associated with environmental, economic, social, and cultural effects including economic growth and employment that are anticipated to be provided or reduced. If practicable, the Act requires that these be quantified.

Section 32(2)(b) also requires an assessment of the risk of acting or not acting if there is uncertain or insufficient information. In this case, it is acknowledged that the costs of implementing the insulation measures will vary on a site by site basis, and the scale will depend on factors such as extent of area affected and density of housing. However, there is considered to be sufficient information about the effects of noise and vibration on health and amenity and reverse sensitivity to the rail corridor, to determine the range and nature of effects of the options. No assessment of the risk of acting or not acting is necessary.

5.1 Identification of Reasonably Practicable Options

KiwiRail have considered a range of potential options. This includes 'doing nothing', a number of existing approaches, the proposed provisions, and other regulatory methods and mechanisms available. These are summarised below:

Option A – Do nothing:

No or limited railway noise and vibration provisions in the District Plan. This may include no specific noise and vibration rules, standards or mapping overlays, but may include consideration of reverse sensitivity effects when assessing the adverse effects of any resource consent application, depending on the existing objectives, policies and rules in the District Plan.

This includes subdivision, use or development within the vicinity of the railway corridor if the District Plan provides sufficient direction to do so.

Option B – Rail operator reduces noise and vibration emissions:

The rail operator ensure that noise and vibration emissions are reduced to the extent that Activities Sensitive to Noise within 100m of the rail corridor achieve the recommended noise and vibration levels without needing to undertake any specific insulation, ventilation or construction design standards.

Option C – Noise barriers:

Acoustic walls or bunds installed by the applicant or the rail operator with no other noise or vibration management methods.

Option D – Construction design standards:

A table which specifies minimum construction materials and standards necessary to achieve internal acoustic levels within buildings, with no other noise or vibration management methods.

Option E – Setbacks:

Requiring Activities Sensitive to Noise to be set back 100m from the railway corridor with no other noise or vibration management methods.

Option F – Internal acoustic standards:

Require internal acoustic and ventilation rules and standards for noise-sensitive activities, but provide no other options to achieve compliance.

Option G – Combination of rules and standards (Proposed provisions):

Within 100m of the railway corridor, provide several options to achieve compliance with internal acoustic levels – within 50m of the rail corridor buildings are designed to meet specified Internal noise levels, or must meet a 50m setback, or where the noise at exterior façades is measured or predicted to be no more than 15 dB above the relevant noise level. Buildings must also meet mechanical ventilation standards and reporting standards. Includes an advice note to alert plan users that Activities Sensitive to Noise within the Rail Noise Control and Vibration Alert Area may be subject to vibration effects.

Option H – Proposed provisions funded by rail operator:

Within 100m of the railway corridor, via a mapped Rail Noise Control and Vibration Alert Area, the same options to achieve compliance would be available – buildings are designed to meet

specified Internal noise levels, or must meet a 50m setback, or noise at exterior façades is no more than 15 dB higher. Buildings must also meet mechanical ventilation standards and reporting standards, and there is an advice note regarding vibration effects. However, the difference is that KiwiRail would fund the achievement of these standards.

Option I – Landscaping:

Landscape planting to provide acoustic mitigation, with no other noise or vibration management methods.

Option J – National regulation:

This may include changes to the Building Act or Building Code or introduction of a National Planning Standard or National Environmental Standard. The Building Act and Code currently provides specifications to manage inter-tenancy noise (eg noise between residential apartments within the same building with shared tenancy walls). However, it does not require the management of internal noise where noise is generated from outside a building (e.g. rail noise from an adjacent rail corridor).

Option K Reverse sensitivity covenant:

A plan provision which requires a covenant whereby property owners agree not to complain about noise and vibration effects on sensitive land uses. This is often referred to as a ‘no complaints’ covenant.

An assessment of these options in accordance with Sections 32(1)(b) and 32(2) of the Act is provided below.

5.2 Assessment of Reasonably Practicable Options

Table 4: Assessment of Reasonably Practicable Options

Option A - Do nothing No or limited railway noise and vibration provisions, but this option may include consideration of reverse sensitivity effects when assessing a resource consent application for subdivision, use or development within the vicinity of the railway corridor.
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Effectiveness and Efficiency	Costs	Benefits
Doing nothing requires no action from the territorial authority or applicant so could be considered efficient. It is considered to be the least effective option as it will place no limit on the establishment of Activities Sensitive to Noise in the vicinity of the railway corridor. This will result in an increase in exposure of sensitive activities to the adverse effects of rail noise and vibration.	Doing nothing will result in the establishment of Activities Sensitive to Noise in the vicinity of the railway corridor without being appropriately designed and sited. This will result in an increase in exposure of sensitive activities to the adverse effects of rail noise and vibration, resulting in adverse health and amenity effects for people, and adverse reverse sensitivity effects on rail activity. These costs are analysed in the Economic Assessment, and estimated net costs to health and amenity are approximately \$4,665,600, estimated net costs to rail operation is approximately \$97,000, with these costs totalling approximately \$4,762,600 per kilometre of track.	There will be no additional regulatory cost or costs to landowners and occupiers in terms of compliance or building cost increases. There will be no administration and regulatory costs to the territorial authority as there will be no associated resource consenting or monitoring and compliance.
<i>Is doing nothing reasonably practicable?</i> No – it will not achieve the objective and will result in adverse health and wellbeing effects, and adverse reverse sensitivity effects.		

Option B – Rail operator reduces noise and vibration emissions

The rail operator ensure that noise and vibration emissions are reduced to the extent that Activities Sensitive to Noise within 100m of the rail corridor achieve the recommended noise and vibration levels without needing to undertake any specific insulation, ventilation or construction design standards.

Effectiveness and Efficiency	Costs	Benefits
This option would not be efficient or effective as, given mitigation measures to minimise rail noise and vibration are unable to comprehensively control these effects, this would significantly curtail the reasonable operation of the existing rail network, and would eliminate the opportunity for any growth in rail traffic over time, resulting in an inefficient use of infrastructure. This would then have consequences for the delivery of freight and passenger transport, and may compromise the achievement of emissions reduction targets by increasing the reliance on road freight.	This option would likely be cost prohibitive to KiwiRail given the impacts on its operations. There may be an environmental cost associated with an increase in emissions associated with having to rely on alternative transport methods.	There are no potential benefits to KiwiRail associated with this option. There would be health and amenity benefits associated with the reduction of rail noise and vibration for Activities Sensitive to Noise within the vicinity of the rail corridor. There may be benefits to landowners to maximise development potential for Activities Sensitive to Noise within the vicinity of the rail corridor.
<i>Is doing noting reasonably practicable?</i> No – this option would places significantly curtail rail the efficient use and development of rail infrastructure.		

Option C – Noise barriers Acoustic walls or bunds installed by the property owner or by the rail operator.		
Effectiveness and Efficiency	Costs	Benefits
This option is effective and efficient when it integrated into the design of a new development in some instances. Acoustic walls may be able to be retrofitted in some instances. However it is not always practical because the height of the barrier required to achieve compliance would be very high (often in excess of 3.8m) and is therefore either impracticable or not consentable/difficult to consent. Most locations have practical limitations to install noise barriers. Limitations include the typical raised nature of rail lines (and train engines above these) above surrounding land, or from undesirable ground conditions and a lack of physical corridor which may necessitate property purchase due to the wider	There is a monetary cost of the installation of acoustic walls by KiwiRail. However this is not typically done by KiwiRail given the practical limitations set out in the efficiency and effectiveness review. Acoustic walls can be visually dominant and result in significant shading and shadowing, and can block view and outlook, given the heights required to achieve acoustic compliance. For these reasons the amenity and construction costs may in some circumstances be greater than the health and amenity effects they seek to mitigate. Walls and bunds also may reduce passive surveillance of surrounds and do not reduce vibration effects which would still need to be managed in a different way. If the permitted standards	Acoustic walls and bunds can provide noise reduction for single storied buildings. They also assist in visually screening development from the rail corridor, reducing the perception of noise, however they are often not practical or consentable, and can result in other health and amenity effects.

area of land required for the foundations of the noise barriers which require a wide base (which may result in the removal of adjacent activities) or for the physical space required for any bund. Whether bunds or acoustic walls are used, these may not often be effective for buildings of more than one storey.	are not met, then there will be costs borne by the applicant to prepare a resource consent application, costs to the territorial authority to assess the application, and costs to KiwiRail as a submitter to the application.	
<i>Is the proposed approach reasonably practicable?</i> In some circumstances acoustic walls and bunds can manage the adverse effects of noise on Activities Sensitive to Noise, and will protect KiwiRail railway infrastructure from reverse sensitivity. However, they are difficult to retrofit to existing situations, are often impractical for new situations, and can result on other adverse health and amenity effects.		

Option D – Construction design standards		
A table which specifies minimum construction materials and standards necessary to achieve internal acoustic levels.		
Effectiveness and Efficiency	Costs	Benefits
This option is somewhat effective and efficient. It is a relatively common approach	There will be additional compliance costs during building consent and building	Construction standards provide certainty as to outcome and design

to managing the adverse effects of noise in District Plan. However, it can have some limitations in terms of effectiveness as it essentially 'locks in' the standards to those at the time of writing the provisions. This means as construction standards improve and change over time, the standards in the plan remain static. This can result in future activities needing to obtain a resource consent where the standards are not met – even where the noise and vibration effects are appropriately managed. The Noise and Vibration Memorandum also sets out that in the Christchurch District Plan, although multiple compliance options were included for mitigating road and rail noise in buildings, including design standards, that on review of the controls the Council found that in most cases site-specific assessment associated with meeting internal acoustic standards was selected. This was presumably as despite any	construction when compared with Option A. Building and compliance design costs will be borne by the applicant and compliance confirmation costs will be borne by the territorial authority and/or the applicant. If the permitted standards are not met, then there will be costs borne by the applicant to prepare a resource consent application, costs to the territorial authority to assess the application, and costs to KiwiRail as a submitter to the application. Construction standards can often be complex, and typically require technical expertise on behalf of applicant and regulatory authority if there is any deviation from the standards in the schedule. This can impose additional monetary and time costs. Construction standards often lack the flexibility to accommodate individual site circumstances. This may occur if the topography of the site removes or reduces the	specifications, and the associated costs can be estimated. Where compliance with the standards is demonstrated, an acoustics specialist does not need to be engaged by any party. Compliance can simply be demonstrated on building plans at the time a building consent is lodged.
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specialist assessment costs the site-specific assessment provided a more efficient solution. This option is therefore considered to be less efficient than the preferred options.	need for all construction design standards to be met. As the standards are essentially 'locked in' to the plan, it requires a plan change to update them. The same requirements apply regardless of the level of external noise exposure. This means that some buildings will have more treatment and associated costs than is necessarily needed to achieve adequate indoor noise levels. Conversely, some buildings with the higher external noise exposure might not have adequate treatment.	
<i>Is the proposed approach reasonably practicable?</i> Somewhat – construction standards are a common regulatory approach to manage the adverse effects of noise and vibration for Activities Sensitive to Noise, and will protect KiwiRail railway infrastructure from reverse sensitivity. However, achieving compliance can be complex, and it is less preferred in practice than the acoustic standards in Option F, and there are limitations to this approach.		

Option E – Setbacks Building or activity setback for Activities Sensitive to Noise of 100m from the railway corridor with no other noise or vibration management methods.		
Effectiveness and Efficiency	Costs	Benefits
This option is effective as it is a simple method to minimise noise and vibration. However, it is not an efficient use of land. This approach is efficient for large rural sites where there is flexibility to locate Activities Sensitive to Noise away from the railway corridor.	The costs of requiring effective setbacks is the loss of developable land for Activities Sensitive to Noise within the vicinity of the railway corridor. The housing market costs associated with the loss of developable land are analysed in the Economic Assessment, and estimated net costs for a conservative typical mixed residential and non noise sensitive activity scenario are approximately \$28,800,000 per kilometre of track. This also imposes a maintenance burden on the landowner as the person responsible for maintaining the large setback areas. If the permitted standards are not met, then there will be costs borne by the applicant to prepare a resource consent application, costs to	This is a simple approach that can work well for large rural sites where setback areas can continue to be used for agricultural purposes. However this approach remains open to rural sites as a method of management under other controls (including noise provisions). Setbacks effectively minimise noise, vibration and amenity effects.

	the territorial authority to assess the application, and costs to KiwiRail as a submitter to the application.	
<i>Is the proposed approach reasonably practicable?</i> Yes – it provides a tried and tested regulatory approach to effectively manage the adverse effects of noise and vibration on Activities Sensitive to Noise, and will protect KiwiRail railway infrastructure from reverse sensitivity. However, it is only efficient and effective for large rural sites, and there are high opportunity costs to the housing market.		

Option F – Acoustic Standards Require internal acoustic rules and standards for noise-sensitive activities, but provide no other options to achieve compliance.		
Effectiveness and Efficiency	Costs	Benefits
Acoustic standards are reasonably efficient and are common in a number of District Plans to manage noise effects of different activities including road, rail and aircraft noise. Territorial authorities typically require certification that the standard is met as part of the building consent application processing. Compliant buildings would not require a resource	There will be additional compliance costs during building consent and building construction when compared with Option A. Building and compliance design costs will be borne by the applicant and compliance confirmation costs will be borne by the territorial authority and/or the applicant. If the permitted standards are not met, then there will be	Acoustic standards which require Activities Sensitive to Noise to meet internal noise standards provide flexibility to the applicant to determine how they wish to meet the standards. This can be achieved using different options. Provides health and amenity benefits for new and expanded sensitive activities locating adjacent to the rail corridor, without unduly constraining development of

consent. Internal acoustic standards are not effective if there are opening windows. Any standards therefore require internal ventilation standards to be included alongside insulation controls.	costs borne by the applicant to prepare a resource consent application, costs to the territorial authority to assess the application, and potentially costs to KiwiRail as a submitter to the application depending on the potential level of reverse sensitivity effect. These policy, administrative and compliance costs for a conservative typical mixed residential and non noise sensitive activity scenario are analysed in the Economic Assessment, and estimated net costs are approximately \$1,728,000 per kilometre of track.	Activities Sensitive to Noise near the rail corridor. Acoustic insulation also provides energy savings to occupiers and is likely to be capitalised in the value of the property. Avoids reverse sensitivity impacts on KiwiRail from increased numbers of sensitive activities locating adjacent to the rail corridor.
<i>Is the proposed approach reasonably practicable? Yes – as addressed in full above it provides for a tried and tested regulatory approach to effectively manage the adverse effects of noise and vibration on Activities Sensitive to Noise, and will protect KiwiRail railway infrastructure from reverse sensitivity.</i>		

Option G – Proposed Approach: Combination of new rules and standards for Activities Sensitive to Noise

Within 100m of the railway corridor, provide several options to achieve compliance with internal acoustic levels – within 50m of the rail corridor buildings are designed to meet specified Internal noise levels, or must meet a 50m setback, or where the noise at exterior façades is measured or predicted to be no more than 15 dB above the relevant noise level.

