

Plan Change 110 - Noise and Vibration

Section 32 Evaluation Report

Prior to Notification

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1.0 Introduction

1.1 Council's Rolling Review

1. Section 79 of the Resource Management Act ('the Act' or 'RMA') sets Councils the requirement to review District Plans. Councils must complete a review of all District Plan provisions within any 10 year time period. The Whangarei District Plan became operative on 3rd May 2007, but the Council spent more than eight years formulating the Plan. The data that the Operative District Plan was based upon is over ten years old. Monitoring of the Operative District Plan has identified areas of inconsistency and ineffectiveness including how noise and vibration are addressed.
2. Section 79 of the RMA sets the Council requirement to review District Plans. Council must complete a review of District Plan provisions within a 10 year time period. To reflect this requirement a rolling review method has commenced. According to section 79 (2) following a review of the provisions, should the local authority consider that the provisions require alteration, the local authority must undertake a plan change. Should the local authority consider that no alteration is required it still must publicly notify the provision as if it were a change
3. The procedure for rolling review is outlined in Chapter 2 of the Operative District Plan, which sets the expectations for future Council and private plan change applications.

Key Outcomes Sought:

- *District Plan shall be streamlined and simplified.*
 - *Policy and rules shall direct consenting process to provide certainty.*
 - *Comprehensive policy and objectives shall reflect the sustainable management outcomes sought for the respective District Plan Environments and Policy Area.*
 - *District Plan shall address resource management matters only and will cross reference to external legislation as required.*
 - *Some methods shall only be utilised where expressly stated in the relevant Environment Rules Chapter.*
4. To remedy some of the disjoints between District Plan sections, a new structure has been adopted. The District Plan structure will evolve and chapter format will be adjusted through the rolling review to be more consistent with the manner which the provisions are applied in practice (assessment of consent applications and enforcement of rules). District wide topics/matters will be contained within individual chapters to avoid repetition of methods throughout the plan.
 5. The rolling review provides an opportunity to include further objectives and policies on an Environment (zone) by Environment basis. A policy heavy approach to the District Plan has been introduced. The new structure provides opportunity for policy at a district wide, geographical, locality or neighbourhood context. The scope and degree of specification in the objectives and policies will be proportional to the level of context and relevance to ensure objectives and policies at each level do not overlap or contradict each other. In this instance Plan Change 110 seeks to introduce objectives and policies for noise and vibration at a District Wide level with regards to noise and vibration, rather than the piecemeal approach to noise and vibration provisions that exist currently in the District Plan.

1.2 Background – Noise and Vibration

1.2.1 Resource Management Issues

6. Excessive noise can detract from the character and amenity values associated with the local environment. Noise generating activities can also be restricted by noise sensitive activities in proximity that demand a higher level of amenity (reverse sensitivity). In an urban sense noise is a significant issue (especially at night) in mixed use zones and in 'interface' areas where noise 'sensitive' activities (e.g.residential uses) are located in close proximity to high noise emitting land uses (e.g. bars and panel beaters).
7. The Resource Management Act 1991 (RMA) addresses noise in two ways. First, under section 16 there is a duty on every occupier of land and every person carrying out an activity in, on, or under a water body or the coastal marine area to adopt the best practical option to not emit more than a reasonable level of noise. Section 16 of the Act states that a national environmental standard, plan or resource consent may prescribe noise emission standards. Section 16 therefore guides how district plans can address noise emissions.

8. The other way the RMA addresses noise is through excessive noise. There are specific provisions in the Act to deal with excessive noise, which normally involves intermittent noise sources that require immediate attention, for example loud stereos associated with parties. The excessive noise provisions stand apart from district plan provisions.
9. Figures from a review of noise complaints in the Whangarei District over the last three years are provided below. Over the last three years Whangarei District Council's Monitoring and Compliance team have received on 93 noise complaints against District Plan rules with an average of 31 per year. Domestic Noise Complaints pursuant to Section 326 of the RMA are substantially higher with an average of 3462 received over the last three years.

NOISE COMPLAINTS IN THE WHANGAREI DISTRICT		
Year	Complaints relating to industrial/commercial activities assessed against noise rules in district plan	Complaints relating to domestic noise (primarily stereos/parties) assessed under section 326 of RMA (excessive noise)
2011	45	3635
2012	28	3328
2013	20	3423
Average	31	3462

10. The location of these complaints vary, but Council's Monitoring and Compliance Manager Grant Couchman has confirmed that the noise complaints generally relate to the Whangarei urban area and in most cases, involve noise from Business Environments received in Living Environments. Examples of the types of complaints are provided below:
- **Business Environment source received in Living Environment** – Entertainment noise from Toll Stadium, tavern (Brahaua Frings) at Riverside residential, noise from commercial / industrial activities in Port Whangarei. **Most common location of noise complaints**
 - **Living Environment source received in adjacent Living Environment** – commercial activity noise (wood chopping, joinery, vehicle repair), wind turbine noise, heat pump noise
 - **Business Environment noise received in adjacent Business Environment** – entertainment noise (bands), airconditioning.
11. The costs of noise monitoring are generally very difficult to estimate and incorporate the following cost components:
- Cost of analysis equipment – capital cost, ongoing annual verification, repairs, update of software
 - Staff costs – time monitoring at site, time in post monitoring analysis of data and preparation of reports. Organisation overheads.
 - Enforcement (Abatement Notice etc.) as required.

1.2.2 Options

12. A desktop review and research of the District Plan provisions relating to noise and vibration began in 2010. Initial findings were that the District Plan took a disjointed approach to noise and vibration with the unnecessary repetition of material across the various Environments. It was further concluded that many of the technical terms and references to New Zealand Standards were out of date with national and international best practice. Subsequently two technical reviews from Southern Monitoring Services Limited (2012) and Marshall Day Acoustic Consultants (2014) were undertaken. Both reports to varying extent concluded that the noise provisions required a complete overhaul.
13. A summary of the findings of initial research and the aforementioned technical reports is provided in "Noise PC110 Issues and Options – 2nd Review August 2014" (14/74181). This report also provides an assessment of 3 options to address the disjointed approach to noise:
- **Option 1** - maintain the status quo.

- **Option 2** - undertake a plan change to update acoustic references and ensure consistency between noise provisions within the Plan.
 - **Option 3** - develop a single simplified section or chapter containing all referenced noise and vibration rules based on current best practice and up to date international guidelines.
14. The report concludes that option 3 represents the most practical approach to addressing the current disjoint in the District Plan. Therefore it is intended that Plan Change 110 will focus on the establishment of a district wide Noise and Vibration Chapter.

1.3 Section 32 of the Act

15. Section 32 of the Resource Management Act ('the Act') requires the Council to consider the appropriateness of any Plan Change for achieving the purpose of the Act, its functions, relevant costs benefits and risks. Pursuant to section 32(1) an evaluation report must:
- (a) *examine the extent to which the objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of this Act; and*
 - (b) *examine whether the provisions in the proposal are the most appropriate way to achieve the objectives by—*
 - (i) *identifying other reasonably practicable options for achieving the objectives; and*
 - (ii) *assessing the efficiency and effectiveness of the provisions in achieving the objectives; and*
 - (iii) *summarising the reasons for deciding on the provisions; and*
 - (c) *contain a level of detail that corresponds to the scale and significance of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the proposal.*
16. Council's evaluation of Proposed Plan Change 110 under Section 32 must consider the extent to which each proposed objective is the most appropriate way to achieve the purpose of the Act (s32(1)(a)). The Operative District Plan already contains a number of 'settled' higher order objectives, which are deemed to be the most appropriate way to achieve the purpose of the Act. The existing higher order objectives are not proposed to be subject to change as a result of proposed Plan Change 110. As such Council's evaluation of proposed Plan Change 110 under section 32 must also consider the extent to which each proposed objective is the most appropriate way to achieve the purpose of settled higher order objectives in the Operative District Plan.
17. Section 32 requires Council to undertake an analysis of the benefits, costs, efficiency and effectiveness of the proposed policy and methods of Plan Change 110, and of the risks of acting or not acting where there may be uncertainty.
18. This report details the comprehensive section 32 evaluation undertaken to confirm the appropriateness of Plan Change 110.

2.0 Statutory Context – Resource Management Act 1991

19. The Act requires District Plans, and thereby any changes to District Plans, whether private or Council driven, to meet the purpose and principles of the Act. Section 5 clarifies the purpose of the Act as being: 'to promote the sustainable management of natural and physical resources'; with sustainable management meaning: 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.*
20. The purpose of the Act involves two elements, one enabling and the other regulatory. The enabling component provides for the management of resources in a way that allows for communities and their people to look after their social, economic, and cultural well being, whilst the regulatory component sets the terms of these management matters which are further refined in Sections 6, 7, and 8 of the Act.
21. Section 6 of the Act sets out matters of national importance that must be recognised and provided for when exercising functions and powers under the Act.

- a) *the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:*
- b) *the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:*
- c) *the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*
- d) *the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:*
- e) *the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:*
- f) *the protection of historic heritage from inappropriate subdivision, use, and development:*
- g) *the protection of recognised customary activities.*

22. Section 7 of the Act sets out the specific matters that those exercising functions and powers under the Act shall have particular regard to. In achieving the purpose of the Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to —

- a) *kaitiakitanga:*
- aa) *the ethic of stewardship:*
- b) *the efficient use and development of natural and physical resources:*
 - ba) *the efficiency of the end use of energy:*
- c) *the maintenance and enhancement of amenity values:*
- d) *intrinsic values of ecosystems:*
- e) *[Repealed]*
- f) *maintenance and enhancement of the quality of the environment:*
- g) *any finite characteristics of natural and physical resources:*
- h) *the protection of the habitat of trout and salmon:*
- i) *the effects of climate change:*
- j) *the benefits to be derived from the use and development of renewable energy.*

23. Section 8 of the Act requires that all persons exercising functions and powers under the Act take into account the principles of the Treaty of Waitangi.

24. Section 16 of the Act establishes the duty to avoid unreasonable noise and allows Council's to specify noise emission standards in plans and resource consents.

- (1) *Every occupier of land (including any premises and any coastal marine area), and every person carrying out an activity in, on, or under a water body or the coastal marine area, shall adopt the best practicable option to ensure that the emission of noise from that land or water does not exceed a reasonable level.*
- (2) *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 (1).*

25. Section 44 of the Act requires local authorities to recognise national environmental standards. In this instance there are no national environmental standards considered relevant to the consideration of Plan Change 110.

26. Section 55 of the Act requires local authorities to recognise national policy statements. Likewise there are no national policy statements considered relevant to the consideration of Plan Change 110

3.0 Proposed Objectives for Noise and Vibration

27. Council must evaluate in accordance with section 32 of the Act, the extent to which each objective proposed in Plan Change 110 is the most appropriate way to achieve the purpose of the Act. To confirm the appropriateness of the proposed objectives, the objectives are evaluated for consistency with the purpose of the Act and consistency with existing provisions of the Operative District Plan.
28. Plan Change 110 has identified the following two objectives:

NAV.1.2 Objectives

1. *To enable a mix of activities to occur across a range of Environments, while ensuring that noise and vibration is maintained at acceptable levels for the health and safety of people and communities, and for the amenity and character of the Environment in which they are located.*
 2. *To ensure that activities that demand a high level of acoustic and vibration amenity do not unduly compromise the ability of other activities to operate.*
29. Pursuant to section 32, the following sections of this report will assess whether these proposed objectives are the most appropriate way to achieve the purpose of the Act and other higher order objectives existing in the District Plan.