Buildings must also meet mechanical ventilation standards and reporting standards. Includes an advice note to alert plan users that Activities Sensitive to Noise within the Rail Noise Control and Vibration Alert Area may be subject to vibration effects.		
Effectiveness and Efficiency	Costs	Benefits
The provisions are effective as, depending on the activity and site circumstances, they provide several options for compliance. This option is efficient as it provides a range of options to achieve compliance. The standards are efficient as development meeting these standards will not require a consent and can be advanced as a permitted activity, which strikes an appropriate balance between enabling development and managing adverse effects. The standards are also efficient as they align with the rules in other District Plans – providing a nationally consistent approach and improving administration for KiwiRail and organisations operating nationally such as housing, healthcare and	There will be additional compliance costs during building consent and building construction when compared with Option A. Building and compliance design costs will be borne by the applicant and compliance confirmation costs will be borne by the territorial authority and/or the applicant. If the permitted standards are not met, then there will be costs borne by the applicant to prepare a resource consent application, costs to the territorial authority to assess the application, and costs to KiwiRail as a submitter to the application depending on the potential level of reverse sensitivity effect. These policy, administrative and compliance costs are analysed in the Economic Assessment, and for a	There will be an improvement in human health and amenity outcomes compared to Option A as there will be a reduction in the number of sensitive activities exposed to unacceptable levels of noise and vibration. It therefore enables Activities Sensitive to Noise to establish in the vicinity of the railway corridor where adverse effects can be effectively managed. This provides for the efficient use and development of land in accordance with section 7(b) of the Act. The range of permitted standards provides a flexible compliance pathway for applicants. It provides a range of potential responses to achieve compliance. This option also provides a comprehensive regulatory approach which recognises the actual spatial extent of railway corridor noise and vibration – and only limits

education providers. The noise and vibration provisions do not apply to existing activities so there are no additional constraints on developed sites where redevelopment is not anticipated. The provisions provide clear and specific matters of discretion which gives greater certainty to developers (and the Council) over the matters that will be assessed if resource consent is required.	conservative typical mixed residential and non noise sensitive activity scenario, the estimated net costs are approximately \$1,728,000 per kilometre of track.	activities which are adversely affected by operating outside these parameters.
<i>Is the proposed approach reasonably practicable?</i> Yes – it provides for a range of tried and tested regulatory approaches to effectively manage the adverse effects of noise and vibration on Activities Sensitive to Noise, and will protect KiwiRail railway infrastructure from reverse sensitivity.		

Option H – Proposed provisions funded by rail operator

Within 100m of the railway corridor, via a mapped Rail Noise Control and Vibration Alert Area, the same options to achieve compliance would be available – buildings are designed to meet specified Internal noise levels, or must meet a 50m setback, or noise at exterior façades is no more than 15 dB higher. Buildings must also meet mechanical ventilation standards and

reporting standards, and other than an advice note, there are no vibration standards. However, the difference is that KiwiRail would fund compliance with these standards.		
Effectiveness and Efficiency	Costs	Benefits
This option is efficient as it provides a range of options to KiwiRail to achieve compliance. This option is not effective as putting the onus on KiwiRail to fund any compliance costs could perversely incentivise landowners to develop closer to the rail corridor than they would if the measures were self-funded. This could increase the costs of compliance as higher standards of insulation could be required, and it would result in more Activities Sensitive to Noise establishing in closer proximity to the rail corridor.	The policy, administrative and compliance costs are analysed in the Economic Assessment, and for a conservative typical mixed residential and non noise sensitive activity scenario, the estimated net costs are approximately \$1,728,000 per kilometre of track. A large portion of these costs would be borne by KiwiRail.	The same benefit outlined in Option G apply, noting that benefits accrue to the landowner and occupier without any cost to them, despite their choice being to locate near a railway corridor.
<i>Is the proposed approach reasonably practicable?</i> No – this option could result in considerable cost to KiwiRail, of a level that would mean the implementation of the provisions is not feasible, and could perversely incentivise Activities Sensitive to Noise to establish in closer proximity to the rail corridor than they would otherwise.		

Option I - Landscaping Planted buffers to provide acoustic mitigation.		
Effectiveness and Efficiency	Costs	Benefits
This option is not effective or efficient, as dense landscaping in excess of tens of metres in width would be needed to provide noise reduction. Seasonal variations in terms of leaf density and weather induced variations may impact vegetation quality.	The costs of requiring effective landscape mitigation setbacks is the loss of developable land within the vicinity of the railway corridor. This also imposes a maintenance burden on the landowner as the person responsible for maintaining the large planted areas. If the permitted standards are not met, then there will be costs borne by the applicant to prepare a resource consent application, costs to the territorial authority to assess the application, and costs to KiwiRail as a submitter to the application.	Provides the benefit of added visual screening.
<i>Is the proposed approach reasonably practicable?</i> No – landscape planting is not an efficient or effective option.		

Option J – National Regulation		
This may Include changes to the Building Act or Building Code or the introduction of a National Planning Standard or National Environmental Standard.		
Effectiveness and Efficiency	Costs	Benefits
This option is likely to be the most efficient and effective compared to all other options. Unfortunately, although a nationally consistent approach would have a number of benefits, it is outside the Schedule 1 process of the Act and ultimately relies on political will.	Not applicable.	Not applicable.
<i>Is the proposed approach reasonably practicable?</i> No – not within scope.		

Option K – Reverse Sensitivity Covenant		
A plan provision which requires a covenant requiring the property owners agree not to complain about noise and vibration effects on sensitive land uses.		
Effectiveness and Efficiency	Costs	Benefits
This option is not effective and efficient, because it addresses the ability to complain about noise and vibration, rather than deal with those effects directly. Although this may avoid complaint regarding noise and vibration, Activities	There are legal costs associated with the covenant preparation and registration process. These costs will be borne by both the landowner and the territorial authority. This option provides for poor health and amenity outcomes as the actual	A covenant is a legally binding agreement between the property owner and the territorial authority, and is generally simple to understand. A covenant is likely to be a more cost effective approach compared to the other

Sensitive to Noise will still be affected by noise and vibration, resulting in adverse health and amenity effects for the occupants of these buildings and areas. A provision which requires a covenant is not efficient as it requires every individual site seeking to establish or add to a building to go through a covenant registration process against that individual parcel of land. In time, this can become difficult for a territorial authority to administer as it is not obvious whether or not a covenant applies to a record of title without searching that record of title individually.	effects of railway noise are not appropriately avoided or mitigated. If the permitted standards are not met, then there will be costs borne by the applicant to prepare a resource consent application, costs to the territorial authority to assess the application, and costs to KiwiRail as a submitter to the application.	options (excluding 'do nothing'), as It requires no additional building or design controls, or landscaping or noise barriers.
<i>Is the proposed approach reasonably practicable?</i> No – a reverse sensitivity covenant standard is not an efficient or effective option.		

6. Assessment Summary

Table 5: Assessment Summary

Reasonably Practicable Option	Assessment Summary
Option A – Do nothing: No or limited provisions.	Not reasonably practicable.
Option B – Rail operator reduces noise and vibration emissions: To the extent that no noise or vibration effect is generated on nearby Activities Sensitive to Noise.	Not reasonably practicable.
Option C – Noise barriers: Acoustic walls or bunds.	Not reasonably practicable.
Option D – Construction design standards: A table of minimum design requirements and construction materials to meet noise levels.	Somewhat reasonably practicable, but no favoured by plan users.
Option E – Setbacks: Building or activity setback of 100m with no other noise or vibration management methods.	Preferred methods – these methods can effectively manage the adverse effects of noise and vibration on Activities Sensitive to Noise and will protect KiwiRail railway infrastructure from reverse sensitivity. The most appropriate method to use is dependant on the site context.
Option F – Internal acoustic standards: Require internal acoustic rules and standards for noise-sensitive activities, but provide no other options to achieve compliance.	
Option G – Combination of rules and standards (Proposed provisions): New rules and standards for Activities Sensitive to Noise Within 100m of the railway corridor, provide several options to achieve compliance with internal acoustic levels – within 50m of the rail corridor buildings are designed to meet specified Internal noise levels, or must meet a 50m setback, or where	Most preferred method – Combines several of the methods above to provide options to effectively manage adverse noise effects and vibration and protect KiwiRail railway infrastructure from reverse sensitivity.

the noise at exterior façades is measured or predicted to be no more than 15 dB above the relevant noise level. Buildings must also meet mechanical ventilation standards and reporting standards. Includes an advice note to alert plan users that Activities Sensitive to Noise within the Rail Noise Control and Vibration Alert Area may be subject to vibration effects.	
Option H – Proposed provisions funded by rail operator: As above but funded by KiwiRail.	Not reasonably practicable.
Option I – Landscaping: Landscaping to provide acoustic mitigation.	Not reasonably practicable.
Option J – National Regulation: Changes to the Building Act or Code or new National Planning or Environmental Standards.	An out-of-scope potential long term solution.
Option K – Covenant: A 'no complaints' covenant provision.	Not reasonably practicable.

7. Conclusion

The operation, maintenance and development of the rail network is critical to the safe and efficient movement of freight and passengers throughout New Zealand, and forms an essential part of the national transportation network and the wider supply chain. KiwiRail's proposed provisions to the District Plan enable Activities Sensitive to Noise to be developed in the vicinity of the railway corridor where adverse noise and vibration effects can be effectively managed through a range of standards. The proposed provisions will mitigate health and amenity effects on new and altered Activities Sensitive to Noise that seek to establish within 100 metres of the railway corridor. This will ensure that the continued operation of nationally and regionally significant infrastructure of the rail corridor will be appropriately protected from reverse sensitivity, and neighbouring communities will experience positive health and amenity outcomes.

Consistent with section 32 of the Act, the proposed objective and policies have been developed and analysed against Part 2 and it is considered that the proposed objective is the most appropriate way to achieve the purpose of the Act.

The proposed provisions have been assessed against a number of alternative options in terms of their costs, benefits, and efficiency and effectiveness in accordance with the relevant clauses of section 32 of the Act.

The proposed provisions are considered to represent the most appropriate means of achieving the proposed objective. The provisions are also the most appropriate way of addressing the underlying resource management issues relating to managing the adverse effects of noise and vibration of surrounding land uses, and minimising reverse sensitivity effects to protect the railway network. Adopting the proposed provisions will maintain and enhance the continued use of Railway infrastructure while enabling the efficient subdivision, use and development of land in its vicinity, and providing for health and amenity outcomes.

Appendix 1: Proposed Provisions



Model District Plan Provisions

1. Definitions

Noise sensitive activity [if required]

Means any residential activity (including student or retirement accommodation), visitor accommodation, educational facility, child care facility, healthcare activity, and places of worship/marae.

The following provisions should be co-located together in a district -wide chapter (preferable noise and infrastructure) rather than applied on a zone by zone basis.

2. Objective

Ensure adverse reverse sensitivity, health and wellbeing effects arising from the development of noise sensitive activities adjacent to the railway network are appropriately avoided or mitigated.

3. Policies

Avoid reverse sensitivity effects on the ongoing and future operation and development of the railway network by ensuring new noise sensitive activities are designed or located to meet appropriate acoustic design standards.

Manage effects on the health and wellbeing of communities through the design and location of noise sensitive activities adjacent to the railway network to meet appropriate acoustic design standards.

4. Rules/Standards

4.1 Noise and vibration

E. Activities sensitive to noise within 100m of [KiwiRail Rail Corridor Designation]:

Activity sensitive to noise near a railway network				
All zones – at any point within 100 metres from the legal boundary of [KiwiRail Rail Corridor Designation] (Rail Noise Control and Vibration Alert Area)	Activity status: Permitted			Activity status when compliance with standards 1, 2 or 3 not achieved: Restricted discretionary Matters of discretion are restricted to: 1. The extent of non-compliance with the noise and vibration standards. 2. Effects on the health and wellbeing of people. 3. The reverse sensitivity effects on the rail network, including the extent to which the activity will unduly constrain the ongoing operation, maintenance and upgrade of the rail network. 4. The outcome of any consultation with KiwiRail.
	Indoor railway noise 1. Where any activity listed in Table 1 is located within the Rail Noise Control and Vibration Alert Area: (a) the entire room or space shall be designed, constructed and maintained (including in any alterations) to achieve indoor design noise levels in Table 1; or			
	[RULEXX] Table 1			
	Building type	Occupancy/activity	Maximum railway noise level LAeq(1h)	
	Residential <i>[note definition in the plan must be broad enough to cover all types of residential activities – or other types of</i>	Sleeping spaces	35 dB	
	All other habitable rooms <i>[note this may require the definition from the National</i>	40 dB		

<i>residential activities not addressed within it will need to be added to this table]</i>	<i>Planning Standards to be added if this is not already defined in the District Plan]</i>		Notification: Application for resource consent under this rule shall not be notified or limited notified unless KiwiRail is determined to be an affected person determined in accordance with section 95B of the Resource Management Act 1991 or the Council decides that special circumstances exist under s 94A(4) of the Resource Management Act 1991.
Visitor Accommodation	Sleeping spaces	35 dB	
	All other habitable rooms	40 dB	
Education Facility	Lecture rooms/theatres, music studios, assembly halls	35 dB	
	Teaching areas, conference rooms, drama studios, sleeping areas	40 dB	
	Libraries	45 dB	
Health	Overnight medical care, wards	40 dB	
	Clinics, consulting rooms, theatres, nurses' stations	45 dB	
Cultural	Places of worship, marae	35 dB	
(b) the nearest exterior façade of the building accommodating the activity listed in Table 1 is at least 50 metres from the legal boundary of the [KiwiRail Rail Corridor Designation], and there is a solid building, fence, wall or landform that completely blocks line-of-sight from all parts of doors and windows, to all points 3.8 metres above railway tracks; or (c) it can be demonstrated by way of prediction or measurement that the noise at all exterior façades of the listed activity is no more than 15 dB above the relevant noise levels in Table 1. Mechanical ventilation 2. If windows must be closed to achieve the design noise levels in clause 1(a), the building is designed, constructed and maintained with a mechanical ventilation system that: (a) For habitable rooms for a residential activity or visitor accommodation activity, achieves the following requirements: i. provides mechanical ventilation to satisfy clause G4 of the New Zealand Building Code; and ii. 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 iii. provides relief for equivalent volumes of spill air; iv. provides cooling and heating that is controllable by the occupant and can maintain the inside temperature between 18°C and 25°C; and			

	v. does not generate more than 35 dB $L_{Aeq(30s)}$ when measured 1 metre away from any grille or diffuser. (b) For other spaces, is as determined by a suitably qualified and experienced person. Report required 3. A report is submitted to the council demonstrating compliance with clauses (1) to (2) above (as relevant) prior to the construction or alteration of any building containing an activity sensitive to noise. Compliance with 1(a) and (c) must be confirmed by a Registered Acoustician and when doing so railway noise must be assumed to be 70 $L_{Aeq(1h)}$ at a distance of 12 metres from the track, and must be deemed to reduce at a rate of 3 dB per doubling of distance up to 40 metres and 6 dB per doubling of distance beyond 40 metres. Note: The Rail Noise Control and Vibration Alert Area identifies the vibration-sensitive area within 100metres each side of the [KiwiRail Rail Corridor Designation]. Properties within this area may experience rail vibration effects. No specific district plan rules or notification requirements apply in relation to vibration controls as a result of this Rail Noise Control and Vibration Alert Area.	
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Insert mapping overlay which identifies a 100m buffer on each side of the [KiwiRail Rail Corridor Designation] called "Rail Noise Control and Vibration Alert Area" to which the above rules will apply.

Appendix 2: Acoustics Advice



Chiles Ltd

Project: **Land use controls for railway sound and vibration**

Report: **Acoustics advice**

Client: KiwiRail

Reference: 130418h

Date: 19 July 2023

Author: Stephen Chiles

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1. Introduction

- 1.1. KiwiRail is undertaking an analysis of potential controls for existing/permitted railway sound and vibration from its national network, affecting new and altered sensitive land uses nearby. Chiles Ltd has been engaged by KiwiRail to provide advice on associated acoustics details to inform that analysis. This report sets out: effects of sound and vibration on people and buildings, indicative sound and vibration levels at different distances from railway tracks, methods to reduce sound and vibration, and recommendations for land use controls.
- 1.2. In normal acoustics usage the term “noise” describes unwanted airborne “sound”, although some people use the words interchangeably. However, under the Resource Management Act (RMA) “noise” is defined as including vibration; presumably ground-borne. Notwithstanding that in practice “noise limits” in rules and conditions under the RMA refer exclusively to airborne sound. The term sound has been used in this report to distinguish airborne sound from ground-borne vibration in an RMA context where both are defined as noise.
- 1.3. A fundamental input when assessing railway sound and vibration is the type, volume and timing of railway traffic to be assumed on a particular section of the network. For comparison, when considering roads in New Zealand, road traffic volumes often gradually increase or remain steady, such that acousticians can sometimes use existing measured road traffic volumes as a reasonable baseline for future design. However, for railways in New Zealand, railway traffic volumes and times can change significantly, such that existing railway traffic may not be a reliable baseline when considering effects associated with new neighbouring houses that will exist for many decades. Therefore, appropriate assumptions for railway traffic types, volumes and times are an essential input that should be considered alongside the following acoustics information in this report.
- 1.4. Both sound and vibration have complex varying characteristics which are only approximated by metrics representing levels as a single number. There are compromises with whichever metrics are used. In the case of railway sound and vibration in New Zealand the choice of metrics is particularly challenging because often there are a relatively small number of intense events. In this situation, use of average values might under-represent adverse effects and use of maximum values might over-represent effects. The extent of under or over representation varies depending on the rail traffic in any location, which in turn relates to the comment above on railway traffic volumes. Metrics and objective analysis can still be valuable to focus interventions in the most effective places, but the limitations of the metrics require consideration when evaluating potential land use controls. This issue is discussed further in section 4.

2. Effects of sound

- 2.1. The World Health Organisation (“WHO”) has periodically reviewed and collated evidence of health effects caused by environmental sound including from railways.¹ The most recent publication was by WHO Europe (“2018 WHO Guidelines”),² which was based on systematic

¹ World Health Organisation, Guidelines for community noise, 1999; World Health Organisation, Burden of disease from environmental noise, 2011.

² World Health Organisation, Environmental noise guidelines for the European region, 2018.

- reviews of a large number of published studies. There have been numerous other discrete studies of these issues, but the 2018 WHO Guidelines provides a robust synthesis of available information and its findings with respect to railway sound appear to be widely accepted.
- 2.2. From preceding studies, the 2018 WHO Guidelines found moderate quality evidence that railway sound causes adverse health effects in that it increases the risk of annoyance and sleep disturbance in the population. Various other potential health effects were examined but evidence was not available to determine a relationship for them with railway sound. Based on the information available the 2018 WHO Guidelines made “strong” recommendations that external railway sound levels should be reduced below 54 dB L_{den} and 44 dB L_{night} . The 2018 WHO Guidelines found there was insufficient evidence to recommend one type of intervention over another to reduce levels.
 - 2.3. The above 2018 WHO Guidelines recommendations are in terms of long-term (annual) average sound levels. One of the metrics relates just to the night period (L_{night}) and the other (L_{den}) is for a 24-hour average including penalties for sound occurring in the evening (+5dB) and at night (+10dB). By necessity, this use of long-term averages is a pragmatic approach given that potential health effects generally relate to exposure over extended periods and are determined from consideration of the community/population rather than specific individuals. Other research into health effects, such as relating to awakenings from sleep, has previously referenced maximum sound levels, but sleep disturbance as a health effect is only assessed in terms of average levels in the 2018 WHO Guidelines.
 - 2.4. The 2018 WHO Guidelines were based on international research from a wide range of countries. There was no available data from New Zealand at that time. Subsequent research published in 2019 specifically addressed the applicability of international data on railway sound annoyance of the New Zealand population.³ This included a survey of people living in the vicinity of the North Island Main Trunk line in South Auckland, using the same general methodology as most international studies. The research found that international noise annoyance response curves are generally applicable for the New Zealand population.
 - 2.5. There is current New Zealand and international research that may further refine the understanding of health effects caused by railway sound. However, the existing 2018 WHO Guidelines already establishes there are adverse health effects that warrant intervention.
 - 2.6. In New Zealand, railway sound criteria have commonly been defined in terms of one-hour average levels (see section 4). Values of 35 dB $L_{Aeq(1h)}$ inside bedrooms and 40 dB $L_{Aeq(1h)}$ inside other habitable spaces have previously been applied for protection from health effects. Accounting for the different metrics, these values are slightly higher (more lenient) than the 2018 WHO Guidelines for regular sound events but would be more stringent for infrequent events. This comparison relates only to average sound levels, but corresponding relationships with health effects for different frequencies of railway events are uncertain/unknown. Therefore, currently there is no evidence base available that would support significantly more or less

³ Humpheson D. and Wareing R., 2019. Evidential basis for community response to land transport noise, Waka Kotahi Research Report 656. <https://nzta.govt.nz/resources/research/reports/656/>

stringent railway sound criteria than 35 dB $L_{Aeq(1h)}$ inside bedrooms and 40 dB $L_{Aeq(1h)}$ inside other habitable spaces for protection of health.

- 2.7. There is a lack of information on the combination of indoor and outdoor living conditions in relation to health effects. Even if indoor conditions are controlled, there may still be residual health effects arising from outdoor conditions. In a New Zealand context, based on criteria applied for other sources, reasonable conditions in outdoor living spaces might be achieved with railway sound levels of 55 dB $L_{Aeq(1h)}$.

3. Effects of vibration

- 3.1. Adverse effects of railway vibration can include annoyance and sleep disturbance for building occupants and damage to buildings. Damage to buildings (even cosmetic damage) occurs at greater vibration magnitudes than those which can cause annoyance.
- 3.2. Internationally, there has been less research into transportation vibration effects on people compared to research on transportation sound effects. However, the evidence that does exist on adverse health effects caused by railway vibration indicates they are material, and as such the relative paucity of research is not an indicator of the degree of effects. There is international research ongoing in this area. Research is also investigating health effects arising from the combination of railway sound and vibration.
- 3.3. Norwegian Standard NS 8176⁴ summarises research of human response to transportation vibration and provides exposure response curves in terms of the percentage of people who would perceive or experience degrees of annoyance from vibration. The current version of the standard (2017) discusses the inherent uncertainty in the data, including that it does not account for varying traffic volumes, although notes no other studies addressing that factor were found.
- 3.4. NS 8176 defines four categories of vibration exposure in residential buildings, with Class A representing the best vibration conditions and Class D (or below) representing the worst. The Class C criterion has previously been applied in New Zealand for habitable spaces in new buildings. This corresponds to a vibration level at which about 20% of people would be expected to be highly or moderately annoyed by vibration. The Class C criterion is defined as a $v_{w,95}$ of 0.3 mm/s (vibration metrics are explained in section 4).
- 3.5. For vibration effects on buildings, a ppv criterion of 5 mm/s is often used in New Zealand as a threshold at which there is potential for cosmetic damage to new buildings. While the 5 mm/s ppv criterion has been taken from guidance in an overseas standard, it does not relate specifically to railway vibration and is generally regarded as a cautious value. There is a knowledge gap as to the actual likelihood of cosmetic damage from railway vibration in New Zealand. However, all potential criteria for vibration effects on people are substantially more stringent, such that for buildings containing sensitive activities, cosmetic building damage might not require separate consideration.

⁴ Norwegian Standard NS 8176:2017 Vibration and shock - Measurement of vibration in buildings from land-based transport, vibration classification and guidance to evaluation of effects on human beings

4. Methods

Sound level metrics

- 4.1. As discussed in section 1, for railway lines with intermittent traffic in New Zealand, use of an average sound level over any time period can cause inconsistencies between the level and the corresponding human response or health effect.
- 4.2. The noise provisions which have been sought by KiwiRail in plan changes around New Zealand to date have adopted a one-hour average ($L_{Aeq(1h)}$) for railway sound in their standards. This approach was initially proposed by Marshall Day Acoustics in a review undertaken in 2009 of appropriate noise criteria for district planning rules.⁵ This report considered the utilisation of one-hour averaging as against broadscale setbacks and average / maximum or day / night averages. The one-hour average allows for a degree of averaging compared to single events, but still represents periods of activity when disturbance from railway sound is occurring. In the New Zealand context an alternative metric with longer averaging times (e.g. L_{den}/L_{night}) would be likely to significantly under-represent adverse effects from maximum/event sound levels over much of the network.
- 4.3. Neither one-hour averages or maximum levels however have an established, researched relationship with the health effects correlated to the external long term average sound level criteria recommended by the 2018 WHO Guidelines. This represents a knowledge gap and currently necessitates a broad judgement to determine criteria using the one-hour average (or another metric like maximum levels).
- 4.4. As set out in section 2, the 2018 WHO Guidelines recommend annual average criteria of 54 dB L_{dn} and 44 dB L_{night} applying outside buildings. These values assume windows may be open, resulting in internal sound levels around 15 dB lower than the criteria (with windows ajar for ventilation): 39 dB L_{den} and 29 dB L_{night} . In a situation where there are regular railway sound events, it could be appropriate to directly take the long-term average L_{den} and L_{night} criteria to apply as one-hour criteria (the L_{den} would also need a -10dB adjustment if applying at night). However, for irregular or infrequent events a higher one-hour criterion could be appropriate. It might also be appropriate to adjust criteria if there are no events at night.

Vibration level metrics

- 4.5. Internationally there are a range of different metrics used to quantify vibration affecting humans, with no accepted standardisation for this application. The “statistical maximum value of weighted velocity” ($v_{w,95}$) metric has been used previously in New Zealand for both road and railway vibration affecting people, and has the advantage that it corresponds to the exposure response curves in Norwegian Standard NS 8176.
- 4.6. For vibration effects on buildings and structures, the “peak particle velocity” (ppv) metric is in widespread use in New Zealand. This metric is mandated by the Noise and Vibration Metrics National Planning Standard for construction vibration affecting structures.

⁵ Marshall Day Acoustics, *Ontrack rail noise criteria reverse sensitivity guidelines*, 22/10/09

- 4.7. In this report, vibration is presented in terms of the $v_{w,95}$ with respect to effects on people, and in terms of the ppv with respect to effects on buildings/structures.

Railway traffic characteristics

- 4.8. The above railway sound levels and effects depend on the timing, type and frequency of train movements at a particular location. As discussed in section 2, the proposed one-hour average sound criteria are generally less stringent than international daily average values for lines with more frequent movements. This was acknowledged by the original Marshall Day Acoustics report, which noted the application of one-hour averages are likely insufficient for lines with greater than 20 train movements a day, and the use of day / night averages or maximum levels would be more protective.
- 4.9. At the other end of the spectrum, for lines with very infrequent movements the proposed one-hour average criteria might be considered too stringent. With the numerous factors involved and the underlying knowledge gaps relating to sound effects, it is not possible to precisely define a lower railway traffic volume at which one-hour average sound criteria might become unwarranted. Any such consideration should not just include current rail volumes, but potential future rail volumes to which newly established activities may be subject to in the future.
- 4.10. Railway vibration levels and effects also depend on the traffic characteristics. However, the vibration criteria discussed in section 3 relate to levels from individual events rather than average levels. As such, the criteria are independent of the number of movements. Under the specified standard (NS 8176) the vibration criteria relate to the type of train at a particular location that generates the highest vibration levels, which will generally be freight trains. Therefore, the proposed criteria could be applied to all lines regardless of traffic characteristics.

5. Sound levels

- 5.1. Different options for sound level metrics are discussed in section 4 with respect to effects and criteria. In this section, example railway sound levels are presented in terms of average values over one hour ($L_{Aeq(1h)}$).
- 5.2. Railway sound levels are dependent on train types/condition, traffic volumes, speeds, track geometry/condition, terrain and various other factors. As discussed above, when considering average levels the assumed railway traffic volumes are a critical input.
- 5.3. With full geospatial details and information on railway activity, various standard acoustics computer modelling packages are available to predict railway sound levels for a specific situation. There is currently no standardised approach to this modelling for railway sound in New Zealand or consistent use of a particular calculation algorithm. Consequently, even with the same input data, predictions are likely to vary when made by different practitioners.
- 5.4. The following provides an illustration of typical railway sound levels based on an assumption of approximately two freight train movements in a one-hour period, in a flat area without screening. This is based on data summarised by Marshall Day Acoustics.⁶ More recent

⁶ Marshall Day Acoustics, *Ontrack rail noise criteria reverse sensitivity guidelines*, 22/10/09

(unpublished) measurements for various New Zealand train types confirm these sound levels are in a realistic range.

Distance from track	Sound level
10 metres	71 dB $L_{Aeq(1h)}$
20 metres	68 dB $L_{Aeq(1h)}$
30 metres	66 dB $L_{Aeq(1h)}$
40 metres	64 dB $L_{Aeq(1h)}$
50 metres	62 dB $L_{Aeq(1h)}$
60 metres	60 dB $L_{Aeq(1h)}$
70 metres	59 dB $L_{Aeq(1h)}$
80 metres	58 dB $L_{Aeq(1h)}$
90 metres	56 dB $L_{Aeq(1h)}$
100 metres	56 dB $L_{Aeq(1h)}$

- 5.5. In the Marshall Day Acoustics report which generated the above levels, this sound level assumption of 2 freight train movements in a one-hour period was originally proposed as being approximately equivalent to the sound level from lines with regular passenger trains. It was not intended to apply in settings which actually experienced two freight train movements per hour across a day (as noted in section 4 above, where there were more than 20 movements a day, a one-hour average was considered inadequate to address the likely effects). Instead the intention of the average is to provide an approximation of both the effects of a single event, and a generalised average of noise from the corridor. The report considered a single measurement would enable simpler application of the rule framework by landowners (compared to an average/maximum approach which was considered to add extra complication without significant benefits in effects management given the variability of single train pass-bys).
- 5.6. Based on this assumption the proposed sound criteria are likely to be appropriate for all urban lines with passenger trains and any lines with at least say six daily freight movements and/or freight movements at night (including where this level of activity may be required in future). This threshold of six freight movements is tentatively suggested based on a hypothesis that the one-hour average criteria would not be unduly stringent at this frequency of effect.
- 5.7. Internal sound levels with windows ajar for ventilation will typically be around 15 dB less than the external levels set out above. As such, at 100 metres from a track with 56 dB $L_{Aeq(1h)}$ outside, there is still potential to exceed internal criteria of 35 and 40 dB $L_{Aeq(1h)}$ (section 2). A 35 dB internal criterion in particular could be exceeded significantly beyond 100 metres from the track, potentially to around 200 metres. However, at progressively further distances from the track the actual sound level is more likely to be affected by topography and localised screening such that there will be greater variability in sound levels.
- 5.8. For land use controls, the appropriate method to determine railway sound levels for a particular site (specified values, modelled, measured) depends significantly on the approach to information on train types, volumes and times. This is discussed further in section 9 with respect to recommended controls.