3.1 Appropriateness Evaluation against Part 2 of the Act

TABLE 1 – APPROPRIATENESS OF OBJECTIVES WITH PART 2	
PART 2 Provision(s)	Appropriateness of Objective(s)
<p>5 Purpose</p> <p>(1) <i>The purpose of this Act is to promote the sustainable management of natural and physical resources.</i></p> <p>(2) <i>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—</i></p> <p style="margin-left: 20px;">(a) <i>sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and</i></p> <p style="margin-left: 20px;">(b) <i>safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and</i></p> <p style="margin-left: 20px;">(c) <i>avoiding, remedying, or mitigating any adverse effects of activities on</i></p>	NAV.1.2.1
	<p>The proposed objective gives effect to the purpose of the Act by enabling present and future generations to provide for their social, cultural and economic wellbeing. In particular, the proposed objective seeks to enable appropriate activities to occur throughout the District.</p>
	<p>Allowing business activities to occur provides for the economic wellbeing of the community through the creation of jobs and also promotes their social wellbeing by providing access to goods and services. Likewise enabling residential activities to occur is important in allowing people and communities to provide for their economic, social and cultural wellbeing.</p>
	<p>The objective is consistent with the health and safety component of section 5 and the duty to avoid, remedy and mitigate any adverse effects on the environment. It acknowledges the potential adverse effects of noise and vibration and aims to ensure that they are “maintained at acceptable levels” for both the health and wellbeing of people and communities and the amenity and character of the local environment.</p>
	NAV.1.2.2
	<p>This objective acknowledges the importance that noise and vibration generating activities have in enabling present and future generations to provide for the social, cultural and economic wellbeing.</p>
	<p>This objective addresses the reverse sensitive component that noise and vibration effects can create where incompatible activities are located in proximity. Allowing “noise sensitive activities” such as residential activities to locate in proximity to high generating noise activities such as bars and panel beaters without adequate mitigation measures can compromise the ability</p>

TABLE 1 – APPROPRIATENESS OF OBJECTIVES WITH PART 2

PART 2 Provision(s)	Appropriateness of Objective(s)
<p><i>the environment.</i></p>	<p>of both to operate efficiently. This can lead to restrictions on the operation of appropriate business activities which can result in loss of employment and access to goods and services, thus affecting the ability of present and future generations to provide for their economic, social and cultural well-being. Similarly this objective provides for the health and safety component of the definition of sustainable management by ensuring that people and communities are not subject to high noise levels that may lead to adverse health effects such as sleep disturbance, psychological and chronic health effects.</p> <p style="text-align: center;">Overall</p> <p>Overall it is considered that collectively the two objectives represent the most appropriate way to give effect to the purpose of the Act in section 5 being to promote sustainable management of natural and physical resources.</p> <p>More specifically the objectives provide a framework by which provisions can be developed to ensure that noise and vibration levels from various activities allow appropriate activities to occur in various Environments, while ensuring that the health and safety of people and communities and the amenity and character of the local environment are not unduly compromised.</p>
<p>6 Matters of National Importance</p>	<p>Having reviewed the matters of national importance in section 6 of the Act against the proposed objectives and Plan Change 110 overall, it is considered that none of the matters are relevant in this instance.</p>
<p>7 Other Matters</p> <p>The following other matters are considered relevant to the consideration of the proposed objectives:</p> <p>(b) <i>the efficient use and development of natural and physical resources:</i></p> <p>(c) <i>the maintenance and enhancement of amenity values:</i></p> <p>(f) maintenance and enhancement of the quality of the environment:</p>	<p style="text-align: center;">NAV.1.2.1</p> <p>(b) It is considered that this proposed objective has particular regard to the efficient use and development of natural and physical resources as it will enable business and residential activities to occur in appropriate locations.</p> <p>(c) This objective specifically provides for the maintenance and enhancement of amenity values as it promotes noise and vibration levels that are acceptable for the amenity and character in the local environment.</p> <p>(f) This objective provides for the maintenance and enhancement of the quality of the environment as it promotes noise levels that are consistent with the amenity values of the local environment, which contribute to the overall quality of the environment.</p> <p style="text-align: center;">NAV.1.2.2</p> <p>(b) It is considered that this proposed objective has particular regard to the efficient use and development of natural and physical resources as it seeks to avoid incompatible land uses located in proximity to one another.</p> <p>(c) This objective provides for the maintenance and enhancement of amenity values as it seeks to avoid incompatible land use activities locating in proximity to one another, which will maintain existing and anticipated</p>

TABLE 1 – APPROPRIATENESS OF OBJECTIVES WITH PART 2	
PART 2 Provision(s)	Appropriateness of Objective(s)
	amenity values of the various Environments. (f) This objective provides for the maintenance and enhancement of the quality of the environment as it seeks to ensure that incompatible land uses are not located next to one another.
	Overall
	Overall taking into account the above comments it is considered that the two proposed objectives represent the most appropriate way to give effect to the relevant matters in section 7 of the Act.
8 Treaty of Waitangi	Having taking into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi) pursuant to section 8 of the Act it is considered that none are relevant to the consideration of the proposed objectives and Plan Change 110 in general.

30. Overall, taking into the comments in the above table, it is considered that the two proposed objectives in conjunction represent the most appropriate way to achieve Part 2 of the Act.

3.2 Northland Regional Policy Statement

31. The Northland Regional Policy Statement (RPS) covers the management of natural and physical resources across the Northland region. The provisions within the RPS give guidance at a higher planning level in terms of the significant regional issues. Pursuant to the Act District Plans are required to give effect to Regional Policy Statements.
32. Hearings for the proposed RPS were completed in mid 2013 with NRC adopting the independent Hearing's Commissioners' recommendations on the provisions on 17th September 2013. A number of the provisions are subject to unresolved appeals, but it is considered that the proposed RPS has some legal weighting (notwithstanding those provisions subject to appeals).
33. Accordingly the following sections of this report provide an assessment of the consistency of the proposed objectives against the relevant higher order objectives of both the operative and proposed RPS.

3.2.1 Operative Northland Regional Policy Statement

34. The Operative RPS does not contain a specific section addressing noise and vibration. Rather, like the current Operative District Plan, the Operative RPS refers to noise and vibration as it relates to other regionally significant matters, such as mineral extraction and transport. Objectives from these sections are identified in the below table and assessed against the proposed objectives for consistency:

TABLE 2 – CONSISTENCY OF OBJECTIVES WITH OPERATIVE RPS	
Existing Objectives	Consistency of Proposed Objective(s)
Section 27 – Minerals	
27.3 Objectives 2. Protection of mineral resources from activities which may compromise their future use.	NAV.1.2.1
	NAV.1.2.1 seeks to enable an appropriate mix of activities to occur in Environments. This implies that activities that are incompatible will not be located in proximity to one another, or if they are appropriate mitigation measures will need to be employed to ensure that noise sensitive activities do not unduly compromise other land uses, such as mineral extraction.
	NAV.1.2.2

TABLE 2 – CONSISTENCY OF OBJECTIVES WITH OPERATIVE RPS	
Existing Objectives	Consistency of Proposed Objective(s)
	NAV.1.2.2 effectively reinforces this objective and makes it specific to noise and vibration. For this reason it is considered that the proposed objective is consistent with, and further strengthens this existing objective in the Operative RPS.
	Overall
	Overall having taken into account the above comments, it is considered that in conjunction the proposed objectives are consistent with existing objective 27.3.2 in the Operative RPS.
Section 29 – Transport	
29.3 Objectives 1. Maintain and enhance the safety and efficiency of the region's transport network, while minimising adverse environmental effects.	NAV.1.2.1
	Noise and vibration are both potential adverse environmental effects that result from the region's transport network. The proposed objective, seeks to ensure that an appropriate mix of activities locate in the various Environments. Under the intent of this proposed objective noise sensitive activities would not be encouraged to locate in proximity to regionally significant roading networks where they could not avoid, remedy or mitigate adverse noise and vibration effects. As such it is considered that the proposed objective is consistent with the intent of objective 29.3.1 of the Operative RPS.
	NAV.1.2.2
	NAV.1.2.2 effectively addresses reverse sensitivity as it relates to noise and vibration. This acknowledges that noise sensitive activities when located in areas with concentrations of high noise generating activities (e.g. regionally significant roading corridors) can lead to conflict that can ultimately hinder the ability of other activities to operate. As such it is considered that NAV.1.2.2 is consistent with objective 29.3.1. of the Operative RPS.
	Overall
	Overall it is considered that when viewed in conjunction the two proposed objectives are consistent with objective 29.3.1 of the Operative RPS.

35. Overall having reviewed the Operative RPS in its entirety, it is considered that the proposed objectives for Plan Change 110 give effect to the higher order objectives relating to noise and vibration in the Operative RPS.

3.2.2 Proposed Northland Regional Policy Statement

36. There are no objectives that specifically reference noise and vibration in the proposed RPS. However it is noted that the following objective 3.6 is relevant to Plan Change 110 and consideration of the proposed objectives:

The viability of land and activities important for Northland's economy is protected from the negative impacts of new subdivision, use and development, with particular emphasis on either:

- (a) Reverse sensitivity for existing:*
 - (i) Primary production activities;*
 - (ii) Industrial and commercial activities;*
 - (iii) Mining*; or*
 - (iv) Existing and planned regionally significant infrastructure; or*
- (b) Sterilisation of:*
 - (i) Land with regionally significant mineral resources; or*
 - (ii) Land which is likely to be used for regionally significant infrastructure.*

**Includes aggregates and other minerals.*

37. The proposed objectives are consistent with the intent of the above objective in the Proposed RPS. NAV.1.2.2 seeks to address the reverse sensitivity issues surrounding noise and vibration, while NAV.1.2.1 aims to ensure an appropriate mix of activities in various Environments in order to protect land and activities that are important to the District and Northland's economy.

38. Overall having reviewed the proposed RPS in its entirety, it is considered that the proposed objectives for Plan Change 110 give effect to the higher order objectives relating to noise and vibration in the Proposed RPS.

3.3 Existing Higher Order Objectives in the Operative District Plan

39. Part C of the Operative District Plan contains 23 chapters of topic based objectives and policies. Despite being grouped by topic all objectives and policies are applicable district wide, to any activity, and are intended to collectively achieve the purpose of the Act. As a result of this design it is not essential for topic based objectives and policies to comprehensively protect the environment from adverse effects. It is also important to note that proposed Plan Change 110 does not intend to delete or alter the existing objectives and policies of the Operative District Plan.

40. There is no single chapter outlining objectives for noise and vibration nor are there any objectives focusing specifically on these matters. Rather noise and/or vibration are directly referenced in only two objectives in the District Plan:

Chapter 8 – Subdivision and Development

8.3.6 *The avoidance of subdivision and development in areas where the existing and potential adverse effects, in particular of, noise and natural hazards, cannot be avoided, remedied or mitigated.*

Chapter 24 – Whangarei Airport

24.3.1 *The long-term continuation of Whangarei Airport at its present location, with provision for controlled growth in aircraft movements, whilst managing the effects of noise and other potential adverse effects on the community*

41. A number of other objectives also address issues related to noise and vibration while not specifically referencing either term:

Chapter 5 – Amenity Values

5.3.1 *The characteristic amenity values of each Environment are maintained and, where appropriate enhanced.*

5.3.2 *Adverse effects on amenity values do not result in a reduction of amenity value below that which is desirable for people's health and safety.*

5.3.3 *Activities that demand a high level of amenity do not unduly compromise other land uses.*

Chapter 8 – Subdivision and Development

8.3.2 *Subdivision and development that does not detract from the character of the locality and avoids conflicts between incompatible land use activities.*

42. The following table assesses whether the two proposed objectives are consistent with the aforementioned existing objectives that relate to noise and vibration.