6. Vibration levels (ground-borne)

- 6.1. The following table summarises various railway vibration measurements (and associated predictions) in New Zealand from a range of sources, generally ordered from lowest to greatest magnitude (other than the first row which uses the ppv metric rather than $v_{w,95}$). Where the data relates to a private development or complaint, a generic source reference is given. Not all measured values are directly comparable due to issues such as differences in measurement positions (ground/building) that would require adjustments.

Data source	Vibration levels
Marshall Day Acoustics, <i>Ontrack rail noise criteria reverse sensitivity guidelines</i> , 22/10/09 (secondary reporting of Marshall Day Acoustics 2006 assessment for Marsden Point)	Based on measurements: 2 to 3 mm/s ppv at 30m 0.5 to 1 mm/s ppv at 60m
AECOM, <i>Bayfair to Bayview – Rail Relocation Post Construction Noise and Vibration Monitoring</i> , 6/3/17	Measured: 0.56 mm/s $v_{w,95}$ at 7m From measurement and distance correction: 0.19 mm/s $v_{w,95}$ at 100m 0.26 mm/s $v_{w,95}$ at 50m 0.37 mm/s $v_{w,95}$ at 25m
Marshall Day Acoustics, <i>Wiri to Quay Park third main rail line noise and vibration assessment</i> , 10/7/20	Measured: 0.6 mm/s $v_{w,95}$ at 9.5m
URS, <i>Maunganui-Girven Road Intersection -Rail Vibration Assessment</i> , 14/4/14	Measured: 26.5 mm/s ² $a_{w,95}$ at 17m (this $a_{w,95}$ value has different units and is not directly comparable to a $v_{w,95}$ value) From measurement and distance correction: 0.34 mm/s $v_{w,95}$ at 100m 0.47 mm/s $v_{w,95}$ at 50m 0.67 mm/s $v_{w,95}$ at 25m
URS, <i>Operational noise and vibration assessment Peka Peka to North Ōtaki Expressway Project</i> , 12/2/13	Measured: 0.58 mm/s $v_{w,95}$ at 60m
Marshall Day Acoustics, <i>assessment in relation to a complaint near Hamilton</i> , 28/11/12	Measured (on a deck structure): 0.42 mm/s $v_{w,95}$ at 140m
Marshall Day Acoustics, <i>assessment for development in Napier</i> , 6/2/20	Measured: 1.2 mm/s $v_{w,95}$ at 10m
URS, <i>Ground-borne vibration measurements at Hornby, Christchurch</i> , 12/9/14	Measured before renewal: 2.2/2.9 mm/s $v_{w,95}$ at 8.4m Measured after renewal: 0.5/0.4 mm/s $v_{w,95}$ at 8.4m

- 6.2. The data in the above table illustrates the significant variation that is inherent in railway vibration. Vibration levels often vary even within a localised area and cannot be reliably predicted, such as in the same manner as airborne sound. Hence, measurements are generally required to assess ground-borne vibration.
- 6.3. With respect to effects on people, a vibration criterion of 0.3 mm/s $v_{w,95}$ is discussed in section 3. The measurement data shows that this criterion can routinely be exceeded at over

100 metres from railway tracks in New Zealand, but there is significant variation. Vibration levels exceeding this criterion occur beyond at least 50 metres from the track in most cases.

- 6.4. With respect to effects on buildings, a vibration criterion of 5 mm/s ppv is discussed in section 3. The vibration measurement data indicates that vibration levels might exceed this criterion within approximately 20 metres of the track. The implications of this are discussed further with respect to recommended controls in section 9.

7. Approaches to manage effects of railway sound

Source

- 7.1. Routine rolling stock and track maintenance undertaken by KiwiRail contributes to reducing sound at source. There might be incremental improvements if more stringent maintenance service standards were adopted.
- 7.2. Locomotives can be designed with sound reducing features, such as attenuators and silencers. Generally, these need to be integrated at the time of initial design/manufacture. Retrofitting measures to existing locomotives may be constrained and would be likely to constitute a major rebuilding. Locomotives with alternative power systems such as battery power can have reduced sound, although significant sound still arises from the track/wheel interface. Unpublished research⁷ included measurements that show the sound levels set out in section 5 remain representative for the current locomotive fleet, including the newer DL class locomotives. It is understood that KiwiRail has existing workstreams to renew its rolling stock (including the locomotives) overtime. This workstream is focused on alternative power systems, and as a multi-year project to explore (and where supported) upgrades/renewals of its stock, as opposed to retrofitting of existing or old stock.
- 7.3. Specific sound sources such as wheel squeal, can sometimes be reduced through treatment of rolling stock.
- 7.4. If older track is not continuously welded, implementing this measure can reduce sound.

Pathway

- 7.5. Barriers such as formed by earth bunds or walls can reduce railway sound. A barrier providing effective screening could typically reduce railway sound levels by around 5 dB. However, this is often impracticable because any noise barrier would typically need to be in the order of 5 metres high to achieve effective screening of locomotive sound sources that are several metres above the tracks, which in turn are often raised above local ground level. Sound screening might also be provided by intervening buildings or the terrain. As barrier performance is limited by sound passing over the top, typical barriers generally do not provide sufficient sound reduction for receivers close to the railway (within around 50 metres).

⁷ Waka Kotahi research programme. Social cost (health) of land transport noise exposure, <https://www.nzta.govt.nz/planning-and-investment/research-programme/current-research-activity/active-research-projects/>

- 7.6. Increasing the distance of the pathway reduces sound levels: i.e. separating the receiver from the source by a greater distance. As discussed previously, this measure in isolation may require separation of 100 to 200 metres.

Receiver

- 7.7. If habitable/sensitive spaces are orientated with no opening windows with exposure to railway sound then internal levels will be reduced. Hence the layout of a building can be used to manage railway sound. A practical approach can be to locate only ancillary, non-sensitive spaces such as garages and bathrooms on the side of the building facing the railway.
- 7.8. Where windows do have exposure to railway sound, closing those windows reduces internal sound levels. This typically provides a reduction in the order of 10 dB compared to when windows are open ajar for ventilation. However, if windows are required to be closed to reduce sound then an alternative (i.e. mechanical) ventilation and temperature control method is needed for occupants to maintain thermal comfort such that they have a genuine choice to leave the windows closed. For two older roading projects (SH20 Mt Roskill and SH1 Plimmerton) Waka Kotahi installed ventilation systems in 35 and 57 houses respectively with the intention that it would allow windows to be kept closed to reduce road-traffic noise.⁸ However, those systems only provided ventilation and not temperature control (e.g. cooling) and for both projects residents reported the temperature being uncomfortable with windows closed. Therefore, if closed windows are to be considered as a noise reduction measure, temperature control should be included in any alternative ventilation system.
- 7.9. If greater reductions are required than can be achieved just by building layout or closing windows, then the building fabric can be upgraded. This typically requires thicker and/or laminated glazing of windows and in some cases additional/thicker layers of plasterboard wall/ceiling linings.

8. Approaches to manage effects of railway vibration

Source

- 8.1. As for managing sound, routine track and rolling stock (wheel) maintenance contributes to reducing vibration at source. Again, there might be incremental improvements if more stringent maintenance service standards were adopted. It is understood based on evidence previously provided by KiwiRail that it endeavours to undertake current maintenance best practice where practicable, and continues to invest in ongoing upgrades of its maintenance abilities. This includes the recent commissioning of a new wheel maintenance facility at its Hutt Workshops, which should contribute to improved wheel servicing and repair. In terms of track condition, KiwiRail has comprehensive procedures including measurement of track condition/geometry with a specialist survey vehicle several times a year, and maintenance systems acting on that data.
- 8.2. There are several different methods to treat railway track to reduce vibration. These include resilient clips fastening the rails to sleepers, resilient material under the sleepers or ballast, and

⁸ Waka Kotahi, State highway guide to acoustic treatment of buildings, 2015

tracks directly or on ballast on concrete slabs, "floating" on resilient or spring vibration bearings. These vibration treatments are generally "built into" the overall track formation, particularly for the better performing options. Some treatments can increase the height of the track, having implications on clearances from bridges and overhead structures. As such, these measures are most commonly used for new tracks when the treatments can be integrated into and constructed as part of the overall design (e.g. on the Auckland City Rail Link). Retrofitting treatments over a wide area would require a major rebuilding of the tracks, beyond standard upgrading or maintenance.

Pathway

- 8.3. There are no standard pathway controls to reduce vibration. In some instances, depending on the dominant propagation route in the specific location, in-ground barriers can reduce vibration propagation. In addition to practical/space constraints (where the corridor is too narrow to construct an in-ground barrier), this is generally not something that could be applied broadly along a rail corridor as it would require analysis and design for specific locations.
- 8.4. Again, increasing the distance of the pathway reduces vibration levels: i.e. separating the receiver from the source by a greater distance.

Receiver

- 8.5. Depending on the specific propagation paths, use of different building foundation types (e.g. pile/pad) can result in reduced vibration entering a structure. Likewise, propagation through a structure will alter depending on its design (e.g. concrete/steel).
- 8.6. Buildings can be built on vibration bearings to reduce vibration from the foundations entering the building. (Some types of vibration bearing are similar to earthquake bearings.) Individual spaces within a building could be constructed as separate structures mounted on vibration isolators, but this is unlikely to be a practical solution in most cases compared to isolating the entire building.

9. Recommended land use controls

Form of controls

- 9.1. Extensive and widespread mitigation at source would generally only give relatively small incremental improvements and/or would require renewal/replacement of a substantial proportion of track and rolling stock. While (as set out at 7.2 above) there are programmes being undertaken by KiwiRail to renew its existing rolling stock, this confirms any improvements are likely to be incremental as fleets are gradually renewed. There are therefore unlikely to be practicable options for extensive mitigation at source to address sound and vibration effects on new and altered sensitive land uses seeking to establish near existing railways.
- 9.2. In terms of sound and vibration affecting people, the most robust control would be avoidance of effects by separating sensitive activities from railways. This could be achieved by defining an area around railways where new noise sensitive activities are not allowed. However, in addition to any non-acoustic impacts of such a control, if it contributed to larger and/or more dispersed urban areas then it might in itself cause increased transportation sound and vibration as the

overall population travels greater distances. The following recommendations are therefore made on the assumption that avoidance of effects by separation alone is not a practicable option.

- 9.3. If new and altered sensitive activities are allowed near railways, then to manage potential health effects, controls are needed to result in appropriate design of buildings or effective screening and separation of those buildings from the railway.
- 9.4. Several different methods have previously been used in RMA plans. Two common approaches are:
 - a) setting internal sound and vibration limits; or
 - b) specifying building constructions directly or in terms of sound reduction performance.
- 9.5. The first approach requires a site-by-site assessment and tailored mitigation for each development, whereas the second approach requires the same mitigation for all developments. The first requires specialist acoustics expertise whereas the second does not if specifying building constructions directly.
- 9.6. The potential health effects discussed above have been shown to occur (or be more likely) above certain sound and vibration threshold levels inside buildings. As discussed previously, there are a large number of variables that determine external railway sound and vibration exposure and there are nuances with building siting/layout and design that affect the internal levels. Controls that require the same mitigation for all developments result in excess treatment in many cases and inadequate treatment for those developments most exposed (nearest to the railway). Technically, setting internal sound and vibration criteria and requiring a site-by-site assessment should be the most efficient and effective approach.
- 9.7. In the Christchurch District Plan, multiple compliance options were included for mitigating road and rail noise in buildings for new sensitive activities. On review of the controls the Council found that in most cases site-specific assessment was selected by developers rather than fixed mitigation (i.e. following a standard building design schedule or fixed sound reduction performance).⁹ This was presumably as despite any specialist assessment costs the site-specific assessment provided a more efficient solution.
- 9.8. It is recommended that any land use controls should be based on achieving internal sound and vibration criteria and allowing for requirements for each site to be determined through individual assessment.

Sound and vibration criteria

- 9.9. For the reasons discussed previously, the following criteria are recommended to manage potential health effects. A range of sensitive activities have been included in this table, extending from the primary issue of residential units.
- 9.10. For all these building types the vibration criterion relating to health effects is more stringent than any separate control that might relate to building damage. For other building types a

⁹ Christchurch District Plan, Plan Change 5E

separate vibration criterion is included in the table, which could be used to avoid potential building damage.

Building type	Occupancy/activity	Sound criterion $L_{Aeq(1h)}$	Vibration criterion
Residential	sleeping spaces	35 dB	0.3 mm/s $v_{w,95}$
	all other habitable rooms	40 dB	
Visitor accommodation	sleeping spaces	35 dB	
	all other habitable rooms	40 dB	
Education	lecture rooms/theatres, music studios, assembly halls	35 dB	
	teaching areas, conference rooms, drama studios, sleeping areas	40 dB	
	libraries	45 dB	
Health	overnight medical care, wards	40 dB	
	clinics, consulting rooms, theatres, nurses' stations	45 dB	
Cultural	places of worship, marae	35 dB	
All	All occupancies/activities not specified above	-	5 mm/s ppv

- 9.11. As discussed in section 2, reasonable conditions should be achieved in outdoor living spaces if they are subject to a sound criterion of 55 dB $L_{Aeq(1h)}$.
- 9.12. The sound level criteria are based on intermittent rail activity. For the assumed rail activity discussed in sections 4 and 5, controls should specify that criteria are to be achieved for external railway sound of 70 $L_{Aeq(1h)}$ at a distance of 12 metres from the track, reducing at a rate of 3 dB per doubling of distance up to 40 metres and 6 dB per doubling of distance beyond 40 metres.

Extent of controls

- 9.13. Setting a distance for application of controls that includes most land affected by railway sound and vibration would extend for say 200 metres from railways, and would include a substantial area towards the periphery where on closer examination of specific developments no building treatments would be required. Previously, a distance of 100 metres has been used for the application of controls for railway sound. Technically this represents a reasonable compromise if the aim is to capture the most affected sites without requiring assessment where building treatment is less likely to be required. This aligns with the assumed sound levels applied for the rail volumes and one-hour average discussed at section 5 above.
- 9.14. For vibration, a distance of 60 metres has been used for controls previously. On the basis of the measurement data presented above, I have recommended this be increased to 100 metres consistent with the distance used for sound.

Ventilation

- 9.15. Where windows are required to be closed it is recommended that a mechanical system be required to provide thermal comfort so there is a genuine choice to leave windows closed. Ventilation is outside the expertise of Chiles Ltd, but on the basis of work published by Waka Kotahi^{10,11} the following system specification for residential and visitor accommodation habitable rooms may be appropriate:
- i. provides mechanical ventilation to satisfy clause G4 of the New Zealand Building Code; and
 - ii. 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
 - iii. provides relief for equivalent volumes of spill air;
 - iv. provides cooling and heating that is controllable by the occupant and can maintain the inside temperature between 18°C and 25°C; and
 - v. does not generate more than 35 dB $L_{Aeq(30s)}$ when measured 1 metre away from any grille or diffuser.

Alternative compliance pathways

- 9.16. Existing controls in district plans based on internal sound and vibration criteria, often include alternative compliance pathways that can be used in some cases to demonstrate that appropriate sound and vibration conditions will be achieved, without requiring specialist assessment or only requiring a reduced assessment. Essentially, these pathways allow for sites and buildings that are likely to have lower sound exposure, or that adopt conservative building designs, to face reduced assessment requirements. Alternative pathways have included:
- a) Compliance with internal sound criteria demonstrated by external levels not exceeding the internal criteria by more than 15 dB (reduced assessment needed for external levels).
 - b) Compliance with internal sound criteria demonstrated by the building being at least 50 m from the railway and screened by a solid barrier, from all points up to 3.8 m above the tracks.
 - c) Compliance with internal sound criteria demonstrated by using prescribed building constructions.
 - d) Compliance with internal vibration criterion demonstrated by use of prescribed building base isolation system.
- 9.17. Technically, the alternative pathways are valid as they result in compliance with the sound and vibration criteria, albeit generally not in the most efficient manner. As discussed above, in the case of the Christchurch District Plan alternative pathways provided were generally not used and were found to make the plan more confusing for users and harder to administer for the Council.

¹⁰ Acoustic Engineering Services, NZTA Ventilation specification review, 30 June 2020

¹¹ Beca, Ventilation systems installed for road-traffic noise mitigation, 26 June 2014

Appendix 3: Economic Assessment





Final Report: 16 August 2023

Economic Assessment of Options to Manage Adverse Rail Noise Effects

Prepared for: **KiwiRail Holdings Limited**

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1. Executive Summary

Introduction

The rail network is an integral part of New Zealand's transport infrastructure and is estimated to generate nearly \$2 billion of value annually (via reduced traffic). To ensure that it is free to grow and operate as needed, and to protect the health and amenity of people, KiwiRail promotes the inclusion of District Plan provisions that require new buildings and/or alterations to existing ones, for noise sensitive activities to mitigate the effects of rail noise. To assist decision-makers, this report assesses the likely high level economic costs and benefits of three options for managing such effects.

Options Analysed

The three options analysed are:

1. Do nothing – where the adverse effects of rail noise are not managed (Option A in the s32 report);
2. KiwiRail's proposed provisions – which apply within 100 metres of the rail network (Option G in the s32 report); and
3. No noise sensitive development within 100 metres of the rail network (Option E in the s32 report).

Option Costs and Benefits

The main costs and benefits of the options relate to:

1. Adverse health and amenity effects from prolonged exposure to rail noise.
2. Costs of changing building designs and/or locations to mitigate effects.
3. Policy implementation, administration, and compliance costs.
4. The opportunity cost of potentially foregoing noise sensitive development near the network.
5. Compromised rail operation and efficiency due to potential reverse sensitivity issues (complaints, changes in operating regime).

Worked Example

The likely costs and benefits of each option are area- and context-specific because they depend on a range of factors that are fluid through both time and space. To demonstrate how the approach can be applied in each territorial authority where KiwiRail's preferred provisions are sought, we derived a model that can be applied on a case-by-case-basis. It contains nearly 20 inputs and assumptions that can be populated with figures that match the circumstances of each district at that time to provide timely and reliable insights to the likely costs and benefits of the three options evaluated herein.

Table 1 below shows the various inputs and parameters in the model, which are populated here with a set of hypothetical values purely for illustration.

Table 1: Model Parameters for Assessing Option Costs and Benefits (Hypothetical Example)

Area of Land Affected & Likely Dwelling Yield	Values
Control Area (Buffer) start distance in metres from edge of rail network	10
Control Area (Buffer) end distance in metres from edge of rail network	100
Share of land within proposed buffer otherwise available for development	80%
Residential development density - dwellings/ha (gross)	10
Metres per kilometre	1,000
Square metres per hectare	10,000
Land Values for Noise Sensitive and Non-Sensitive Activities	Values
Value of land zoned for residential & other noise sensitive activities (\$/m ²)	\$400
Value of land zoned for non-noise sensitive activities (\$/m ²)	\$200
Health & Amenity Benefits	Values
Average dwelling price	\$540,000
Mitigation Impact (dB of noise reduction)	5
Mitigation benefits (as a % of property value) per 1 dB improvement	1.20%
Policy Compliance Cost Parameters	Values
Average dwelling build cost	\$300,000
Mitigation fixed costs per dwelling	\$3,000
Mitigation variable cost (as a % of construction cost)	3%
Impacts on Rail Operation	Values
Annual value of rail to New Zealand (from Deloitte Study)	\$1,900,000,000
Impact of new noise sensitive activities on value of rail (as a %)	2%
Total length of NZ railway track (km)	3,700
Financial Parameters	Values
Time Period of Analysis (years)	30
Discount Rate	10%

Finally, Table 2 shows the corresponding option costs and benefits for this specific example, where KiwiRail's proposed provisions generate the lowest net cost and hence are the preferred option.

Table 2: Estimated Net Costs/Benefits per Kilometre of Track (Hypothetical Example)

Costs/Benefits per km of Track	Option 1	Option 2	Option 3
Amenity & health benefits	-\$4,665,600	\$0	\$0
Impacts on rail operation	-\$97,000	\$0	\$0
Policy compliance costs	\$0	-\$1,728,000	\$0
Housing market impacts	\$0	\$0	-\$28,800,000
Option Net Benefits/Costs	-\$4,762,600	-\$1,728,000	-\$28,800,000

2. Introduction

2.1 Context & Purpose of Report

KiwiRail is responsible for the development and operation of New Zealand's rail network. To ensure that the rail network is free to grow and operate as needed to meet ever-evolving needs, KiwiRail promotes the inclusion of District Plan provisions that require new buildings, and/or alterations to existing ones, for noise sensitive activities to mitigate the effects of rail noise. To assist, this high-level report assesses the likely key economic costs and benefits of three options for managing such effects, including KiwiRail's proposed provisions.

2.2 Steps in Assessment & Report Structure

Below are the key steps in our assessment and the sections of this report where each is addressed.

1. Understand the strategic context (section **3**)
2. Identify options to manage rail noise effects (section **4**)
3. Identify option effects and key stakeholders (section **5**)
4. Assess the impacts of each option on stakeholders (sections **6 to 9**)
5. Identify the best/preferred option (section **10**)

The rest of this report works through each step.

3. Strategic Context

3.1 About the New Zealand Freight Task

New Zealand, like all developed nations, is highly dependent on domestic and international trade. This trade creates a massive freight task, with approximately 280 million tonnes moved around NZ annually.¹ While rail plays a key role in the freight sector, particularly for certain goods like timber, dairy, and meat², most of the national freight task is performed by diesel trucks. These generate harmful emissions, including CO₂, and are therefore the target of a concerted effort to decarbonise the transport fleet. For example, the New Zealand freight and supply chain strategy seeks to move 20% more freight by 2035 while generating 25% lower emissions, including via modal shifts to rail.

3.2 Rail for Passengers

Rail is not just a freight mode, either, and also plays an increasingly important role in keeping people moving in and around our largest metropolitan areas, particularly Auckland and Wellington. As those cities continue to intensify with more people living in and around centres serviced by the rail network, the share of passenger journeys taken by rail will also naturally increase too. The potential for to reconnect large metropolitan centres through inter-regional passenger rail is also an increasing focus, building on pilot programmes like the Te Huia connection between Auckland and Hamilton.

3.3 The Future Role of Rail

In parallel, the New Zealand Government has recognised the need to maximise the value of its existing investments in the rail network, including making rail a more attractive mode for freight and expanding the passenger rail network. Previously, investment in the rail network lacked a long-term view about its role in the transport system. This caused short-term thinking and investment decision-making, so a new approach was needed.³

The New Zealand Rail Plan⁴ was developed in 2021 to articulate the Government's vision and priorities for rail to 2030, and to identify the investment needed to achieve it. In June 2021, the Rail Network Investment Programme (RNIP) was created to fund various planks of the Rail Plan that will help renew the network, restore it to a resilient and reliable state, and support freight and passenger rail growth and productivity.⁵

3.4 The Value of Rail to New Zealand

The New Zealand rail network delivers significant value to its freight and passenger customers, and also generates significant benefits for all New Zealanders. These wider benefits are far-reaching, but the most significant are lower road congestion, fewer road accidents, and lower carbon emissions that result from less road traffic.

¹ <https://www.transport.govt.nz/assets/Uploads/Freight-and-supply-chain-issues-paper-full-version.pdf>

² <https://www.kiwirail.co.nz/our-business/freight/>

³ <https://www.transport.govt.nz/area-of-interest/infrastructure-and-investment/the-new-zealand-rail-plan/>

⁴ *ibid*

⁵ *ibid*

In 2021, Ernst & Young were commissioned by the Ministry of Transport to evaluate the value of rail to New Zealand.⁶ Their study built on an earlier analysis from 2016 and considered the benefits of (i) national freight rail, and (ii) passenger rail in Auckland and Wellington.⁷ Two scenarios were modelled. The first assumed that all rail services were cancelled, with all rail freight and passengers shifted to the road network. The second scenario also assumed that all rail services were cancelled and shifted to the road network, but with 20% higher rail traffic to capture the impacts of projected future growth. For both scenarios, the value of rail equals the costs of road traffic avoided.

The table below summarises the study's estimates of rail's benefits for the first scenario, where rail volumes match today. In short, the value of rail is estimated to be \$1.7 to \$2.1 billion per annum.

Table 3: Estimated Annual Value of Rail to New Zealand

Benefit	Low Estimate	High Estimate
Time (congestion) savings	\$939	\$1,054
Reduced air pollution	\$170	\$474
- NOx emissions	\$92	\$394
- SOx emissions	<\$1	<1
- Brake & tire (PM10)	\$21	\$22
- Exhaust (PM2.5)	\$57	\$58
Reduced fuel use	\$211	\$222
Reduced GHG emissions	\$178	\$182
Maintenance benefits	\$104	\$107
Safety	\$94	\$98
- Death	\$63	\$65
- Serious injuries	\$25	\$27
- Minor injuries	\$5	\$6
Totals	\$1,695	\$2,137

In the words of the Ernst & Young study, as demonstrated above, rail transportation provides the largest benefits to the road sector and society through:

- Time and congestion savings (49% - 55% of benefits)
- Reduced air pollution (10% - 22% of benefits)
- Reduced fuel use and maintenance costs (14% of benefits)
- Reduced greenhouse gas (GHG) emissions (9% to 10% of benefits).

The report also notes that the second scenario, where rail volumes are 20% higher, generates higher benefits than the scenario summarised above, but the difference is not linear with rail volumes. Specifically, the second scenario generates benefits that are about 10% higher than scenario one.

⁶ Ernst & Young, the Value of Rail in New Zealand, 2021.

⁷ i.e. it excluded inter-island ferries and long-distance passenger rail services, which are also operated by KiwiRail.

3.5 Need for Operational Freedom & Flexibility

To continue realising rail's substantial value to New Zealand, as per above, and to maximise its potential to limit growth in road traffic over time, the rail network must be available for operations 24/7 just like the road network. Reverse sensitivity from nearby sensitive receivers risks undermining that flexibility.

3.6 Summary and Conclusion

Rail is an important part of New Zealand's current transport mix. It provides significant value to New Zealand. It is necessary to protect that critical role to enable rail traffic to grow over time alongside population and economic growth. It is on this basis that KiwiRail seeks the inclusion of District Plan provisions which manage the risk to its operations and future growth that reverse sensitivity poses.

4. Policy Options

This section identifies three policy options to manage the adverse effects of rail noise. These were considered the most plausible/workable options from the long list shown in the appendix.

4.1 Option 1: Do Nothing (option A in the s32 report)

The first option is to “do nothing” with the adverse effects of rail noise not managed, either in the District Plan, or via other means. This forms the baseline (or counterfactual) against which the impacts of the other options are assessed.

4.2 Option 2: KiwiRail Proposed Provisions (option G in the s32 report)

The next option is KiwiRail’s proposed provisions. These require new buildings for noise sensitive activities, or alterations to existing ones, within 100 metres of the railway network boundary to mitigate the effects of noise. Specifically, affected buildings must either:

- (a) be designed, constructed and maintained to achieve indoor design noise levels resulting from the railway not exceeding the maximum values in the following table; or

Building Type	Occupancy or Activity	Max Railway Noise LAeq(1h)
Residential	Sleeping spaces	35 dB
	All other habitable rooms	40 dB
Visitor Accommodation	Sleeping spaces	35 dB
	All other habitable rooms	40 dB
Education Facility	Lecture rooms/theatres, music studios, assembly halls	35 dB
	Teaching & sleeping areas, conference rooms, drama studios	40 dB
	Libraries	45 dB
Health	Overnight medical care, wards	40 dB
	Clinics, consulting rooms, theatres, nurses’ stations	45 dB
Cultural	Places of worship, marae	35 dB

- (b) be located at least 50 metres from any railway network, and is designed so that a noise barrier completely blocks line-of-sight from all parts of doors and windows, to all points 3.8 metres above railway tracks, or
- (c) it can be demonstrated by way of prediction or measurement that the noise at all exterior façades of the listed activity is no more than 15 dB above the relevant noise levels in Table 1 (above).

If windows must be closed to achieve the design noise levels in (a), mechanical ventilation must be designed, constructed, and maintained. Finally, a report must be submitted to the Council demonstrating compliance with the proposed provisions prior to the construction or alteration of any building containing a noise sensitive activity.

We note the assessment of the costs of Option 2 may also be helpful in assessing a scenario where KiwiRail adopts the funding of the various mitigation measures. This scenario is not assessed

separately below, but we note from an economics assessment, the feasibility of implementing these provisions drops rapidly should KiwiRail adopt both its internal (eg track maintenance and noise reduction costs) and the cost of implementing the provisions. Given the benefits of the provisions also attribute the benefits of the costs of implementation (via warmer, drier, and quieter homes that are also worth more) solely to the landowner, this further reduces the burden of the costs of those provisions sitting with the landowner, rather than KiwiRail.

4.3 Option 3: No Noise Sensitive Development within 100 Metres (option E in the s32 report)

The final option is to prevent new buildings for noise sensitive activities, or alterations to existing ones, occurring within 100 metres of the railway network to avoid adverse noise effects. For clarity, this option does not preclude activities that are not noise-sensitive (eg commercial, industrial or rural activities) from establishing there.

5. Option Impacts & Key Stakeholders

This section identifies likely option impacts and key stakeholders affected.

5.1 Option Costs

The main costs of the options are likely to be:

1. Adverse **health and amenity effects** from prolonged exposure to rail noise. These impacts will vary with several factors, including distance from the network, the design and orientation of buildings, the extent of outdoor activity, plus the health and resilience of affected people.
2. Costs of **changing building designs and/or locations** to mitigate effects. These costs result directly from the need to mitigate effects within the 100-metre buffer area (where deemed necessary by a suitably-qualified noise/acoustic expert).
3. Policy **implementation (ie construction), administration, and compliance** costs. While KiwiRail is seeking the inclusion of provisions only during District Plan review processes, rather than via its own plan change processes (which helps minimise implementation costs), the proposal will still have ongoing administration and compliance costs. These include costs borne by Councils as the administrators of District Plans, plus costs incurred by affected landowners, such as the engaging a noise/acoustic expert to assess the extent of mitigation required, if any.
4. Potential **impacts on housing supply**. If affected properties cannot mitigate the adverse effects of rail noise in a financially feasible manner, there may be a reduction in the quantity of new housing built. This, in turn, could affect the wider housing market and may affect the ability of some Councils to meet their obligations under the National Policy Statement on Urban Development 2020 (NPSUD).
5. **Compromised rail operation and efficiency** due to potential reverse sensitivity. Finally, for options that do not properly manage the adverse effects of rail noise on nearby noise sensitive activities, there may be potential risks to the ongoing operation and efficiency of the rail network.