TABLE 3 – CONSISTENCY OF OBJECTIVES WITH OPERATIVE DP	
Existing Objectives	Consistency of Proposed Objective(s)
Chapter 5 – Amenity Values	
5.3.1 <i>The characteristic amenity values of each Environment are maintained and, where appropriate enhanced.</i>	NAV.1.2.1
	The proposed objective is clearly consistent with this existing objective in the District Plan. It specifically references ensuring that noise and vibration is maintained at acceptable levels for the amenity and character of the local environment. This will contribute to the maintenance and enhancement of the amenity values of each Environment.
	NAV.1.2.2
	The proposed objective will contribute to the realisation of this existing objective. It promotes activities with compatible noise and vibration amenity to locate together and aims to avoid incompatible activities locating in proximity to one another. This will contribute to the maintenance and enhancement of the amenity values of each Environment.
	Overall
	Overall having taking into account the above comments, it is considered that in conjunction the proposed objectives are consistent with existing objective 5.3.1 in the Operative District Plan.
5.3.2 <i>Adverse effects on amenity values do not result in a reduction of amenity value below that which is desirable for people’s health and safety.</i>	NAV.1.2.1
	Health and safety represents an important component of NAV.1.2.1. The proposed objective seeks to ensure that noise and vibration from activities in various Environments are maintained at levels that are acceptable for health and wellbeing. This recognises the adverse health and safety effects that noise and vibration can have, such as sleep disturbance. Therefore it is considered that NAV.1.2.1 is consistent with objective 5.3.2.
	NAV.1.2.2
	While health and safety is not specifically referred to in NAV.1.2.2, there is a relationship between the two. NAV.1.2.2 is essentially addressing reverse sensitivity as it relates to noise and vibration and seeks to ensure that noise sensitive activities do not unduly compromise the ability of appropriate high noise generating activities to operate. This relates to provisions that restrict where noise sensitive activities can locate and / or provisions that ensure that noise sensitive activities retain suitable mitigation measures to ensure that noise and vibration levels are acceptable for the health and safety of people and communities, and the amenity and character of the local environment. Accordingly it is considered that NAV.1.2.2 is consistent with existing objective 5.3.2.
	Overall
	Overall it is considered that the two proposed objectives in conjunction are consistent with existing objective 5.3.2 in the Operative District Plan.

TABLE 3 – CONSISTENCY OF OBJECTIVES WITH OPERATIVE DP

Existing Objectives	Consistency of Proposed Objective(s)
<p>5.3.3 <i>Activities that demand a high level of amenity do not unduly compromise other land uses.</i></p>	NAV.1.2.1
	<p>NAV.1.2.1 seeks to enable an appropriate mix of activities to occur in Environments. Appropriate being in terms of being consistent with what is anticipated by the District Plan for each Environment. This implies that activities that are incompatible in this regard will not be located in proximity to one another, or if they are appropriate mitigation measures will need to be employed to ensure that noise sensitive activities do not unduly compromise other land uses.</p>
	NAV.1.2.2
	<p>NAV.1.2.2 effectively reinforces this existing objective and makes it specific to noise and vibration. For this reason it is considered that the proposed objective is consistent with, and further strengthens this existing objective in the Operative District Plan.</p>
	<p style="text-align: center;">Overall</p> <p>Overall it is considered that the two proposed objectives in conjunction are consistent with existing objective 5.3.3 in the Operative District Plan.</p>
Chapter 8 – Subdivision and Development	
<p>8.3.2 <i>Subdivision and development that does not detract from the character of the locality and avoids conflicts between incompatible land use activities.</i></p>	NAV.1.2.1
	<p>There are essentially two components to objective 8.3.2. The first being the character component and the second being the reserve sensitivity component. NAV.1.2.1 specifically seeks to maintain noise and vibration levels that are consistent with the existing amenity and character of the local environment. This acknowledges that noise and vibration can detract from the character and of the locality. Therefore it is clear that NAV.1.2.1 is consistent with the first component of objective 8.3.2.</p>
	NAV.1.2.2
	<p>NAV.1.2.2 reinforces the second component of objective 8.3.2 in that it addresses reverse sensitivity as it relates to noise and vibration. This acknowledges that noise sensitive activities can located in areas with concentrations of high noise generating activities can lead to conflict that can ultimately hinder the ability of business activities to operate. As such it is considered that NAV.1.2.2 is consistent with the second component of objective 8.3.2.</p>
	<p style="text-align: center;">Overall</p> <p>Overall it is considered that when viewed in conjunction the two proposed objectives are consistent with objective 8.3.2 in the Operative District Plan.</p>
<p>8.3.6 <i>The avoidance of subdivision and development in areas where the existing and potential adverse effects, in particular of, noise and natural</i></p>	NAV.1.2.1
	<p>8.3.6 specifically references noise and seeks to avoid development in areas where there are already existing high noise levels. NAV.1.2.1 encourages an appropriate mix of activities to occur in the various Environments. Therefore noise sensitive activities would not be encouraged in areas where high noise levels exist and cannot be avoided remedied or mitigated.</p>

TABLE 3 – CONSISTENCY OF OBJECTIVES WITH OPERATIVE DP

Existing Objectives	Consistency of Proposed Objective(s)
<p><i>hazards, cannot be avoided, remedied or mitigated.</i></p>	Therefore NAV.1.2.1 is consistent with the intent of objective 8.3.6.
	NAV.1.2.2
	NAV.1.2.2 is consistent with the intent of this objective as it does not allow noise sensitive activities to locate in areas where they may unduly compromise the ability of existing activities to operate.
	Overall
Overall it is considered that the two proposed objectives operating in conjunction are consistent with the intent of objective 8.3.6.	
Chapter 24 – Whangarei Airport	
<p>24.3.1 <i>The long-term continuation of Whangarei Airport at its present location, with provision for controlled growth in aircraft movements, whilst managing the effects of noise and other potential adverse effects on the community</i></p>	NAV.1.2.1
	NAV.1.2.1 will not hinder the ongoing operation of the Whangarei Airport. The proposed objective acknowledges the benefit that various activities have for the wellbeing of people and communities and seeks to ensure that noise and vibration and levels are acceptable for people and communities. Therefore it is considered that NAV.1.2.1 is consistent with the intent of objective 24.3.1 in the Operative District Plan.
	NAV.1.2.2
	NAV.1.2.2 relates to objective 24.3.1 in that it seeks to ensure that noise sensitive activities do not affect the ability of high noise generating activities (such as the Whangarei Airport) from operating. Therefore it is considered that NAV.1.2.2 is consistent with the intent of 24.3.1.
	Overall
Overall it is considered that the two proposed objectives operating in conjunction are consistent with the intent of objective 24.3.1.	

43. Overall, taking into account the comments and conclusions in table 3, it is considered that the proposed objectives are consistent with the existing higher order objectives identified in the Operative District Plan.

3.4 Iwi Management Plans

44. Section 74(2A) of the Act requires territorial authorities to take into account any relevant planning document recognised by an iwi authority to the extent that its content has a bearing on the resource management issues of the district.
45. There are three recognized Iwi Management Plans in the Whangarei District:
- Ngatiwai – “Te Iwi o Ngatiwai: Iwi Environmental Policy Document 2007”
 - Ngati Hine – “Ngati Hine Iwi Environmental Management Plan 2008”
 - Patuharakeke – “Patuharakeke Te Iwi Māori Trust Board: Environmental Plan 2007”
46. Having reviewed each document and taking into account all of the provisions it is considered that the proposed objectives for Plan Change 110 are consistent with the intent of each of the Iwi Management Plans.

3.5 Non-Statutory Council Strategies and Guidelines

47. Council has produced a number of non-statutory strategies and guidelines with potential relevance to Plan Change 110. The following sections assess the consistency of the proposed objectives and provisions for Plan Change 110 with relevant Council non-statutory documents.

3.5.1 Whangarei District Growth Strategy: Sustainable Futures 30/50

48. The 'Whangarei District Growth Strategy: Sustainable Futures 30/50 ('30/50')' is Whangarei's strategic planning document, which was produced in response to growth in the district over the period 2001-2008. It was adopted by Council in 2010.
49. 30/50 developed three broad long term development scenarios for Whangarei. After extensive consultation, a long term integrated, strategic planning programme was developed based on the principles which will assist progress towards the sustainable development of the district over the next 30-50 years. 30/50 identifies four sustainability criteria – sustainable economy, environment, society and culture.
50. There is no section within 30/50 directly relating to noise and vibration. However looking at the intentions of 30/50 holistically, it is considered that the proposed objectives are consistent with the directions contained within it. The proposed objectives promote a sustainable economy in that they seek to ensure that residential and non-residential activities can coexist in appropriate situations and ensure that noise sensitive activities do not unduly affect the ability of noise generating activities to operate. The objectives seek to maintain noise at levels consistent with amenity and health and safety values which are important contributions to a sustainable environment / society.
51. Overall it is considered that the proposed objectives are consistent with the relevant provisions within 30/50.

3.5.2 Whangarei Urban Growth Strategy 2003

52. Adopted in 2003, the Whangarei Urban Growth Strategy was developed to ensure the issues and opportunities raised by growth in the district are dealt with in a sustainable manner in accordance with the views and aspirations expressed by the community during consultation.
53. While no specific references are made to noise or vibration the Growth Strategy provides a growth philosophy for the Urban area of Whangarei which could be affected by Plan Change 110. Having reviewed the Growth Strategy, it is considered that the proposed objectives and relevant provisions are not inconsistent with the relevant provisions of the Growth Strategy.

3.5.3 Whangarei 20/20 plus: CBD Guideline Development Plan 2006

54. Whangarei 20/20 seeks to connect the strong elements of Whangarei's city centre (natural backdrop, regional centre for Northland) into a vibrant pedestrian orientated city centre with a broad mix of destination activities and facilities.
55. There is no specific mention to noise or vibration in 20/20. Having reviewed 20/20, it is considered that the proposed objectives and relevant provisions are not inconsistent with the relevant provisions of the strategy.

3.5.4 Whangarei Urban Design Strategy 2011

56. The Urban Design Strategy adopts an ongoing incremental approach to building a high quality urban environment that will help develop Whangarei into a leading meeting place and destination and secure is sustainable future. To achieve this vision, urban development should be compact, connected, distinctive, diverse, attractive, appropriate, sustainable and safe. A number of design objectives, stakeholder responsibilities, and mechanisms have been identified and set according to their priorities for implementation.
57. The Strategy makes no specific mention of noise or vibration; however it does promote mixed use within a compact approach to development within urban areas. This will be important to consider when reviewing noise provisions in Whangarei City.
58. Having reviewed the Urban Design Strategy it is considered that the proposed objectives are not inconsistent with the intentions and design principles contained within the Strategy.

3.5.5 Weekend and Night Time Economy Strategy 2014

59. The purpose of this strategy is to stimulate opportunities for activities in the inner city that could invigorate the weekend and night time economy of the next 30 years. The vision is that:

“The inner city will look, feel and function as the primary commercial, entertainment and cultural centre of Whangarei. Its unique waterfront location will define its character. During the evenings and weekends, it will have an intensity of activity and vibrancy that accompanies a thriving commercial sector.”

60. The Strategy acknowledges that there are issues associated with the weekend and night time economy at present and that it is not necessarily operating to its full potential. While no specific mention is made to noise in the Strategy, it does reference reverse sensitivity and other matters associated to noise.
61. The Strategy highlights that planning in Whangarei City has largely been day centric and neglected the weekend and night time economy. Accordingly the Strategy advocates that “the weekend and night economy” be taken into account when considering planning initiatives.
62. There are obvious overlaps between this Strategy and Plan Change 110. There is a tension within the Strategy in terms of the need to facilitate mixed use development within Whangarei City in order to enhance attractiveness and safety, whilst also ensuring that residential activities do not unduly affect the ability of night life activities (bars, restaurants etc.) from operating. The creation of entertainment and late night bar and restaurant precincts is also discussed within the strategy (see figure 1 below for locations). This direction will inform important considerations when reviewing noise options for the Business 1 Environment (which is the zoning for the majority of Whangarei’s CBD).