5.2 Option Benefits

The main benefits of the options are likely to be:

- Improved **health and amenity effects** from properly managing exposure to rail noise. In many cases, these measures will also result in **warmer, drier, healthier homes** that are cheaper to run.
- For options that properly manage the adverse effects of noise, there will be **benefits from the ongoing, unconstrained operation of the rail network**. To the extent that rail can attract a larger share of the national freight task, as sought by several policy initiatives, all new Zealanders will benefit from **lower congestion, accidents, and harmful emissions**.

- Compared to options that effectively sterilise development (for noise sensitive activities) near the rail network, those that enable it will **allow affected land to be put to higher and better uses** than they likely would to otherwise.
- Finally, to the extent that options avoid investments that would otherwise be needed, there will be benefits in the form of **avoided costs saved**.

5.3 Key Stakeholder Groups

Our analysis considers the extent to which option costs and benefits affect the following key stakeholder groups:

- **Affected property owners** – this group will be directly affected in several ways. First, if they develop their land to accommodate noise sensitive activities near the railway line and no mitigation measures are adopted, future occupants may experience adverse effects from prolonged exposure to rail noise. Conversely, affected property owners may face provisions that either (i) limit their ability to develop their land for certain activities, and/or (ii) which impose additional costs to enable noise sensitive activities to establish there.
- **Rail network customers** – this group could be adversely affected if growth in noise sensitive activities near the rail network causes reverse sensitivity, which in turn reduces the frequency, reach, and/or availability of the rail services upon which they rely.
- **KiwiRail and the NZ Government** – As the rail network operator and funder, respectively, KiwiRail and the New Zealand Government will also be affected by the presence or absence of provisions to manage the adverse effects of rail noise. For example, if such effects are left unmanaged, these groups may be negatively impacted by potential constraints arising from reverse sensitivity, which would undermine the operation of – and investment in – the rail network.
- **Territorial authorities** – to the extent that provisions are included in District Plans, territorial authorities will bear the costs and responsibility of incorporating and administering them. While these costs are unlikely to be significant over and above those already associated with their day-to-day functions, they are still an important consideration.
- **NZ's people and its economy** – finally, we note that provisions to manage adverse rail noise, or the absence thereof, may have far reaching effects. For example, if such effects are not properly managed leading to reverse sensitivity that curtail rail operation or availability, any consequent increases in road freight traffic will have negative effects on all of New Zealand. In addition, New Zealanders will bear some of the costs of treating adverse health effects via the tax-funded public health system.

6. Health and Amenity Impacts

This section considers the health and amenity impacts of each option.

6.1 Option 1: Do Nothing⁸

Under this option, the District Plan does not contain provisions that manage the adverse health and amenity impacts of rail noise. Accordingly, it exposes proximate noise sensitive activities to potential adverse health and amenity effects from the rail network.

6.2 Option 2: KiwiRail Proposed Provisions⁹

By design, KiwiRail's proposed provisions directly manage the adverse effects of proximity to the rail network and therefore create ongoing benefits for affected landowners and their tenants (if any). In addition, this option will have wider benefits on the increased warmth, energy efficiency and dryness of homes due to the kinds of mitigation measures imposed (see further discussion re these benefits in the report of Dr Chiles).

However, the true impacts of this option on health and amenity depend fundamentally on the extent to which any proposed mitigation measures would be required anyway, for example to meet the New Zealand Building Code. As the code (likely) continues to strengthen over time, or as developers voluntarily include such measures anyway to keep pace with consumer preferences, the marginal benefits of complying with these provisions will decline. So too, however will the costs, which we return in section 8 below.

To the extent that KiwiRail's proposal does cause some buildings to install design features or elements that they would not have otherwise, there will be health and amenity benefits. First, and most foremost, the adverse effects of rail noise will be properly managed. While it is difficult to accurately quantify such benefits, a recent report for Christchurch City Council (CCC) estimated the health and amenity benefits of noise attenuation to be approximately 1.2% of property value per decibel of road noise reduction.¹⁰

We consider it unlikely that health and amenity effects accrue linearly with property value, as suggested by the CCC estimate. This would imply, for example, that a \$1 million house receives double the benefits of a \$500,000 one. Instead, there are likely to also be lump-sum (per-property) elements. That said, these estimates are the best currently available, so below we use them to show the potential benefits for different combinations of property values and noise level reductions.

Table 4: Health & Amenity Benefits by Property Value and Size of Noise Reduction in dB (\$000s)

Property Value (000s)	Noise Reduction dB									
	1	2	3	4	5	6	7	8	9	10
\$250	\$3	\$6	\$9	\$12	\$15	\$18	\$21	\$24	\$27	\$30
\$500	\$6	\$12	\$18	\$24	\$30	\$36	\$42	\$48	\$54	\$60
\$750	\$9	\$18	\$27	\$36	\$45	\$54	\$63	\$72	\$81	\$90

⁸ Option A in the s32 report

⁹ Option G in the s32 report

¹⁰ Formative, Christchurch Plan Change 5E Noise Sensitive Activities Near Road and Rail Corridors, 30 September 2022.

\$1,000	\$12	\$24	\$36	\$48	\$60	\$72	\$84	\$96	\$108	\$120
\$1,250	\$15	\$30	\$45	\$60	\$75	\$90	\$105	\$120	\$135	\$150
\$1,500	\$18	\$36	\$54	\$72	\$90	\$108	\$126	\$144	\$162	\$180
\$1,750	\$21	\$42	\$63	\$84	\$105	\$126	\$147	\$168	\$189	\$210
\$2,000	\$24	\$48	\$72	\$96	\$120	\$144	\$168	\$192	\$216	\$240

Table 4 shows that health and amenity benefits could be substantial, especially if they accrue linearly with property value as assumed/modelled. For example, a 5dB reduction could translate to a \$30,000 benefit for a \$500,000 home, or \$60,000 for a \$1 million home.

In addition, measures adopted to comply with KiwiRail's proposed provisions, such as double glazing and/or mechanical ventilation, are likely to make homes warmer, healthier, and drier. For example, a 2022 interim report by EECA¹¹ found that 62% of families who were provided heat pumps reported being in very good or excellent health, compared to only 46% before installation. Further, EECA's final report from December 2022¹² noted that electricity use (through winter) falls in a house fitted with a heat pump by an estimated 16% relative to a house without a heat pump installed.

Thus, not only do heat pumps make homes warmer, drier, and healthier, but they also save on energy costs. Over time, these savings will add up and help offset the initial costs of purchase and installation.

6.3 Option 3: No Noise Sensitive Development within 100 Metres¹³

This option also (largely) avoids the adverse effects of rail noise but does not deliver the additional benefits resulting from building improvements associated with the KiwiRail proposal.

¹¹ Motu report for EECA, Warmer Kiwis Study: Interim Report: An impact evaluation of the Warmer Kiwi Homes programme

¹² Motu report for EECA, Warmer Kiwis Study: Final Report: An impact evaluation of the Warmer Kiwi Homes programme

¹³ Option E in the s32 report

7. Impacts on Rail Uptake & Operation

This section considers impacts of each option on rail network uptake and operation.

7.1 Option 1: Do Nothing¹⁴

Because this option does not manage adverse rail noise effects, it can cause reverse sensitivity that gradually undermines the future uptake and operation of the rail network. This, in turn, would erode the value created by rail (as summarised above) and limit rail's ability to attract market share from the road freight sector. In addition, it can affect the ability of passenger rail services to shift people out of single occupancy vehicles during rush hour, which are a major contributor to congestion and delay on the road network as well as emissions.

Unfortunately, it is impossible to accurately assess the extent to which reverse sensitivity resulting from this option would disrupt the rail network and the consequential impacts on the economy. However, for the sake of illustration, we note that every 1% reduction in rail traffic caused by reverse sensitivity from new noise sensitive activities establishing nearby would cost the broader economy approximately \$17 to \$21 million per annum (based on the annual values shown in section 3.3 above).

7.2 Option 2: KiwiRail Proposed Provisions¹⁵

By design, KiwiRail's proposed provisions would directly manage the adverse effects of new noise sensitive activities establishing in proximity to the rail network which would help it become an increasingly credible alternative to road transport for freight and passenger movements. However, that said, we acknowledge that reverse sensitivity may still arise from existing proximate activities.

7.3 Option 3: No Noise Sensitive Development within 100 Metres¹⁶

This option also (largely) avoids the adverse effects of rail noise and therefore should result in the same outcomes for the rail network as KiwiRail's proposed provisions.

¹⁴ Option A in the s32 report

¹⁵ Option G in the s32 report

¹⁶ Option E in the s32 report

8. Policy Administration/Compliance Costs

8.1 Option 1: Status Quo¹⁷

The status quo does not incur any administrative or compliance costs because it is (assumed to be) devoid of such provisions.

8.2 Option 2: KiwiRail Proposed Provisions¹⁸

KiwiRail's proposed provisions will have one-off costs to the Council of including them in the District Plan. However, because KiwiRail is proposing their introduction only during District Plan review or Plan Change processes, where changes to plans are occurring anyway, the marginal costs to Councils of including the proposed provisions is likely to be negligible. Further, while there will be ongoing costs from administering the provisions once operative, these are not expected to be material in the context of functions ordinarily carried out by Councils.

The greatest administrative and compliance costs associated with this option are those that fall on affected landowners. First, affected properties must commission a noise/acoustic expert to identify the need for, and optimal types of, mitigation to manage rail noise. We understand that these are likely to cost about a few thousand dollars.

Where buildings cannot be situated on a site or designed to locate sensitive activities away from the rail corridor, installing insulation, double glazing, mechanical ventilation, and other mitigation features will be the major cost felt by affected landowners. Again, unfortunately, it is difficult to provide reliable generalised estimates of these features because they are context-specific, and depend on the particular design choices of each landowner and their preferred use of their site. In addition, as noted earlier, the true cost of complying with these provisions will depend on the extent to which such measures would have been included in the building design anyway (either due to Building Code requirements and/or because the developer chose to adopt them).

Another complication is that the nature and cost of mitigation works will differ with several variables, including building height and distance from the rail network. For example, the following table from a recent report by Chiles Limited indicates the general relationship between distance from the rail network and the level of noise experienced.¹⁹

¹⁷ Option A in the s32 report

¹⁸ Option G in the s32 report

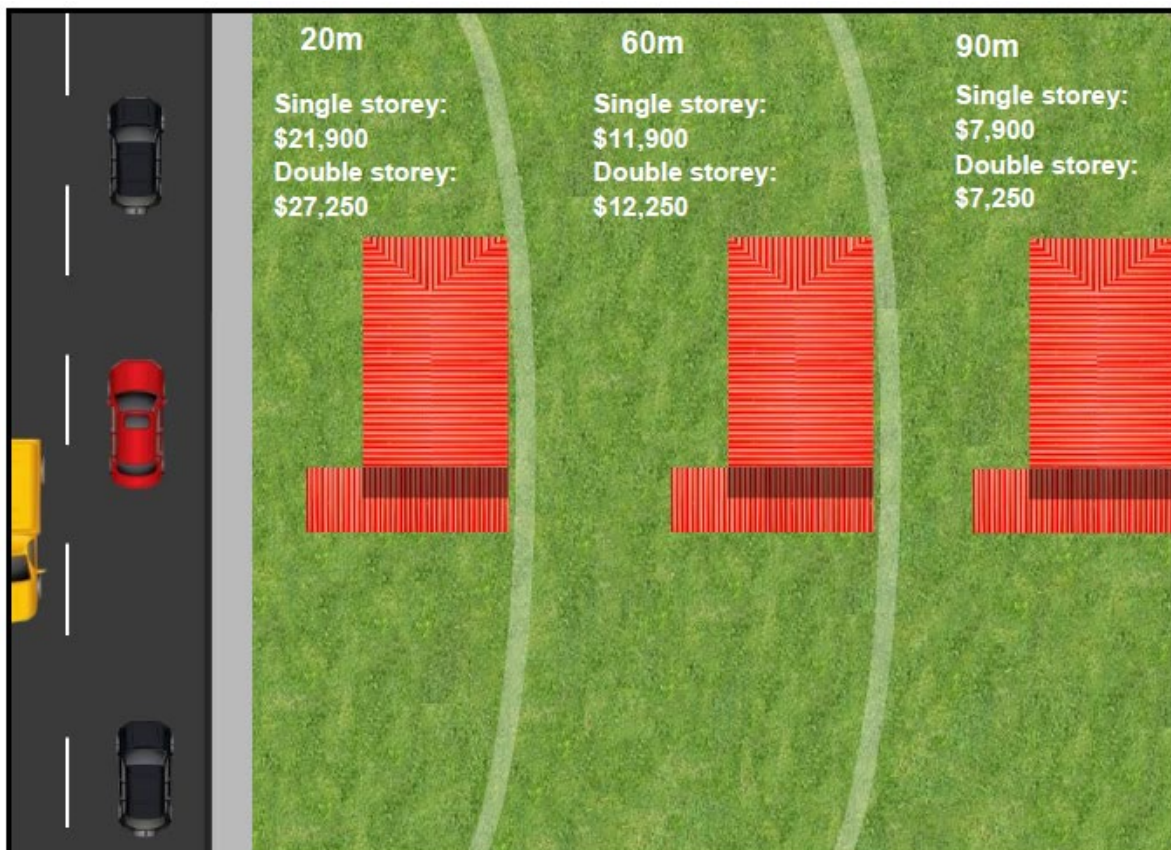
¹⁹ Chiles Limited, Land use controls for railway sound and vibration, March 2023.

Table 5: Relationship Between Distance and Sound Levels

Distance from Track	Sound Level $L_{Aeq(1h)}$
10 metres	71 dB
20 metres	68 dB
30 metres	66 dB
40 metres	64 dB
50 metres	62 dB
60 metres	60 dB
70 metres	59 dB
80 metres	58 dB
90 metres	56 dB
100 metres	56 dB

To advance the analysis, and for the sake of illustration, we draw on work completed by Beca for Waka Kotahi in 2013²⁰, which estimated the cost of mitigating road noise for dwellings located at different distances from the state highway network. The excerpt below summarises their key findings.

Figure 1: Beca Estimate of Mitigation Costs by Distance from Road Network (2013 \$)



A more recent estimate of likely costs was provided by AES for Christchurch City Council, which suggested that they may be about 1 to 2% of construction costs. Thus, the expense for a dwelling that costs \$300,000 to build may be \$3,000 to \$4,000, while the cost for a \$500,000 dwelling would be around \$5,000 to \$10,000. Again, however, we emphasise that the true cost of complying with the

²⁰ New Zealand Transport Agency Building Acoustic Mitigation Case Study, prepared for NZTA, 2013

provisions depends fundamentally on the extent to which any of the design features or building elements required would have been provided anyway.

It is also important to acknowledge that these costs will be offset by potential energy savings over time, as noted in the previous section. Plus, as set out in the table at 6.2 above, more importantly, they will likely be capitalised in the value of the property. Even setting aside that direct research, houses with double glazing and/or heat pumps are generally worth more than those without. Thus, while this option imposes upfront costs on homeowners, these will not be lost and instead could be better described as investments in the quality and future marketability of properties.

8.3 Option 3: No Noise Sensitive Development within 100 Metres²¹

This option is unlikely to impose any notable administrative or compliance costs.

²¹ Option E in the s32 report

9. Housing Market Impacts

9.1 Option 1: Status Quo²²

The status quo will not affect the quantity of housing supplied in each district.

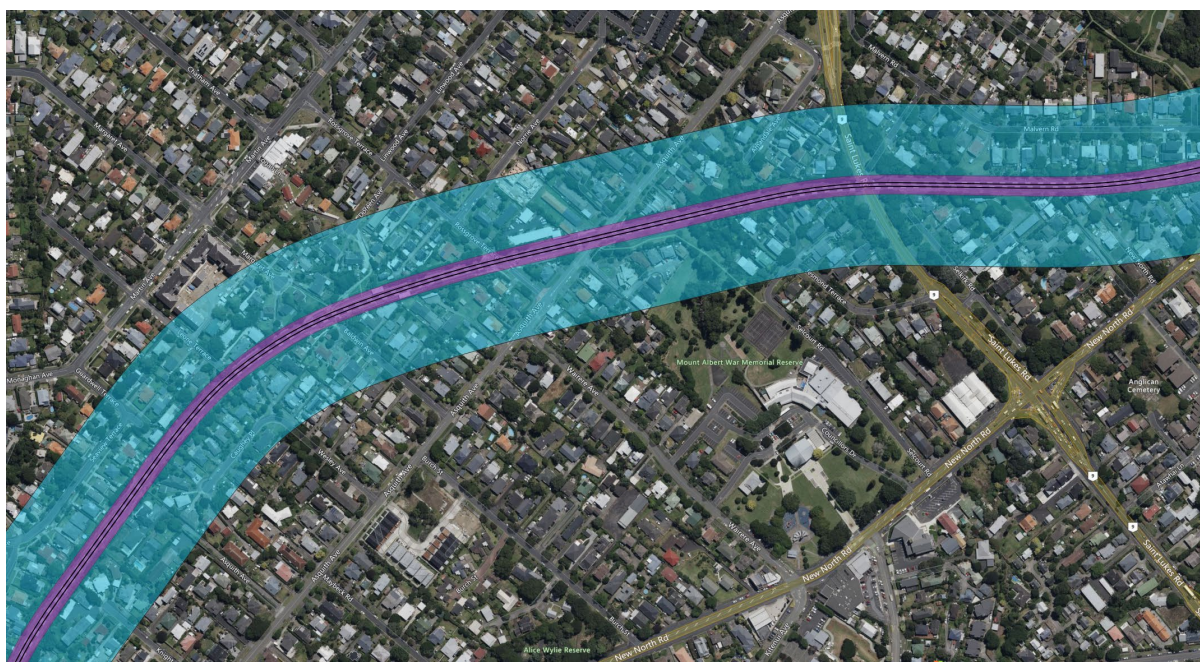
9.2 Option 2: KiwiRail Proposed Provisions²³

KiwiRail's proposed provisions may have small impacts on housing supply at the margin if the costs of mitigation are considered prohibitively expensive. However, this seems unlikely given the quantum of costs estimated by AES for Christchurch City Council, as per the previous section.

9.3 Option 3: No Noise Sensitive Development within 100 Metres²⁴

This option will have the greatest impacts on housing supply because it sterilises the use of land for noise sensitive activities within 100 metres of the rail network. To broadly quantify this impact, we used GIS to inspect the proximity of existing noise sensitive activities to the rail network in built-up areas, particularly Auckland. To that end, the figure below draws 10 and 100 metre buffers around the rail network in pink, and blue, respectively, to investigate how close existing homes are to the tracks.

Figure 2: Proximity of Noise Sensitive Activities to the Rail Network in Mt Albert, Auckland



This map shows there is very little development within 10 metres of the network, although the edges of some buildings are close. Conversely, there are large swathes of development within the 100-metre

²² Option A in the s32 report

²³ Option G in the s32 report

²⁴ Option E in the s32 report

buffer. Accordingly, per kilometre of track, this option may prohibit noise sensitive development that would have otherwise likely occurred on approximately 180,000m² (or 18 hectares) of land.²⁵

The cost of this prohibition will depend on several factors, including the zoning of affected land, the extent to which it is already developed or not, the presence or absence of other binding constraints on development, the underlying value of land, and the scope for accommodating non-noise sensitive activities instead.

Below, we estimate the value of land foregone for noise sensitive development per kilometre of track based on (i) the proportion of land that is developable for any purpose, and (ii) the incremental value of developing land for noise sensitive activities vs other activities. Table 5 presents the results.

Table 6: Value of Land Foregone for Noise Sensitive Activities by 100-Metre Setback per Kilometre of Track (\$ millions)

Developable Land %	Incremental Value of Using Land for Noise Sensitive Activities per m ²							
	\$50	\$100	\$150	\$200	\$250	\$300	\$350	\$400
0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
10%	\$1	\$2	\$3	\$4	\$5	\$5	\$6	\$7
20%	\$2	\$4	\$5	\$7	\$9	\$11	\$13	\$14
30%	\$3	\$5	\$8	\$11	\$14	\$16	\$19	\$22
40%	\$4	\$7	\$11	\$14	\$18	\$22	\$25	\$29
50%	\$5	\$9	\$14	\$18	\$23	\$27	\$32	\$36
60%	\$5	\$11	\$16	\$22	\$27	\$32	\$38	\$43
70%	\$6	\$13	\$19	\$25	\$32	\$38	\$44	\$50
80%	\$7	\$14	\$22	\$29	\$36	\$43	\$50	\$58
90%	\$8	\$16	\$24	\$32	\$41	\$49	\$57	\$65
100%	\$9	\$18	\$27	\$36	\$45	\$54	\$63	\$72

To summarise: the opportunity cost of precluding noise sensitive development within the 100-metre buffer depends critically on the proportion of such land that is developable in the first place, and the difference in land value between noise sensitive activities and all others.

For example, suppose that the current value of residential land is \$200 per square metre but (say) \$100 for industrial, and that 50% of land within the buffer is available for some form of development. According to the table above, the cost per kilometre of track is \$9 million.²⁶

In more extreme cases, say where residential land values are \$300 higher than industrial and the full buffer area is available for development, the opportunity cost per kilometre is \$54 million.

²⁵ This equals one kilometre of track (1,000 metres) multiplied by 90 metres of developable land between the 10- and 100-meter buffers, which is then multiplied by two because the buffer extends in both directions on both sides of the tracks.

²⁶ This can be found by subtracting the value of land for industrial from the value for residential (which is \$100 per m²) and scanning down that column to the row labelled as 50% developable.

10. Calculating Option Net Benefits

10.1 Introduction

The likely costs and benefits of each option are area- and context-specific because they depend on a range of factors that are fluid through both time and space. To demonstrate how the approach can be applied in each territorial authority where Kiwirail's preferred provisions are sought, we derived a model that can be applied on a case-by-case-basis. It contains nearly 20 inputs and assumptions that can be populated with figures that match the circumstances of each district at that time to provide timely and reliable insights to the likely costs and benefits of the three options evaluated herein.

10.2 Worked (Hypothetical) Example

Table 7 below shows the various inputs and parameters in the model, which are populated here with a set of hypothetical values purely for illustration.

Table 7: Model Parameters for Assessing Option Costs and Benefits (Hypothetical Example)

Area of Land Affected & Likely Dwelling Yield	Values
Control Area (Buffer) start distance in metres from edge of rail network	10
Control Area (Buffer) end distance in metres from edge of rail network	100
Share of land within proposed buffer otherwise available for development	80%
Residential development density - dwellings/ha (gross)	10
Metres per kilometre	1,000
Square metres per hectare	10,000
Land Values for Noise Sensitive and Non-Sensitive Activities	Values
Value of land zoned for residential & other noise sensitive activities (\$/m ²)	\$400
Value of land zoned for non-noise sensitive activities (\$/m ²)	\$200
Health & Amenity Benefits	Values
Average dwelling price	\$540,000
Mitigation Impact (dB of noise reduction)	5
Mitigation benefits (as a % of property value) per 1 dB improvement	1.20%
Policy Compliance Cost Parameters	Values
Average dwelling build cost	\$300,000
Mitigation fixed costs per dwelling	\$3,000
Mitigation variable cost (as a % of construction cost)	3%
Impacts on Rail Operation	Values
Annual value of rail to New Zealand (from Deloitte Study)	\$1,900,000,000
Impact of new noise sensitive activities on value of rail (as a %)	2%
Total length of NZ railway track (km)	3,700
Financial Parameters	Values
Time Period of Analysis (years)	30
Discount Rate	10%

Finally, Table 2 Table 8 shows the corresponding option costs and benefits for this specific example, where KiwiRail's proposed provisions generate the lowest net cost and hence are the preferred option.

Table 8: Estimated Net Costs/Benefits per Kilometre of Track (Hypothetical Example)

Costs/Benefits per km of Track	Option 1	Option 2	Option 3
Amenity & health benefits	-\$4,665,600	\$0	\$0
Impacts on rail operation	-\$97,000	\$0	\$0
Policy compliance costs	\$0	-\$1,728,000	\$0
Housing market impacts	\$0	\$0	-\$28,800,000
Option Net Benefits/Costs	-\$4,762,600	-\$1,728,000	-\$28,800,000

11. Appendix: Long List of Options

Below is the long list of options from which the three analysed in this report were drawn.

Option A - Do nothing:

No or limited railway noise and vibration provisions in the District Plan. This may include no specific noise and vibration rules, standards or mapping overlays, but may include consideration of reverse sensitivity effects when assessing the adverse effects of any resource consent application, depending on the existing objectives, policies and rules in the District Plan. This includes subdivision, use or development within the vicinity of the railway corridor if the District Plan provides sufficient direction to do so.

Option B – Rail operator reduces noise and vibration emissions:

The rail operator ensure that noise and vibration emissions are reduced to the extent that Activities Sensitive to Noise within 100m of the rail corridor achieve the recommended noise and vibration levels without needing to undertake any specific insulation, ventilation or construction design standards.

Option C - Noise barriers:

Acoustic walls or bunds installed by the applicant or the rail operator with no other noise or vibration management methods.

Option D - Construction design standards:

A table which specifies minimum construction materials and standards necessary to achieve internal acoustic levels within buildings, with no other noise or vibration management methods.

Option E - Setbacks:

Requiring Activities Sensitive to Noise to be set back 100m from the railway corridor with no other noise or vibration management methods.

Option F - Internal acoustic standards:

Require internal acoustic and ventilation rules and standards for noise-sensitive activities, but provide no other options to achieve compliance.

Option G – Combination of rules and standards (Proposed provisions):

Within 100m of the railway corridor, provide several options to achieve compliance with internal acoustic levels – within 50m of the rail corridor buildings are designed to meet specified Internal noise levels, or must meet a 50m setback, or where the noise at exterior façades is measured or predicted to be no more than 15 dB above the relevant noise level. Buildings must also meet mechanical ventilation standards and reporting standards. Includes an advice note to alert plan users that Activities Sensitive to Noise within the Rail Noise Control and Vibration Alert Area may be subject to vibration effects.

Option H – Proposed provisions funded by rail operator:

Within 100m of the railway corridor, via a mapped Rail Noise Control and Vibration Alert Area,

the same options to achieve compliance would be available - buildings are designed to meet specified Internal noise levels, or must meet a 50m setback, or noise at exterior façades is no more than 15 dB higher. Buildings must also meet mechanical ventilation standards and reporting standards, and there is an advice note regarding vibration effects. However, the difference is that KiwiRail would fund the achievement of these standards.

Option I - Landscaping:

Landscape planting to provide acoustic mitigation, with no other noise or vibration management methods.

Option J - National regulation:

This may include changes to the Building Act or Building Code or introduction of a National Planning Standard or National Environmental Standard. The Building Act and Code currently provides specifications to manage inter-tenancy noise (eg noise between residential apartments within the same building with shared tenancy walls). However, it does not require the management of internal noise where noise is generated from outside a building (e.g. rail noise from an adjacent rail corridor).

Option K Reverse sensitivity covenant:

A plan provision which requires a covenant whereby property owners agree not to complain about noise and vibration effects on sensitive land uses. This is often referred to as a 'no complaints' covenant.

ATTACHMENT D

Proposed Wairarapa Combined District Plan
Summary of Decisions Requested Ordered by Submitter

LIST OF SUBMITTERS IN ALPHABETICAL ORDER

Submission number	Submitter name	Contact person (if different)	Address for service
S48	Aburn Popova Trust	Alistair Aburn	alistair@urbanp.co.nz
S3	Adam Lee		adam.lee.kiwi@gmail.com
S152	Adamson Shaw Ltd	Lucy McWilliam	lucym@adamsonshaw.co.nz
S210	Adrian and Julie Denniston	Russell Hooper	russellhooperconsulting@gmail.com
S147	Adrienne Young-Cooper		adrienneyc@me.com
S182	Aggregate and Quarry Association	Wayne Scott	wayne@aqa.org.nz
S188	Aidan Ellims		aidan.ellims@xtra.co.nz
S276	Ainsley Kelly		ainsley.kelly@bcdtravel.co.nz
S131	Aircraft Owners and Pilots Association NZ	John Evans	john.evans@aopa.nz
S243	Alan Flynn		alan@flynn.co.nz
S89	Alastair MacKenzie		casaheal@gmail.com
S67	Alistair and Jenny Boyne		jenny@torastation.co.nz
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S38	Amalgamated Helicopters NZ Ltd		jd@ahnzl.com
S59	Andrew Duncan		andy@eqo.org.nz
S179	Anne Jessie Te Aroha Carter		anne@teraaconsulting.nz
S168	Anne-Marie and David Clements		d.aclements@xtra.co.nz
S148	Antilles Ltd	Geoff Wallace	geoff.wallace@plumbline.co.nz
S167	Ara Poutama Aotearoa the Department of Corrections	Andrea Millar	andrea.millar@corrections.govt.nz
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S52	Audrey Rendle		audrey.rendle@farmside.co.nz
S257	Audrey Sebire		audrey.sebire.nz@gmail.com
S72	Aviation New Zealand – New Zealand Helicopter Association		eonzhauavnz@aviationnz.co.nz
S208	Ballance Agri-Nutrients		dominic.adams@ballance.co.nz
S37	Barbie Barton		rogbar@xtra.co.nz
S133	Beverley Clark		217 Lake Ferry Road Martinborough, Wellington 5781
S217	Bob Tosswill		tosswill@wise.net.nz
S33	Bosch Property Management Co Ltd		office@boschproperties.co.nz