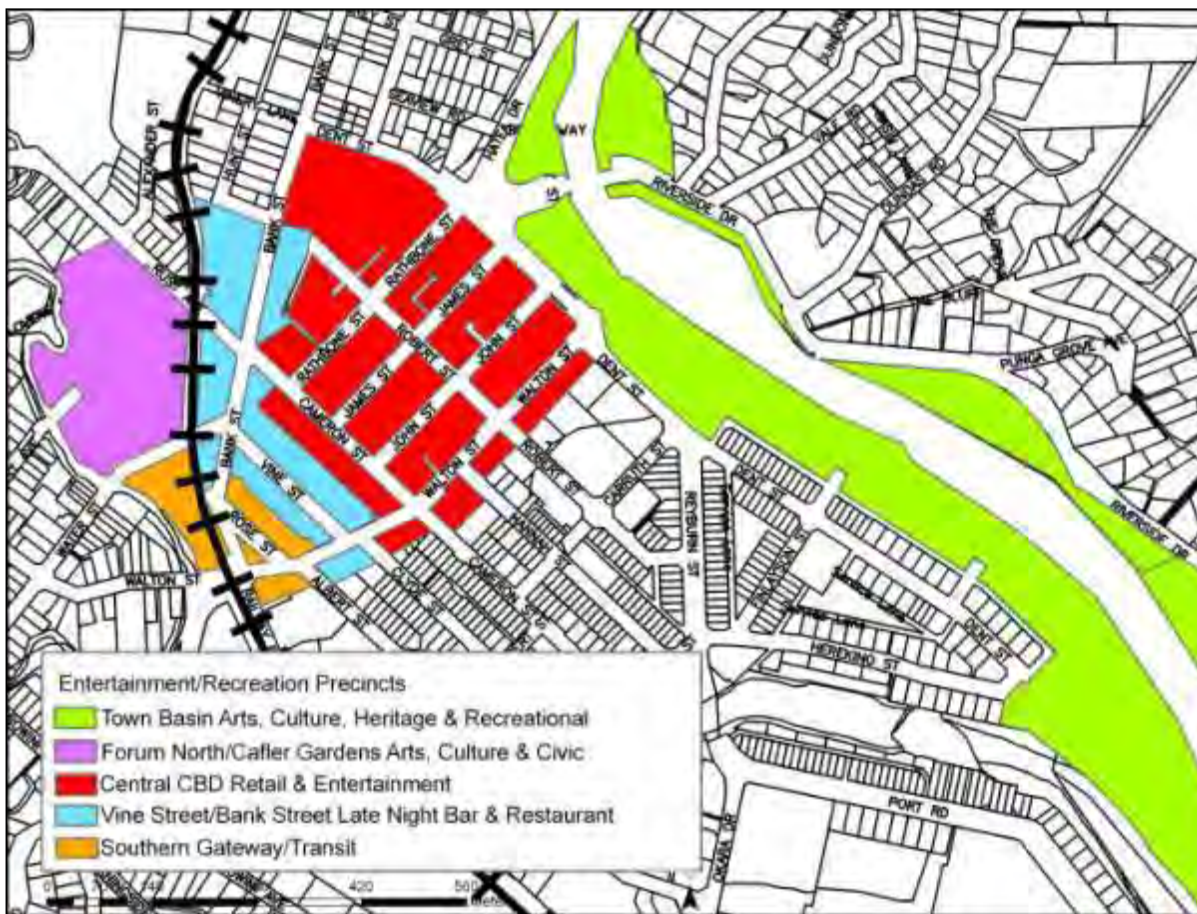


Figure 1 – Location of Entertainment / Recreation Precincts in Whangarei City as identified in the Weekend and Night Time Economy Strategy 2014.

63. Having regard to the proposed objectives, it is considered that they are consistent with the tension delivered above. The objectives seek to allow appropriate activities to occur in various Environments while ensuring that they are acceptable in terms of amenity and do not unduly compromise the ability of other activities to operate.

3.5.6 Whangarei District Liquor Licensing Policy

64. The Whangarei District Liquor Licensing policy was formally adopted by Council in August 2010. The Policy has been developed and adopted through a special consultative process to allow all people in the community to have a say on how alcohol is provided in the District. Of particular relevance to Plan Change 110 the Policy defines licensing hours and how liquor enforcement will be undertaken. The Policy applies to new and existing premises.
65. One of the key features of the Policy is that premises which are situated adjacent to residential areas will be required to close earlier. This is intended to protect adjacent residents from the potential effects (noise, vibration and light spill) generated from the operation of premises. In particular the policy

establishes the following maximum trading hours for all On License premises (hotel, night club, restaurant etc):

- On licensed premises situated adjacent to residential areas:
 - Sunday – Thursday 8am – 11pm
 - Friday – Saturday 8am – 1am the following day
- On licensed premises isolated from residential areas:
 - Monday – Sunday 8am – 1am the following day
- On licensed premises situated within the Whangarei CBD (see figure 2):
 - Monday – Sunday 8am – 3am the following day - with a one way door system in place from 1am. Provided that where a licensee wishes to operate hours between 8am-1am then the one way door system will not apply.



Figure 2 – CBD definition area as defined by Liquor Licensing Policy

66. There are obvious overlaps between this Policy and Plan Change 110. The proposed PC110 provisions have indicated a change in the night time noise limit in some of the Business Environments, but in particular the Business 1 Environment which comprises most of the CBD as defined in figure 2. Reduced noise limits may restrict the ability of on licenses to operate to the maximum 3am closing time. The implications of the proposed provisions in this regard are discussed within Table 7 in Appendix A of this report. Notwithstanding this potential tension it is considered that the proposed provisions are, on balance, consistent with the intent of the Liquor Licensing Policy.

3.5.7 Coastal Management Strategy

67. The Coastal Management Strategy (CMS) was adopted by Council in 2003 and provides guidance for how we use and protect the district's unique coastal environment over the next 20 to 50 years. It contains nine specific study areas and a detailed Structure Plan has been developed for each area.
68. There is no specific mention of noise or vibration in the CMS. Nonetheless having reviewed the CMS it is considered that the proposed objectives and relevant provisions are consistent with the relevant provisions of the strategy.

3.5.8 Rural Development Strategy

69. The Rural Development Strategy (RDS) was adopted by Council in 2013 and examines the rural issues that are relevant to the district and create a strategic vision for the role Council and communities want our rural environments to play in the future in accordance with the direction of Sustainable Futures 30/50. The RDS specifically applies to those areas outside Whangarei City.
70. The RDS acknowledges that the amenity values in the rural areas managed by the strategy include the following:
 - Low levels of noise particularly at night time in the context of intermittent noise.
71. This is identified as an important component of rural amenity that is worthy of protection in the District Plan provisions. The proposed objectives and noise provisions are consistent with this direction. More specifically objective NAV.1.2.1 seeks to maintain noise at levels that are acceptable for the amenity and character of the Environment in which they are located. The use of Environment is intentional and refers to the Environment (zone) as a whole rather than the local environment. This will help ensure that noise and vibration is maintained at levels that are consistent with what is anticipated within rural Environments.
72. The RDS is also supported by a number of topic specific issue and options papers. Having assessed those papers and the RDS in general it is considered that the proposed provisions are consistent with them.

3.6 Conclusion

73. The previous sections have considered the proposed objectives against Part 2 of the Act and settled higher order objectives in existing plans and for consistency with relevant non-statutory Council strategies.
74. The proposed objectives give effect to the purpose of the Act by enabling present and future generations to provide for their social, cultural and economic wellbeing. In particular, the proposed objectives seek to enable both business and residential activities to occur in the various Environments. Allowing business activities to occur provides for the economic wellbeing of the community through the creation of jobs and also promotes their social wellbeing by providing access to goods and services. The objectives are also consistent with the health and safety component of section 5 and the duty to avoid, remedy and mitigate any adverse effects on the environment. It acknowledges the potential adverse effects of noise and aims to ensure that noise is "maintained at acceptable levels" for both the health and wellbeing of people and communities and the amenity and character of the Environment. The objectives are also useful as it will allow the development of achievable policies and methods and their subsequent evaluation. It is also considered reasonable as no significant environmental, social, cultural and economic costs would arise by adopting the objectives.
75. Overall for these reasons it is determined that the proposed objectives are the most appropriate way to achieve the purpose of the Act.

4.0 Analysis of Efficiency and Effectiveness of Provisions

76. Council must evaluate in accordance with section 32 of the Act, the benefits and costs of policies and methods, and the risk of acting or not acting where there is uncertainty of outcome. It is important to determine whether the preferred approach will be more effective and efficient than other alternatives and whether this effectiveness and efficiency comes at a higher cost than other alternatives. It is also important that the Council considers whether the costs potentially outweigh the benefits. The following sections of this report will analyse the efficiency and effectiveness of the preferred provisions and alternative ways of achieving the proposed objectives.
77. Plan Change 110 proposes a number of new provisions regarding noise and vibration (see Appendix B for copy of new NAV Chapter) and the deletion of a number of existing provisions in the Plan (See Appendix C for consequential changes to existing District Plan provisions). The following sections of

this report will assess the efficiency and effectiveness of the preferred provisions and compare them to other reasonably practicable options.

4.1 Updating Noise Standards and Nomenclature / Chapter Structure

78. Early research for Plan Change 110 identified that the nomenclature for noise is outdated and refers to New Zealand Standards and measurements which are behind international best practice and which have been superseded by new standards. The following summarises the key changes to nomenclature recommended by Marshall Day:

- “dBA L_{10} ” → “dB L_{A10} ”
- “dBA L_{max} ” → “dB L_{AFmax} ”
- “dBA L_{eq} ” → “dB L_{Aeq} ”

79. These changes would also apply to existing designations in the District Plan which reference the now outdated noise terminology. Two designations, DNP 16 (Northpower designation for a substation in Maunu) and DW 130 (Whangarei District Council designation for Puwera Landfill), currently contain provisions which refer to noise limits using the old terminology (e.g. DBA L_{10}). Section 181 of the Act establishes the process for altering designations. Pursuant to section 181(3):

“(3) A territorial authority may at any time alter a designation in its district plan or a requirement in its proposed district plan if—

(a) the alteration—

- (i) involves no more than a minor change to the effects on the environment associated with the use or proposed use of land or any water concerned; or
- (ii) involves only minor changes or adjustments to the boundaries of the designation or requirement; and

(b) written notice of the proposed alteration has been given to every owner or occupier of the land directly affected and those owners or occupiers agree with the alteration; and

(c) both the territorial authority and the requiring authority agree with the alteration—

and [sections 168 to 179](#) shall not apply to any such alteration.”

80. It has been interpreted that Council can recommend changes to the designations for the following reasons:

- 181(a)(i): the alteration involves no change in the environmental effects. Marshall Day note that for most sources of noise the change to L_{Aeq} would not result in materially different outcomes and in most cases represents either no change to the overall level of noise permitted or (at worst), a just perceptible increase.
- 181(b): There are no landowners directly affected by the alteration.
- 181(c): Council has obtained approval from the requiring authorities to the changes.

81. Three options have been considered for addressing this issue and in terms of their efficiency and effectiveness in achieving the proposed objectives:

- (1) *Status Quo* – Maintain current reference to old NZ standards and terminology
- (2) *Update standards and terminology in current structure* – Update the District Plan in its current structure to refer to current NZ standards and noise terminology.
- (3) *Update standards and terminology in new chapter* – incorporate the update into a comprehensive review of noise and vibration into one district wide chapter

82. A comprehensive evaluation of the costs, benefits, efficiency and effectiveness and risk associated with these options in accordance with the relevant clauses of section 32 of the Act is provided in table 4 of Appendix A.

83. Overall it is considered that **option 3 is the most efficient and effective option** to achieve the intent of the proposed objectives for the following reasons:

- (a) Ensuring that the District Plan refers to the most up to date terminology and New Zealand Standards is crucial to guarantee that information obtained about noise and vibration is accurate and comparable with best practice.
- (b) The option is consistent with the holistic intentions of developing one district wide chapter for noise and vibration which will simplify the District Plan and increase its usability.

- (c) There is a **low** risk associated with adopting this option. It simply updates terminology and New Zealand Standards to be consistent with national / international best practice in the measurement of noise and vibration.

4.2 Noise Limits / Sound Insulation Requirements

84. Council engaged Acoustic Engineering Consultant Peter Ibbotson from Marshall Day Acoustics to undertake a comprehensive technical review of noise and vibration provisions. One of the key recommendations of Mr Ibbotson's report ("The Marshall Day Report") was the increase of noise limits across the majority of Environments in the District Plan. The key changes to noise levels and sound insulation requirements are summarised for the various Environments.