Proposed Wairarapa Combined District Plan
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Submission number	Submitter name	Contact person (if different)	Address for service
S238	bp Oil New Zealand Limited, Mobil Oil New Zealand Limited and Z Energy Limited ('the Fuel Companies')	Thomas Trevilla	thomas.trevilla@slrconsulting.com
S226	Brian John McGuinness		brian@mcguinness.co.nz
S95	Brookside Developments – Featherston Limited		ian@smallhome.nz
S118	Bruce Sollitt		bsollitt@xtra.co.nz
S195	Bryon Mudgway		bryonmudgway4@gmail.com
S91	Canoe Wines Limited Partnership	David Ross	info@kahuenviro.co.nz
S265	Carolyn Mary Wait		carolyn@hideaway.co.nz
S108	Catrina Sue		catrinasue@xtra.co.nz
S232	CentrePort Limited	William Woods	william.woods@centreport.co.nz
S31	Charlotte Gendall and Georgina Miller		cgendall62@yahoo.co.nz
S254	Charmaine Kura-o-Tahu Kawana		chakawa53@gmail.com
S189	Chorus New Zealand Limited (Chorus), Connexa Limited (Connexa), Aotearoa Tower Group (trading as FortySouth), One New Zealand Group Limited (One NZ) and Spark New Zealand trading Limited (Spark)	Tom Anderson	tom@incite.co.nz
S142	Chorus New Zealand Limited		andrew.kantor@chorus.co.nz
S263	Chris Peterson		chrisp@wise.net.nz
S12	Christopher Clarke		jennychris.clarke@gmail.com
S114	Clive Trott		clive@trott.net.nz
S248	Colin and Helen Southey	Russell Hooper	russellhooperconsulting@gmail.com
S145	Colin Walter Baruch		colin.baruch@icloud.com
S92	Country Village Heaven	Adam Blackwell	greytown@greytownvillage.com
S163	Craig Dowling		chd@xtra.co.nz
S70	Dan Kellow		djkellow72@gmail.com
S268	Dan Riddiford		danriddiford@teawaitistation.co.nz
S269	Dan Riddiford		danriddiford@teawaitistation.co.nz
S77	Daniel Bradley		daniel-b61@live.com
S191	David Ian McGuinness		david@willisbond.co.nz
S272	Denise Clements		wrattgirl@gmail.com
S185	Dewes Brothers Ltd	Tom Anderson	tom@incite.co.nz
S236	Director-General of Conservation Penny Nelson	Amelia Ching	aching@doc.govt.nz
S190	DMST Internationals Limited	Stephanie Blick	stephanie@scopeplanning.co.nz
S82	Dublin Street Wines Ltd		contact@dublinstreet.co.nz

Proposed Wairarapa Combined District Plan
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Submission number	Submitter name	Contact person (if different)	Address for service
S144	E McGruddy		46 Matapihi Road Masterton, Wellington 5886
S239	East Leigh Limited ('ELL')	Joshua Marshall	jmarshall@gwlaw.co.nz
S171	Edgar Vandendungen		vandendungen@outlook.co.nz
S19	Edward Henrard		eddie.henrard@gmail.com
S227	Elisabeth Jane Creevey		elisabethcreevey@hotmail.com
S247	Enviro NZ Services Ltd	Kaaren Rosser	kaaren.rosser@environz.co.nz
S76	Erina Te Whaiti		etewhaiti@xtra.co.nz
S139	ET Quests Limited	Lucy McWilliam	lucym@adamsonshaw.co.nz
S214	Federated Farmers of New Zealand	Frances Casey	fcasey@fedfarm.org.nz
S172	Fire and Emergency New Zealand	Fleur Rohleder	fleur.rohleder@beca.com
S138	Fran Wilde		fran@franwilde.com
S157	Francis Minehan		frankminehan3@gmail.com
S80	Frank and Lisa Cornelissen		frank@martinboroughholidaypark.com
S282	Frank van Steensel		ecodynamicsnz@gmail.com
S267	Fred Waiker		fred@agmar.co.nz
S122	Fulton Hogan Limited	Tim Ensor	tensor@tonkintaylor.co.nz
S241	Garrick Robert and Pamela Orene Wells		pow1@xtra.co.nz
S205	Garry Daniell	Corinna Tessendorf	corinna@urbanedgeplanning.co.nz
S253	Gaylene Leslie O'Connor		remmies@farmside.co.nz
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S117	Geoffrey Roberts		geoffreyroberts@hotmail.com
S97	Gollins Commercial Limited		chrisg@gollins.co.nz
S94	Greater Wellington Regional Council	Sam O'Brien	sam.obrien@gw.govt.nz
S135	Greytown Heritage Trust	Carmel Ferguson	carmelf@xtra.co.nz
S213	Haami Te Whaiti		haami.tewhaiti@gmail.com
S58	Hamish Qualtrough		lazyqltd@outlook.co.nz
S32	Harvey Norman Properties (N.Z.) Limited	Michael Treacy	michaelt@civilplan.co.nz
S223	Helios Energy Ltd	Sarah Brooks	sbrooks@heliosenergy.co.nz
S264	Henare Manaena		arepaena@hotmail.com
S249	Heritage New Zealand Pouhere Taonga (HNZPT)	Dean Raymond	draymond@heritage.org.nz
S221	Horticulture New Zealand	Emily Levenson	emily.levenson@hortnz.co.nz
S20	Hyslop Homes		jacobhyslop94@gmail.com
S277	Ingrid Ward		ingridward@slingshot.co.nz

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Submission number	Submitter name	Contact person (if different)	Address for service
S74	Jack Cameron		dvf@xtra.co.nz
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S197	James Houston		jnhxciv@outlook.com
S34	James Richardson		jamesmatthewrichardson@gmail.com
S192	James Wallace, Leslie Wallace and Rosemary Laffey	Tom Anderson	tom@incite.co.nz
S271	Jamie Burns		jrs@jrs.co.nz
S36	Jan Jessep		janjessep@hotmail.co.uk
S13	Janette and John Dennis		jaydees.wise@xtra.co.nz
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S279	Jeannie Hancock		taraviewgreytown@gmail.com
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S105	Kate Reedy		kate.jason@xtra.co.nz
S181	Kath and David Tomlinson		kath.david@slingshot.co.nz
S184	Kawakawa 1D2 Ahu Whenua Trust	Kim Workman	kim@kiwa.org.nz
S24	Keith Thorsen		robynandkeith@gmail.com
S266	Kirsten Browne		duganbrowne@icloud.com
S79	KiwiRail Holdings Limited	Sheena McGuire	environment@kiwirail.co.nz
S201	Ko Hinetau Te Whaiti-Trueman		mariakohinetau@gmail.com
S280	Lawrence Stephenson		lawrenceofnz@gmail.com
S5	Liza Phipps		psmith@transnet.co.nz

Proposed Wairarapa Combined District Plan
Summary of Decisions Requested Ordered by Submitter

Submission number	Submitter name	Contact person (if different)	Address for service
S51	Lucy Sanderson-Gammon		lucysg2011@gmail.com
S125	Lynly Selby-Neal and Angus Laird		lynlys@hotmail.com
S99	Manu Te Whata		mash1@xtra.co.nz
S212	Māori Trustee	Teree Brown	resource.management@tetumupaeroa.co.nz
S103	Marama Tuuta		marama.eddie@xtra.co.nz
S273	Maria Berry		maria.b@orcon.net.nz
S230	Maria Miller		giddaygorgeous@hotmail.com
S46	Mark Jerling		mark@markjerling.com
S183	Martinborough Community Board	Karen Krogh	krobiz@xtra.co.nz
S53	Martinborough Holdings Limited	John Porter	john@siewwrights.co.nz
S40	Masterton Trust Lands Trust	Andrew Croskery	acroskery@ltm.org.nz
S251	Masterton, Carterton, and South Wairarapa District Councils	Solitaire Robertson	solitaire@cdc.govt.nz
S175	Matthew Wenden		wendenmatt@gmail.com
S231	Maureen Hyett and Jenny Wheeler	James Beban	james@urbanedgeplanning.co.nz
S220	Meridian Energy Limited	Andrew Feierabend	andrew.feierabend@meridianenergy.co.nz
S244	Michael David Walters Hodder		michaelhodder@xtra.co.nz
S134	Michael Philip Heald and Nicole Anne Preston		nicolepreston86@gmail.com
S180	Michelle Hight		michellehight@yahoo.co.nz
S88	Miles Sutherland		miles.sutherland@police.govt.nz
S198	Millicent Williams		m.j.williams878@outlook.com
S245	Ministry of Education Te Tāhuhu o Te Mātauranga	Zach Chisam	zach.chisam@beca.com
S174	Monique Leerschool		moniquel@contact.net.nz
S21	Murray Hemi		murrayhemi@xtra.co.nz
S128	Nelson Francis Rangi		nelson.rangi@xtra.co.nz
S225	New Zealand Defence Force	Rebecca Davies	rebecca.davies@nzdf.mil.nz
S187	New Zealand Frost Fans		nzconsents@frostboss.com
S252	New Zealand Heavy Haulage Association Inc		stuart@stuartryan.co.nz
S229	New Zealand Pork Industry Board	Hannah Ritchie	hannah.ritchie@pork.co.nz
S149	New Zealand Transport Agency	Kathryn St Amand	kathryn.stamand@nzta.govt.nz
S242	Ngaere Webb		webb250@slingshot.co.nz
S106	Ngāi Tūmapūhia-ā-Rangi i Mōtuwairaka Inc		sue@ttcl.co.nz
S256	Ngāti Kahungunu ki Wairarapa Iwi Development Trust	Pikitia Tuuta	tia@kkwtmr.org.nz
S100	Ngati Te Ahuahu Hapū	Mrs. Manu Te Whata	mash1@xtra.co.nz
S219	Nigel and Philippa Broom		nigel.broom@xtra.co.nz

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S22	NZ Agricultural Aviation Association		eonzaaa@aviationnz.co.nz
S110	Panatahi Sue		panatahi.sue3587@gmail.com
S193	Panatahi Takarua		panatahi.kr@gmail.com
S112	Papawai Ahu whenua Trust		marama.eddie@xtra.co.nz
S235	Papawai Ahu whenua Trust		marama.eddie@xtra.co.nz
S68	Papawai and Kaikokirikiri Trusts		office@pktrusts.nz
S18	Patrick Ward		homeward@outlook.co.nz
S2	Paul Burgin		pburgin@gmail.com
S127	Paul Burgin		pburgin@gmail.com
S211	Paula Gillett and Jane Donald		tairoafarm@gmail.com
S143	Penelope Jane Bargh		jp.bargh@xtra.co.nz
S250	Peter Clark, Wayne Carmichael, and Dorreen Mackenzie	Russell Hooper	russellhooperconsulting@gmail.com
S289	Peter Himona		peterhimona@xtra.co.nz
S101	Peter Stout		pestout@xtra.co.nz
S224	Peter William Gibbs		peter.joy.gibbs@xtra.co.nz
S209	Powerco Limited	Gary Scholfield	planning@powerco.co.nz
S285	Rachael Hughes		rachael.hughes@vectormetering.com
S288	Radio New Zealand Limited (RNZ)	Annabelle Lee	annabelle.lee@chapmantripp.com
S47	Rangitāne o Wairarapa		amber@rangitane.iwi.nz
S73	Regan Potangaroa		potangaroa.regan54@gmail.com
S281	Richard Schofield		rplum@sevil.co.nz
S206	Richard Taylor		richardtaylor@xtra.co.nz
S258	Royal Forest and Bird Protection Society of New Zealand Inc	Amelia Geary	a.geary@forestandbird.org.nz
S237	Rural Contractors New Zealand Incorporated (RCNZ)	Graeme Mathieson	graeme.mathieson@mitchelldaysh.co.nz
S259	Russell Hooper		russellhooperconsulting@gmail.com
S27	Ryan and Nadine Smock		mcnzltd@gmail.com
S240	Ryan Malone		ryanmalone007@gmail.com
S61	Sally Whitehead		sallylmcoffey@gmail.com
S69	Sam Edridge		sam@edridgeconstruction.co.nz
S216	Sara Hiranni O'Donnell		saraodonnell07@gmail.com
S137	Sarah and John Monaghan		monaghanfamily@xtra.co.nz
S35	Scilla Askew		askscilla@zoho.com
S233	Scott Anstis		scottanstis@hotmail.com

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S255	Scott Summerfield and Ross Lynch		scott.summerfield@gmail.com
S246	Shane Gray and David Allen	Russell Hooper	russellhooperconsulting@gmail.com
S63	Shaun Draper		shaun.draper@xtra.co.nz
S30	Simon Byrne		byrne.home2@gmail.com
S119	Simon Byrne		byrne.home2@gmail.com
S132	Simon Casey		simoncas2407@gmail.com
S60	Simon Coffey		simonjohncoffey@gmail.com
S207	South Wairarapa Whenua Advisory Group Incorporated (SWWAG)	Peter Issac	swwagcontact@gmail.com
S141	Spark, Connexa, One NZ and Forty South		graeme.mccarrison@spark.co.nz
S261	Stephen and Judith Brown		stephen@mbbrown.co.nz
S96	Stephen Franks		franks.lawyer@gmail.com
S278	Steve Hancock		stevehancock007@gmail.com
S25	Stewart Reid		stewart.reid@reidbrothersdistilling.com
S151	Storm Robertson		storm0681@gmail.com
S71	Stuart Macann		stuart.macann@gmail.com
S203	Summerset Group Holdings Limited	Mitch Lewandowski	mitch@bbplanning.co.nz
S102	Susan Taylor		sue@ttcl.co.nz
S169	Suzanne Rauhina Cooper		rauhinas@gmail.com
S111	Te Pou Herenga o Hiwaru Māori Reserve		sue@ttcl.co.nz
S154	Te Tini o Ngāti Kahukuraawhitia		amber@tahetoka.nz
S140	Teoroi Trust	Gordon Tyer	teoroi@bigpond.com
S7	The Gold Vault Ltd Lynnette McManaway		farm@goldcreek.co.nz
S177	Tim Williams		tim@waihelicopters.com
S146	Timothy Paul Druzianic		druzt@xtra.co.nz
S10	Toby Mills		toby@np.co.nz
S90	Toka Tū Ake EQC	Sarah-Jayne McCurrach	resilience@eqc.govt.nz
S55	Toni Demetriou		demetrioutoni@gmail.com
S260	Tony Garstang		tonygarstang@xtra.co.nz
S107	Tracey McComb		tracey@smallhome.nz
S218	Transpower New Zealand Limited	Ainsley McLeod	ainsley@amconsulting.co.nz
S87	Tū Mai Rā Investments, Rangitāne Tū Mai Rā Trust		malcolm@tmridevelopments.nz
S150	Tupurupuru		marama.eddie@xtra.co.nz
S153	Tupurupuru Ahuwhenua Trust		marama.eddie@xtra.co.nz
S129	Vern and Jocelyn Brasell		vernbrasell@gmail.com

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S28	Victoria Jane Stanbridge		vjstanbridge@xtra.co.nz
S286	Vida McDonald		vida.mcdonald666@gmail.com
S123	Waipoua Catchment Community Group	Ian Gunn	sog@xtra.co.nz
S15	Wairarapa and Norsewood Estate Limited		hharvey@forestenterprises.co.nz
S284	Wairarapa Eco Farm	Sanne van Steensel	wairarapaecofarm@gmail.com
S136	Wairarapa Winegrowers' Association Inc	Wilco Lam	wilco@ogs.nz
S194	Warren Cooper		warrencooper707a@gmail.com
S64	Warren Reiri		98 Te Whiti Road Masterton, Wellington 5810
S98	Warren Woodgyer		warren.woodgyer@swdc.govt.nz
S274	Warren Woodgyer		wwoodgyer@gmail.com
S186	Wellington Fish and Game Council	Ami Coughlan	acoughlan@fishandgame.org.nz
S202	Woolworths New Zealand Limited	Kay Panther Knight	kay@formeplanning.co.nz
S130	Xavier Warne		xqwarne@gmail.com
S215	Z Energy Limited	Thomas Trevilla	thomas.trevilla@slrconsulting.com