4.2.1 Living 1, 2, 3 and Open Space Environments

85. The existing noise limits in the Living Environments are very stringent. Unnecessarily low noise limits tend to increase consenting and compliance costs while creating uncertainty for activities seeking to establish in the area without resulting in improvements in residential amenity. Accordingly the following changes for noise limits in the Living 1, 2 and 3 Environments are recommended by the Marshall Day Report:

Daytime: ¹	45 dBA L ₁₀	→	50 dB L _{Aeq}
Night:	35 dBA L ₁₀ and 60 dBA L _{max}	→	40 dB L _{Aeq} and 70 dBA L _{AFmax}

86. Noise limits are recommended to be measured within the site boundary for Living 1 and 2 properties. For Living 3 it is recommended that noise limits be measured at the notional boundary to account for larger allotments which will have noise environments more in keeping with a rural environment.
87. A higher level is proposed for the Open Space Environment to allow communities to interact with space while reducing the requirement to erect noise barriers along the edge of the park. These limits therefore are recommended to be changed to:

Daytime:	50 dBA L ₁₀	→	55 dB L _{Aeq}
Night:	35 dBA L ₁₀ and 60 dBA L _{max}	→	40 dB L _{Aeq} 70 dBA L _{AFmax}

88. Three options have been considered for addressing this issue and for their efficiency and effectiveness for achieving the proposed objectives:

- (1) *Status Quo* – Maintain noise levels at current levels for the Living 1, 2 and 3 and Open Space Environments.
- (2) *No Noise Limits* – Remove noise limits for Living 1, 2 and 3 and Open Space Environments
- (3) *Increase Noise Limits* – Increase noise limits as recommended by Marshall Day Report.

89. A comprehensive evaluation of the costs, benefits, efficiency and effectiveness and risk associated with these options in accordance with the relevant clauses of section 32 of the Act is provided in table 5 in Appendix A.

90. Overall it is considered that **option 3 is the most efficient and effective option** to achieve the intent of the proposed objectives for the following reasons:

- (a) The higher noise limits are consistent with what is a reasonable level of noise in residential areas and strike a more appropriate balance between the needs of land users and sensitive receivers while still providing for the relatively high level of amenity required by existing District Plan objectives and policies.
- (b) While there is a **moderate** risk associated with adopting this option in terms of an increase in potential complaints, it is considered that this risk is offset by conclusions drawn in the Marshall Day report which note that the proposed noise limits will be more consistent with existing ambient levels.

4.2.2 Countryside, Coastal Countryside and Urban Transition Environments

91. The Marshall Day Report concludes that night time noise limits are considered overly stringent for these environments despite the acknowledgement that even relatively low levels of noise can sound intrusive in these areas. The Report notes that the use of the Countryside Environment for rural production needs to be preserved. As such permitted noise limits above background noise is generally considered appropriate. Recommended noise limits for the Countryside Environment (CE), Urban

¹ Note that "day-time refers to 0700 to 2200 hours and night-time refers to 2200 to 0700

Transition Environment (UTE) and Coastal Countryside Environment (CCE) are identified in the Report as follows:

Daytime:	50 dBA L_{10}	→	50 dB L_{Aeq} (CCE & UTE) 55 dB L_{Aeq} (CE)
Night:	35 dBA L_{10} and 60 dBA L_{max}	→	40 dB L_{Aeq} 70 dBA L_{AFmax}

92. Three options have been considered for addressing this issue and for their efficiency and effectiveness for achieving the proposed objectives:
- (1) *Status Quo* – Maintain noise levels at current levels for the Countryside Environment, Coastal Countryside Environment and Urban Transition Environment.
 - (2) *No Noise Limits* – Remove noise limits for the Countryside Environment, Coastal Countryside Environment and Urban Transition Environment
 - (3) *Increase Noise Limits* – Increase noise limits as recommended by Marshall Day Report.
93. A comprehensive evaluation of the costs, benefits, efficiency and effectiveness and risk associated with these options in accordance with the relevant clauses of section 32 of the Act is provided in table 6 in Appendix A.
94. Overall it is considered that **option 3 is the most efficient and effective option** to achieve the intent of the proposed objectives for the following reasons:
- (a) The higher noise limits are consistent with what is a reasonable level of noise in rural areas and strike a more appropriate balance between the needs of land users and sensitive receivers while still providing for the relatively high level of amenity required by the District Plan.
 - (b) There is considered to be a **moderate** risk associated with adopting this option. This is largely associated with the potential for increased complaints as a result of higher noise limits. However it is noted that this is offset by conclusions drawn in the Marshall Day report which note that the proposed noise limits will be consistent with existing amenity and character values and health and safety.

4.2.3 Business 1, 2, 3 and Town Basin Environments

95. The Marshall Day Report concludes that the existing daytime limits are appropriate for existing activity in the Business 1, and 2 Environments. The daytime limit for the Business 3 Environment and Town Basin Environment is considered too stringent and is subsequently recommended to be increased. The night time noise limit across all four Environments is considered too lenient considering that residential units are permitted activities.
96. While there are few residential units currently, the viability of these Environments for business should be protected from the potential development of residential units. Where bars and nightspots are located near residential units, noise complaints are endemic. An internal noise limit below 30dB L_{Aeq} (15min) is considered suitable environment for sleep, with higher levels causing potential sleep disturbance.
97. Taking into account the above issues, the Marshall Day Report has recommended the following for each Environment:

Business 1 Environment

- Reduce the night-time noise limit to 55 dB L_{Aeq} .
- Daytime noise limits should remain at 60 dB L_{Aeq} but provide an extension of the daytime period until 12am in the Environment on Friday and Saturday nights.
- Provide a sound insulation requirement/internal noise limit that all new residential dwellings in the CBD must adhere to.

Business 2 Environment

- The current noise limit is 65 dBA L_{A10} at anytime. This would remain as the daytime limit however with residential development currently permitted it is necessary to reduce the night-time noise limit to 60 dBA L_{Aeq} .
- all dwellings in this Environment become fully discretionary with similar sound insulation requirements to the Business 1 Environment.

Business 3 Environment

- The current noise limit within the Environment is 55 dBA L_{A10} at anytime. It is proposed that the daytime limit is established at 60 dBA L_{Aeq} to allow for increased levels of activity / vibrancy.
- A night time limit of 50 dBA L_{Aeq} would provide a higher level of protection for residential units in this Environment, however this may hinder certain activities (nightclubs, bars or community with outdoor areas) from operating after 10pm.
- Residential units should require a moderate level of sound insulation with a reduced night time noise limit.

Town Basin Environment

- The night time limit shall remain at 50 dB L_{Aeq}
 - The Daytime limit shall be increased to 60 dB L_{Aeq}
 - Provide a sound insulation requirement/internal noise limit for bedrooms in new/altered residential units in the Town Basin Environment will be required to adhere to.
98. Five options have been considered for addressing the aforementioned issues and for their efficiency and effectiveness for achieving the proposed objectives:
- (1) *Status Quo* – Maintain noise levels at current levels and existing rules for the Business 1, 2, 3 and Town Basin Environment.
 - (2) *Prohibit Residential Activities* – include new provisions totally prohibiting residential activities in the Business 1, 2, 3 and Town Basin Environment.
 - (3) *Entertainment Precinct (Business 1 Environment only)*: Create an Entertainment Precinct in the Business 1 Environment / CBD which include the following planning measures:
 - Activities, where sleep disturbance is possible would be prohibited.
 - Elevated night time limits would apply.
 - A non-residential buffer between the precinct and adjacent mixed use area.
 - (4) *Marshall Day Recommendations* – Implement the Marshall Day recommendations for the Business and Town Basin Environments detailed above.
 - (5) *Education and Publicity* – Use education and publicity to encourage property owners to voluntarily insulate their bedrooms in residential units.
99. A comprehensive evaluation of the costs, benefits, efficiency and effectiveness and risk associated with these options in accordance with the relevant clauses of section 32 of the Act is provided in table 7 in Appendix A.
100. Overall it is considered that **option 4 is the most efficient and effective option** to address the issues and achieve the intent of the proposed objectives for the following reasons:
- (a) The sound insulation requirements will uphold what is required to achieve acceptable levels of noise required to avoid sleep disturbance in residential units.
 - (b) The proposed provisions will allow high noise generating activities to occur at night, particularly on Friday and Saturday nights, with a decreased likelihood of noise complaints from residential activities.
 - (c) The proposed provisions will uphold Council desires expressed in non-statutory strategies to promote a mixed use environment and the associated benefits within the city and Business Environments.

4.2.4 Business 4 and Marsden Point Port Environments

101. Notwithstanding changes to provisions relating to noise between Environments discussed below in section 4.3, no other changes are proposed for the existing noise limits in the Business 4 and Marsden Point Port Environments.

4.2.5 Port Nikau Environment and Marsden Primary Centre

102. The Port Nikau Environment is generally intended to be developed as a mixed use area with residential living to co-exist with industrial and commercial areas to some extent. The Environment is split into two noise “zones”. Zone 1 has noise rules that apply to activities within the zone, outside the zone in Noise Zone 2, and outside the zone in Living and Countryside Environments. In Zone 2, no

rules apply to the Zone 1 boundary. The noise rules apply within Noise Zone 2 and to any Living and Countryside Environment.

103. Overall the Marshall Day Report concludes that the noise rules in the Port Nikau Environment are overly complicated in terms of their usability and can be significantly simplified through the following recommendations:
- Requiring any activity in any Environment to achieve a 65 dB LAeq (all times) and 70 dB LAFmax (night) limit within Noise Zone 1.
 - Requiring any activity in any Environment to achieve a 65 dB LAeq (day) and 55 dB LAeq / 70 dB LAFmax (night) limit within Noise Zone 2.
 - Requiring all activities to achieve the relevant Living or Countryside noise limits.
 - Providing the sound insulation requirement already anticipated in the Environment.
104. The Marsden Primary Centre noise rules are similar to those in the Port Nikau Environment in that the noise rules are split into zones. However the rules as drafted in *Part D – Environment Rules - Marsden Primary Centre* are somewhat more confusing and difficult to interpret. It is understood that Noise Zone 1 generally applies to the heavy industrial land to the east, Noise Zone 2 generally applies to the light industrial land in the middle of the site. It is understood that the “Town Centre Environment” in Precinct 1 does not fall within a “noise zone” but rather has noise rules that are supposed to apply to this area separately.
105. The Marshall Day Report similarly concludes that the noise rules for the Marsden Primary Centre are over-complicated and can be significantly simplified with the following recommendations:
- Requiring any activity in any Environment to achieve a 65 dB LAeq (any time) and 70 dB LAFmax (night) limit within Noise Zone 1 as it applies to the Marsden Primary Centre.
 - Requiring any activity in any Environment to achieve a 65 dB LAeq (day) and 55 dB LAeq / 70 dB LAFmax (night) limit within Noise Zone 2 as it applies to the Marsden Primary Centre.
 - Requiring any activity in any Environment to achieve a noise limit of 55 dB LAeq (day) and 45 dB LAeq / 70 dB LAFmax within the Town Centre Environment as it applies to the Marsden Primary Centre.
 - Requiring all activities to achieve the relevant Living or Countryside noise rules.
 - Requiring that any dwelling established in Noise Zones 1 or 2 be subject to a sound insulation requirement.
106. Two options have been identified and evaluated below in terms of their costs, benefits, efficiency and effectiveness and risk in accordance with the relevant clauses of section 32 of the Act:
- (1) *Status Quo* – Maintain the current provisions for the Marsden Town Centre and Port Nikau Environments.
- Benefits:* Maintaining the status quo ensure consistency and simplicity of application for the general community, business operators and landowners..
- Costs:* The Marshall Day Report highlights that the current provisions in these Environments are overly complicated and difficult to administer.
- Effectiveness:* maintaining the status quo is considered **low** for achieving the proposed objective and addressing the underlying issue as assessment from Marshall Day has highlighted that the current provisions are overly difficult to administer / understand.
- Efficiency:* although this option will result in no additional financial costs to council, overall it is considered that the current approach is not efficient. As such the efficiency of the status quo option is considered **low**.
- Risk:* The risk of not acting is considered **high** as the District Plan provisions for the Port Nikau and Marsden Primary Centre will continue to maintain overly-complicated provisions that are difficult to administer
- (2) *Marshall Day Recommendations* – implement proposed provisions from the Marshall Day Report to simplify noise provisions for the Marsden Town Centre and Port Nikau Environments.

Benefits: The Marshall Day Report highlights that the current provisions in these Environments are overly complicated and difficult to administer. If an expert noise consultant finds these provisions difficult to administer, then they must be overly complicated. The recommendations seek to simplify the provisions without fundamentally altering any of the underlying expectations of the noise provisions for these Environments.

Costs: There are no environmental, economic and social / cultural costs associated with this option because they are not fundamentally altering any provisions

Effectiveness: the effectiveness for this option is considered **high** for achieving the proposed objectives. The Marshall Day Report recommendations seek to simplify the provisions without fundamentally altering any of the underlying expectations of the noise provisions for Port Nikau Environment and Marsden Primary Centre.

Efficiency: the efficiency of this option is considered **high** as there are no perceived costs associated with simplifying overly complicated provisions in the Port Nikau Environment and Marsden Primary Centre.

Risk: It is considered that the risk of acting is **low** as the recommendations have been formulated from an expert noise consultant and will simplify existing provisions without fundamentally altering expectations or outcomes.

107. Overall it is considered that **option 2 is the most efficient and effective option** to achieve the intent of the proposed objectives because the Marshall Day Report recommendations seek to simplify the provisions without fundamentally altering any of the underlying expectations of the noise provisions for these Environments.

4.2.6 Airport Environment

108. Noise and vibration are significant issues associated with the operation of the Whangarei Airport, which is administered in a planning sense by this zone. The Marshall Day Report concludes that the existing Airport Environment noise rules are appropriate, but notes that they would need to be amended to take into account the new noise limits for the Living Environments proposed previously. There would also be consequential changes to the existing Airport Environment chapter to allow the incorporation into the new District Plan structure. The Marshall Day Report further recommends that the existing exclusions for aircraft testing be retained, notwithstanding that the limits be changed from L_{A10} to L_{Aeq} and again incorporated into the new District Plan structure. Overall it is concluded that these consequential changes do not fundamentally change the basis of the existing provisions, and as such, it is not considered necessary to undertake a comprehensive section 32 analysis on these changes.

4.2.7 Other Proposed Environments

109. The Marshall Day Report proposes further appropriate noise limits for a number of additional Environments that are currently proposed or being considered for the District Plan. As these Environments have not been formally made operative, consideration of the efficiency and effectiveness of these provisions has not been included in this section 32 evaluation report. Consideration of the noise levels and provisions for these potential Environments will need to be included in any section 32 analysis for the relevant plan change.

4.3 Noise between Environments

110. The District Plan has historically applied less stringent noise rules between Business Environments and Living Environments than it has between adjacent properties within the Living Environments. The Marshall Day Report highlights that this is common for District Plans throughout New Zealand as it is intended to recognise that there is likely to be a reduced level of amenity for residents who live adjacent to business areas. Likewise business activities operating on the periphery of a business environment are usually required to comply with a more stringent limit than other business activities, but more liberal than that that would apply within the Living Environments.
111. It is possible to create appropriate noise rules that account for the interface between zones to ensure appropriate noise levels in Living Environments. Accordingly the Marshall Day Report has recommended that the following noise limits be applied between the various environments:
- *Business 2, 4 and Marsden Point Port:* noise emitted from sites within these Environments measured at the boundary of certain Environments (full list page 38) should be subject to daytime noise rules of 55 dB L_{Aeq} . During the night-time, a noise limit of 45 dB L_{Aeq} and 75 dB L_{AFmax} should apply.

- *All other Business Environments:* activities would need to meet the relevant proposed Living Environment noise rules.

112. In this instance the following two options have been identified and are evaluated below in terms of their costs, benefits, efficiency and effectiveness and risk in accordance with the relevant clauses of section 32 of the Act:

- (1) *Status Quo – Maintain the current provisions for noise between Environments in the District Plan.*

Benefits: Maintaining the status quo ensure consistency and simplicity of application for the general community, business operators and landowners.

Costs: Noise controls at the interface between Business and Living Environments are less stringent than within the zones. This means that noise levels in these areas can result in a reduced level of amenity. This also means that noise levels in these areas can result in a level of noise that is not acceptable in terms of potential health and safety effects.

Effectiveness: maintaining the status quo is considered **low** for achieving the proposed objective and addressing the underlying issue as background research has indicated that the current limits between Business and Living Environments are less stringent than those within each Environment.

Efficiency: although this option will result in no additional financial costs to council, overall it is considered that the current approach is not efficient. As such the efficiency of the status quo option is considered **low**.

Risk: The risk of not acting is considered **moderate** as the District Plan will continue to maintain an outdated approach to noise between Environments that do not adequately protect amenity, health and safety and the ongoing operation of appropriate business activities.

- (2) *Marshall Day Recommendations – implement proposed provisions from the Marshall Day Report regarding noise between Environments.*

Benefits: The provisions will provide for a reasonable level of protection for the amenity and character of the local environment in interface areas. They will enable the ongoing operation of appropriate business activities in interface areas and the positive economic benefits that they have in the District. They will ensure that noise from activities between environments other activities is maintained at levels that are acceptable for human health and wellbeing.

Costs: There are no anticipated Environmental, economic and social / cultural costs associated with this option.

Effectiveness: the effectiveness for this option is considered **high** for achieving the proposed objectives. The Marshall Day Report recommendations promote a balanced approach that ensures that noise levels are reasonable while allowing the ongoing operation of appropriate business activities located adjacent to interface areas.

Efficiency: the efficiency of this option is considered **high** as there are no perceived costs and a number of benefits associated with establishing noise between Environment limits.

Risk: It is considered that the risk of acting is **low** as the recommendations have been formulated from an expert noise consultant in accordance with best practice.

113. Overall it is considered that **option 2 is the most efficient and effective option** to achieve the intent of the proposed objectives because the Marshall Day Report recommendations promote a balanced approach that ensure that noise levels are reasonable for amenity values and health and safety while allowing the ongoing operation of appropriate business activities located adjacent to interface areas.

4.4 Other Activities

114. The Marshall Day Report provides further recommendations for a number of other activities that create noise effects. These include:

- *Construction Noise:* The District Plan should be updated to reference the most up to date New Zealand Standard being NZS 6803: 1999 “Acoustics – Construction Noise”. For essential work within road carriageways, the Marshall Day Report recommends that activities be excluded from compliance with construction noise rules provided a suitable construction noise and vibration plan is provided.

- *Peak Sound Levels from Explosives:* The most relevant standard for control of this noise source is Appendix J of AS 2187.2- 2006 Explosives - Storage, transport and Use. Part 2: Use of Explosives. The Marshall Day Report recommendations are based on this standard, notwithstanding some recommended simplifications in some cases noting the following:
 - No allowance for 5% of blasts being louder than the limit has been made. It is considered that this measure would lead to complications in measurement and assessment and provides no real merit.
 - The building damage limit of 140 dB LZ_{peak} is greater than recommended in the standard. It is considered that the approach taken by the standard is overly conservative. A limit of 140 dB LZ_{peak} should ensure that no material building damage will arise.
- *Temporary Military Training Activities:* The NZDF is currently undergoing a process of submitting on all plan changes with the intention of developing consistent noise rules throughout New Zealand. It is considered appropriate to provide an LZ_{peak} noise limit for artillery, explosives and small arms fire, as well as a LA_{eq} noise rule for the use of mobile sources. Fixed sources (e.g. generators) would be subject to the environment noise rules contained elsewhere in the Plan. In addition to the recommended noise rules, the Marshall Day Report recommends the following:
 - No more than 2 nights of small arms use in any 31 day period. Note an alternative approach of lower noise limits and 31 nights of operation could also be considered.
 - “Temporary military training activities” are those conducted for no more than 31 days in any 365 day period.
- *Shooting Ranges:* It is recommended that the permitted standard for shooting ranges is set relatively low and that any shooting range that cannot achieve the low noise rule be assessed as a discretionary activity. To this end, a noise rule of 50 dB LA_{Fmax} during 0900 to 1700 hours at the notional boundary of any noise sensitive activity is proposed. No shooting would be permitted outside this time.
- *Wind Turbines and Wind Farms:* the District Plan should simply reference the New Zealand Standard NZS6808.
- *Helicopter Landing Areas:* the District Plan should simply reference NZS6807: 1994.
- *Bird Scaring Devices:* A rule consistent with other District Plan rules throughout the country has been recommended. The rule is defined by using the L_{AE} parameter for each shot (or succession of shots) which can be easily measured.
- *Emergency Generator Testing:* Specific noise rules are provided for this testing where it occurs for less than 10 hours per year.
- *Frost Fans:* Specific provisions are proposed for the use of frost fans in the Countryside Environment and Coastal Countryside Environment. It is recommended that mobile plant is exempted from noise rules but not static plant.

115. Rather than undertake separate analysis for each of these recommendations, it is considered that they can be assessed collectively. Accordingly the following two options have been identified and evaluated below in terms of their costs, benefits, efficiency and effectiveness and risk in accordance with the relevant clauses of section 32 of the Act:

- (1) *Status Quo* – Maintain the current provisions / lack of provisions for construction noise, peak sound levels from explosives, temporary military training activities, shooting ranges, wind turbines and wind farms, helicopter landing areas, bird scaring devices, emergency generator testing and frost fans.

Benefits: Maintaining the status quo ensure consistency and simplicity of application for the general community, business operators and landowners.

Costs: Maintaining the status quo does not address the perception that the current noise provisions are outdated and need review to be consistent with best practice in the field.

Effectiveness: maintaining the status quo is considered **low** for achieving the proposed objective and addressing the underlying issue as background research has indicated that the current approaches to other activities are outdated and no longer consistent with national / international best practice.

Efficiency: although this option will result in no additional financial costs to council, overall it is considered that the current approach is not efficient. As such the efficiency of the status quo option is considered **low**.

Risk: The risk of not acting is considered **moderate** as the District Plan will continue to maintain an outdated or silent approach to a number of these matters.

- (2) *Marshall Day Recommendations* – implement proposed provisions from the Marshall Day Report for construction noise, peak sound levels from explosives, temporary military training activities, shooting ranges, wind turbines and wind farms, helicopter landing areas, bird scaring devices, emergency generator testing and frost fans.

Benefits: The recommended provisions provide appropriate allowances for other activities in the District. Some of these activities, such as construction noise, explosives and temporary military training activities to varying degrees have significant relationships to important economic activities within the District. The recommendations will provide for their ongoing operation which will provide positive economic benefits for people and communities. The changes will increase confidence that noise and vibration will be measured in accordance with national / international best practice. The provisions for shooting ranges will provide for their operation during the day time for the benefit of members of shooting ranges. The recommendations will ensure that noise from other activities is maintained at levels that are acceptable for human health and wellbeing.

Costs: there are no environmental, economic and social costs associated with this option.

Effectiveness: the effectiveness for this option is considered **high** for achieving the proposed objectives. The Marshall Day Report recommendations essentially provide a framework for other activities to operate in accordance with national and international best practice.

Efficiency: the efficiency of this option is considered **high** as there are no perceived costs and a number of benefits associated with providing for the ongoing operation of these other activities.

Risk: It is considered that the risk of acting is low as the recommendations have been formulated from an expert noise consultant in accordance with national / international best practice.

116. Overall it is considered that **option 2 is the most efficient and effective option** to achieve the intent of the proposed objectives because it will ensure that a number of other activities can operate within the District without unduly impacting on the amenity and character of the environment and the health and safety of people and communities.

4.5 Vibration

117. Vibration is generally only an issue when significant construction and / or demolition activity occurs adjacent to sensitive buildings. Activity potentially generating significant vibration includes demolition of large structures, some forms of piling, stationary machinery and rock breaking. The most likely effect from these activities is human annoyance rather than building damage, however maintain limits protect buildings is also important.
118. The Marshall Day Report highlights that the existing vibration controls in Appendix 10 of the District Plan are out of date and recommends that they should be updated to reference NZS/ISO 2631-2:2003. The Report proposes construction and demolition vibration limits in “Peak Particle Velocity (mm/s PPV). Further provisions are proposed for stationary machinery in terms of the ASHRAE guidelines are also recommended.
119. The following two options have been identified and evaluated below in terms of their costs, benefits, efficiency and effectiveness and risk in accordance with the relevant clauses of section 32 of the Act:

- (1) *Status Quo* – Maintain the current provisions for vibration in the District Plan.

Benefits: Maintaining the status quo ensure consistency and simplicity of application for the general community, business operators and landowners.

Costs: Does not address perception that the current vibration provisions are outdated and need review to be consistent with best practice in the field.

Effectiveness: maintaining the status quo is considered **low** for achieving the proposed objective and addressing the underlying issue as background research has indicated that the

current vibration provisions are outdated and no longer consistent with national / international best practice.

Efficiency: although this option will result in no additional financial costs to council, overall it is considered that the current approach is not efficient as it refers to outdated provisions for vibration. As such the efficiency of the status quo option is considered **low**.

Risk: The risk of not acting is considered **moderate** as the District Plan will continue to maintain an outdated approach to vibration.

- (2) *Marshall Day Recommendations* – implement proposed provisions from the Marshall Day Report vibration.

Benefits: the proposed vibration provisions will result in no damage to buildings or the ongoing operation of adjacent commercial activities. The guidelines recommended would allow for reasonable levels of vibration during construction and demolition which are important activities for the economy. The changes will increase confidence that vibration will be measured in accordance with national / international best practice. The recommendations will ensure that vibration from activities is maintained at levels that are acceptable for human health and wellbeing. The permitted vibration levels for the night time period would be barely or only just perceptible therefore minimising potential sleep disturbance and annoyance effects.

Costs: there are no environmental, economic and social costs associated with this option.

Effectiveness: the effectiveness for this option is considered **high**. The Marshall Day Report recommendations essentially provide a framework for vibration generating activities to operate in accordance with national and international best practice, while protecting amenity and character values and the health and safety of people and communities.

Efficiency: the efficiency of this option is considered **high** as there are no perceived costs and a number of benefits associated with providing for the ongoing operation of vibration generating activities.

Risk: It is considered that the risk of acting is **low** as the recommendations have been formulated from an expert noise / vibration consultant in accordance with national / international best practice.

120. Overall it is considered that **option 2 is the most efficient and effective option** to achieve the intent of the proposed objectives because it will ensure that a number of vibration generating activities can operate within the District without unduly impacting on the amenity and character of the environment and the health and safety of people and communities.

4.6 Road Traffic Noise

4.6.1 New or Altered Roads

121. Road traffic noise from new or altered roads in New Zealand is generally controlled through NZS 6806: 2010 “*Acoustics – Road-traffic noise – New and altered roads*”. The Standard provides a guideline for appropriate levels of noise near new or altered roads. While this standard is already been used for the assessment of noise from local roads within Whangarei, the Marshall Day Report recommends that this standard be referenced in the District Plan. This would require any roading project to give consideration to cost effective noise mitigation measures.
122. The following two options have been identified and evaluated in Table 12 of the appendix in terms of their costs, benefits, efficiency and effectiveness and risk in accordance with the relevant clauses of section 32 of the Act:

- (1) *Status Quo* – No reference to NZS 6806: 2010 “*Acoustics – Road-traffic noise – New and altered roads*”.

Benefits: Maintaining the status quo ensures consistency and simplicity of application for the general community, business operators and landowners.

Costs: With no formal reference to the standards, there is no guarantee, notwithstanding section 16, that mitigation measures such as noise barriers will be included for roading projects. No guarantee that mitigation measures will be paid for by the project. Public cannot be confident that roading noise will be managed in accordance with national standards and best practice.

Effectiveness: maintaining the status quo is considered **low** as the District Plan is not consistent with national best practice for new or altered roads

Efficiency: although this option will result in no additional financial costs to council, overall it is considered that the current approach is not efficient as it does not refer to the most up to date standard for new or altered roads. As such the efficiency of the status quo option is considered **low**.

Risk: The risk of not acting is considered **moderate** as the District Plan will continue to be inconsistent with national best practice on controlling noise from new and altered roads.

- (2) *Reference NZS 6806: 2010 – As per Marshall Day Report recommendations formally reference NZS 6806: 2010 “Acoustics – Road-traffic noise – New and altered roads” in the District Plan.*

Benefits: Referencing the standard would require any roading project to give consideration to noise mitigation measures such as noise barriers at the expense of the project which would help protect the amenity and character values of the surrounding environment. The standard takes a best practicable option approach in an attempt to ensure that any noise mitigation recommended for any project is cost effective e.g. it provides reasonable benefit given the cost. This will help ensure that money is not unnecessarily wasted on excessively expensive mitigation measures that do not provide reasonable benefit. Existing and future dwellings adjacent to new and altered roads will receive reasonable levels of noise more consistent with the desired amenity values of the area, and for what is desirable for health and safety. Where reasonable levels of external noise cannot be achieved, dwellings will be provided with appropriate mechanical ventilation at the expense of the project and not the owners of the house. Requiring the project to pay for mitigation measures is perceptibly more socially just than requiring the landowner to pay for it.

Costs: Mitigation measures will be required to be paid for by the project. This can represent a significant cost to Council or other authorities responsible for roading contracts. The assessment of roading projects against the application will incur consulting fees.

Effectiveness: the effectiveness for this option is considered **high** for achieving the proposed objectives. Reference to NZS 6806: 2010 will ensure that noise levels near new or altered roads are mitigated by appropriate measures that protect the health and safety of people and communities and the amenity values in the local environment.

Efficiency: the efficiency of this option is considered **high** as the perceived costs are significantly outweighed by the benefits associated with this option.

Risk: It is considered that the risk of acting is **low** as the Marshall Day Report has highlighted that NZS 6806 is already being used in the assessment of noise from local roads within Whangarei anyway.

123. Overall it is considered that **option 2 is the most efficient and effective option** to achieve the intent of the proposed objectives for the following reasons:

- (a) Reference to NZS 6806: 2010 will ensure that noise levels near new or altered roads are mitigated by appropriate measures that protect the health and safety of people and communities and the amenity values in the local environment.

4.6.2 Road Traffic Sound Insulation

124. The Marshall Day Report highlights that many districts provide rules that require dwellings and noise sensitive premises constructed near busy roads to achieve appropriate internal noise levels through sound insulation, generally in accordance with NZS 2107: 2000 and NZS 6806: 2010.
125. These design noise levels are often achievable with standard constructions, even where external noise levels are around 60 dB L_{Aeq} (24 hr). Such noise levels may occur adjacent to city arterial roads, within around 30 metres of busy arterial routes (5000 vehicles per day with 400 heavy vehicles), or within around 50 metres of State Highway 1 (10,000 vehicles per day with 1000 heavy vehicles). While relatively standard building constructions can result in reasonable internal noise levels at such distances, the noise levels cannot be achieved with windows and doors opened. In order for windows and doors to remain closed, air-conditioning and/or mechanical ventilation is generally required.
126. The District Plan objectives for road transport require the effects of road transport on the surrounding environment be adequately avoided, remedied and mitigated and that concurrently the roading network is protected from reverse sensitivity effects from adjacent development. Accordingly the Marshall Day Report concludes that there is merit in providing a sound insulation rule for new dwellings adjacent to busy roads. More specifically the Report recommends that “high, moderate and forestry noise routes” be established and identified on a map within the noise and vibration chapter.

Internal noise limits would be established for any dwellings constructed near these routes, and associated insulation / design requirements. New noise sensitive activities constructed within 80 metres of any high noise route and 40 metres of any moderate noise route would be required to achieve the following indoor sound levels:

- i. Sleeping areas: 35 dB $L_{Aeq(24\text{ hr})}$
- ii. Other habitable rooms: 40 dB $L_{Aeq(24\text{ hr})}$

127. The Marshall Day Report identifies the following potential routes:

High traffic noise routes:

- State Highway 1

Moderate traffic noise routes

- State Highway 14
- State Highway 15A
- Three Mile Bush Road
- Whangarei Heads Road / Onerahi Road / Riverside Drive

Forestry noise routes

- Otaika Valley Road
- Mangakahia Road

128. The following four options have been identified and evaluated in Table 8 of the appendix in terms of their costs, benefits, efficiency and effectiveness and risk in accordance with the relevant clauses of section 32 of the Act:

- (1) *Status Quo* – maintain the current approach whereby there are no insulation requirements for noise sensitive buildings adjacent to roads that experience moderate – high traffic volumes.
- (2) *Prohibit noise sensitive activities* – include new provisions totally prohibiting noise sensitive activities within 80 metres from high noise routes and 40 metres from any moderate noise route.
- (3) *Marshall Day Recommendations* – In accordance with the recommendations of the Marshall Day Report require new noise sensitive activities constructed within 80 metres of any high noise route and 40 metres of any moderate noise route to achieve stated indoor sound levels.
- (4) *Education and Publicity* – Use education and publicity to encourage property owners to voluntarily insulate their bedrooms in residential units.

129. Overall after careful consideration is considered that **Option 1 maintaining the status quo is the most appropriate option** at this stage and more work is required at a later date to demonstrate the viability of the Marshall Day Recommendations regarding acoustic insulation. This conclusion is drawn from comparison with the other options identified. While noise sensitive activities would continue to be subject to road noise, it is noted that there are no recorded complaints from residents regarding noise from the normal operation of existing busy roads to justify a measureable reverse sensitivity effect. Furthermore the majority of areas within 40-80 metres of identified roads experiencing traffic levels in excess of 5000 movements per day are already developed. This coupled with an inability to acoustically insulate existing buildings, and the significant financial cost of acoustic insulation will result in ad hoc uptake of acoustic insulation.

4.7 Alterations to Existing Definitions / Additional Definitions

130. The Marshall Day Report has proposed a number of alternations to / additional definitions (see Appendix E). These changes generally seek to align existing definitions with up to date noise terminology and theory, and add new terms referenced within the proposed provisions.

131. These alterations to existing definitions / additional definitions must be compared against the status quo. Overall it is considered that **including these alterations / additions is the most appropriate option** as they will ensure that the definitions of terms is consistent with best practice and will avoid confusion in interpretation for council staff, practitioners and the general public.

5.0 Summary and Conclusion

132. Plan Change 110 has been developed to repair the out-dated and disjointed approach to noise and vibration in the current provisions and to address underlying resource management issues relating to the management of noise under the District Plan.

133. The following two objectives have been proposed for the single Noise and Vibration Chapter proposed to be created under Plan Change 110:

NAV.1.2

1. *To enable a mix of activities to occur across a range of Environments, while ensuring that noise and vibration is maintained at acceptable levels for the health and safety of people and communities, and for the amenity and character of the Environment in which they are located.*
 2. *To ensure that activities that demand a high level of acoustic and vibration amenity do not unduly compromise the ability of other activities to operate.*
134. Pursuant to Section 32 of the Act, these objectives have been analysed against Part 2 of the Act and the relevant provisions of higher order plans and policy documents. Overall it has been determined that the proposed objectives are the most appropriate way to achieve the purpose of the Act.
135. The proposed provisions have been detailed and compared against viable alternatives terms of their costs, benefits, efficiency and effectiveness and risk in accordance with the relevant clauses of section 32 of the Act. Overall it is considered that the proposed provisions represent the most efficient and effective means of achieving the proposed objectives and for addressing the underlying resource management issues relating to noise and vibration.

Appendix A – Tables Reviewing Options for Various Provisions

TABLE 4 –OPTIONS FOR UPDATING NOISE STANDARDS AND NOMENCLATURE / STRUCTURE

		Option 1- Status Quo	Option 2- update standards / references in current structure	Option 3- update standards / references in new chapter
		<i>Maintaining the Status Quo – refer to old NZ standards and outdated nomenclature</i>	<i>Plan change to update the District Plan in its current structure to refer to current NZ standards and noise terminology.</i>	<i>Plan change to incorporate the update into a comprehensive review of noise and vibration into one district wide chapter.</i>
Benefits	Environmental	1. There are no additional environmental benefits associated with this option.	1. Same as option 1(1.).	1. Same as option 1(1.).
	Economic	2. There will be no additional implementation costs to the Council, businesses and landowners.	2. There are no additional economic benefits associated with this option.	2. Same as Option 2 (2.)
	Social/Cultural	3. Ensures consistency and simplicity for the general community, business operators and landowners.	3. Increased confidence that noise and vibration will be measured in accordance with national / international best practice.	3. Increased confidence that noise and vibration will be measured in accordance with national / international best practice 4. Simplification of the District Plan noise and vibration provisions into one district wide chapter will improve usability of the Plan.
Costs	Environmental	1. There are no additional environmental costs associated with this option.	1. There are no additional environmental costs associated with this option.	1. Same as Option 2 (1.)
	Economic	2. There are no additional economic costs associated with this option.	2. There would be an additional cost to Council to administer the plan change. 3. Additional cost to Council for obtaining and holding copies of New Zealand Standards for the public to review.	2. Same as Option 2 (2. & 3.)
	Social/Cultural	3. Does not address perception that the current noise provisions are outdated and need review to be consistent with best practice in the field.	4. Initial uncertainty as to how the new standards / terminology are different and how to apply them. 5. Perpetuates unnecessary repetition of material in the District Plan which decreases the overall user-friendliness of the District Plan noise provisions.	3. Same as Option 2 (4.)
Efficiency & Effectiveness		Effectiveness: maintaining the status quo is considered low for achieving the proposed objective and addressing the underlying issue as background research has indicated that the current references to New Zealand Standards and terminology are outdated and no longer consistent with national / international best practice. Efficiency: although this option will result in no additional financial costs to council, overall it is considered that the current approach is not efficient as it refers to outdated New Zealand standards / terminology. As such the efficiency of	Effectiveness: the effectiveness for this option is considered moderate for achieving the proposed objectives. Ensuring that the District Plan refers to the most update terminology and New Zealand Standards is crucial to ensure that information obtained about noise and vibration is accurate and comparable with best practice. However it is considered that the effectiveness of this option is diminished as it does not simplify noise and vibration provisions into one district wide chapter. This perpetuates the unnecessary repetition of material in the District Plan and does not increase usability.	Effectiveness: the effectiveness for this option is considered high for achieving the proposed objectives. Ensuring that the District Plan refers to the most up to date terminology and New Zealand Standards is crucial to ensuring that information obtained about noise and vibration is accurate and comparable with best practice. Furthermore the proposal is consistent with the holistic intentions of developing one district wide chapter for noise and vibration which will simplify the District Plan and increase its usability. Efficiency: the efficiency of this option is

TABLE 4 –OPTIONS FOR UPDATING NOISE STANDARDS AND NOMENCLATURE / STRUCTURE

	Option 1- Status Quo	Option 2- update standards / references in current structure	Option 3- update standards / references in new chapter
	the status quo option is considered low .	Efficiency: the efficiency of this option is considered moderate . While it ensures that the methodology to measure noise and vibration is consistent with best practice and the benefits that come with it, it does not address the social cost of unnecessary repetition of material in the District Plan.	considered high as it ensures that the methodology to measure noise and vibration is consistent with best practice and the benefits that come with it, whilst also addressing the social cost of unnecessary repetition of material in the District Plan.
Risk of Acting	N/A – Maintaining the status quo implies no action.	There is a low risk associated with adopting this option. It simply updates terminology and New Zealand Standards to be consistent with national / international best practice in the measurement of noise and vibration.	Same as option 2
Risk of Not Acting	The risk of not acting is considered moderate as the District Plan will continue to refer to outdated New Zealand Standards and terminology.		
Overall	While continuing with this approach will result in no additional financial costs to council, background research has indicated that the existing situation is inefficient and ineffective at ensuring that noise and vibration measurements are consistent with national / international best practice. As such this option is not considered appropriate.	While this option will address the issue of updating noise and vibration standards / nomenclature, it is not considered the most efficient and effective option as it does not contribute to the reduction in the unnecessary repetition of material in the District Plan and the usability benefits that will result.	Overall this option is the recommended option as it represents the most efficient and effective way to achieve the intent of the proposed objectives. It will ensure that noise and vibration standards / measurements are consistent with best practice and will contribute to the overall simplification of the District Plan's approach to noise and vibration.

TABLE 5 – REVIEW OF OPTIONS FOR NOISE LIMITS FOR LIVING 1, 2 & 3 AND OPEN SPACE ENVIRONMENTS

TABLE 5 – REVIEW OF OPTIONS FOR NOISE LIMITS FOR LIVING 1, 2 & 3 AND OPEN SPACE ENVIRONMENTS				
		Option 1- Status Quo	Option 2- No Noise Limits	Option 3- Increased Noise Limits
		<i>Maintain noise levels at current levels for the Living 1, 2 and 3 and Open Space Environments.</i>	<i>Remove noise limits for Living 1, 2 and 3 and Open Space Environments</i>	<i>Increase noise limits as recommended by Marshall Day Report for Living 1, 2 and 3 and Open Space Environments</i>
Benefits	Environmental	1. Noise limits within the Living 1, 2 and 3 and Open Space Environments are maintained at levels that have been previously deemed consistent with amenity and character values anticipated by the District Plan.	1. No noise restrictions on business activities will mean that they could more easily located in Living / Open Space Environments, potentially creating more vibrant mixed use Environments in areas that have traditionally been primarily characterised by suburban residential development and recreational spaces.	1. The Marshall Day report (pg 7) highlights that the proposed increase in noise limits will still provide for the “relatively high level of amenity required by the Plan” 2. In the Open Space Environment a higher noise limit will reduce the requirement to erect noise barriers along boundaries which will improve visual accessibility to parks and recreational areas.
	Economic	2. There will be no additional implementation costs to the Council, businesses and landowners.*	2. There would be no restriction in terms of noise (beyond the requirement in section 16 of the Act) on the operation of business activities in the District. This could result in the increase in the productivity of businesses (unrestricted operating hours) which could result in positive economic benefits in terms of job creation and increased wealth.	3. The provision of unnecessarily low noise limits in environments where they already experience moderate levels of ambient noise tends to increase consenting, monitoring and compliance costs. Increased noise limits more akin to existing ambient noise levels in the Living and Open Space Environments, will provide greater scope for appropriate land use activities to operate and will result in reduced monitoring and compliance costs.*
	Social/ Cultural	3. Ensures consistency and simplicity for the general community, business operators and landowners. 4. Noise levels will be maintained at levels that have been previously deemed consistent with health and safety of people and communities in accordance with Part 2 of the Act.	3. Ensures consistency and simplicity for the general community, business operators and landowners.	4. The noise limits proposed in the Marshall Day report are consistent with those specified in NZS6802: 2008, World Health Organisation guidelines on community noise and provisions in other District Plans throughout New Zealand. This will result in increased confidence for people and communities that the District Plan’s noise limits are consistent with national / international best practice. 5. It is considered that the increased noise limits will maintain noise limits which are appropriate for the health and safety of people and communities. 6. Increased noise limits would allow greater provision for activities appropriate for
	Social/ Cultural			

* No economic analysis is considered necessary for this potential benefit as it is considered that pursuant to section 32(1)(c) it would represent a level of detail that does not correspond to the scale and significance of the proposed option being assessed.

TABLE 5 – REVIEW OF OPTIONS FOR NOISE LIMITS FOR LIVING 1, 2 & 3 AND OPEN SPACE ENVIRONMENTS

		Option 1- Status Quo	Option 2- No Noise Limits	Option 3- Increased Noise Limits
Benefits				amenity and character of the area to operate in the Environments. This would result in the greater provision of services without compromising the existing character and amenity elements in the local environment. 7. In the Open Space Environment increased noise levels allow greater scope for communities to interact in parks and recreational area.
Costs	Environmental	1. The Marshall Day report highlights that the existing ambient noise levels in the majority of these Environments are generally above the established limits in the District Plan.	1. Unrestricted limits on noise could result in the unacceptable degradation of the amenity and character of the Environments. Notwithstanding other restrictions on business activities within the District Plan (e.g. traffic movements, signage, parking), a lack of noise limits could result in unmitigated “business creep” in Living Environments in particular. Whereby overtime business activities will locate in residential environments and will fundamentally alter the underlying amenity and character.	1. Increased noise limits have the potential to affect the amenity and character of the local environment. However it is noted that the Marshall Day Report (pg 7) states that the higher noise limits “are more in line with what is a reasonable level of noise in residential areas and strike a more appropriate balance between the needs of land users and sensitive receivers while still providing for the relatively high level of amenity required by the Plan Policies”
	Economic	2. The Marshall Day report considers that the limits contained in the District Plan are stricter than necessary, with ambient noise levels in the majority of Living 1 and 2 Environments in particular, likely to be above existing limits. This tends to increase consenting and compliance costs for businesses, communities and Council.	2. There would be an additional cost to Council to administer the plan change. 3. Even though this option would remove existing noise limits people are still required to comply with section 16 of the Act and the duty to avoid unnecessary noise. Therefore it is foreseeable that there would be financial costs associated with Council having to monitor and respond to increased noise complaints.* 4. With no noise limits residents may be compelled to improve the standard of their house in terms of acoustic insulation to avoid sleep disturbance, loss of concentration. There would be an economic cost associated with this upgrade.	2. There would be an additional cost to Council to administer the plan change. 3. There is potential that there would be financial costs associated with Council having to monitor and respond to increased noise complaints as a result of increased noise limits.* 4. With increased noise limits people susceptible to noise may be compelled to improve the standard of their house in terms of acoustic insulation to avoid sleep disturbance, loss of concentration. There would be an economic cost associated with this upgrade. However this is offset by the Marshall Day Report identifying that the proposed noise levels will be more consistent with existing ambient noise levels than current limits, which are generally less

* No economic analysis is considered necessary for this potential benefit as it is considered that pursuant to section 32(1)(c) it would represent a level of detail that does not correspond to the scale and significance of the proposed option being assessed.

TABLE 5 – REVIEW OF OPTIONS FOR NOISE LIMITS FOR LIVING 1, 2 & 3 AND OPEN SPACE ENVIRONMENTS

		Option 1- Status Quo	Option 2- No Noise Limits	Option 3- Increased Noise Limits
Costs				than existing ambient noise levels experienced in the majority of these areas.
	Social/ Cultural	<p>3. Increased compliance and consenting costs create uncertainty for appropriate activities wishing to locate in Living 1, 2 3 and Open Space Environments.</p> <p>4. The inability for certain activities to locate can lead to a reduction of appropriate services in these areas.</p>	<p>5. Unrestricted noise limits in these Environments would likely result in significant impacts on the health and wellbeing of people and communities, through sleep disturbance, loss of concentration and chronic mental health issues.</p>	<p>5. Increased noise limits in these Environments could result in impacts on the health and wellbeing of people and communities, through sleep disturbance, loss of concentration and chronic mental health issues. However this is offset by the Marshall Day Report identifying that the proposed noise levels will be more consistent with existing ambient noise levels than current limits, which are generally less than existing ambient noise levels experienced in the majority of these areas.</p>
Efficiency & Effectiveness		<p>Effectiveness: maintaining the status quo is considered low for achieving the proposed objective and addressing the underlying issues associated with noise. Comparisons with New Zealand Standards, World Health Organisation guidelines and other District Plans demonstrate that the limits contained within the District Plan for the Living 1, 2 and 3 and Open Space Environments are set at a level that is in many cases below existing ambient noise levels. This leads to increased consenting and compliance costs and uncertainty to activities seeking to establish in these areas while not necessarily resulting in noticeable improvements to residential amenity.</p> <p>Efficiency: it is considered that the current approach is not efficient as current noise limits unnecessarily restrict activities seeking to establish in the Living 1, 2 and 3 Environments while not necessarily resulting in perceivable gain in terms of health and safety and amenity. As such the efficiency of the status quo option is considered low.</p>	<p>Effectiveness: the effectiveness for this option is considered low for achieving the proposed objectives. No noise limits will not protect the amenity and character of the local environment, could result in significant health and wellbeing effects and could lead to reverse sensitivity effects in various environments. While there are perceived benefits in terms of flexibility and unrestricted operation in terms of noise for business activities, it is considered that this benefit does not outweigh the significant costs identified previously.</p> <p>Efficiency: the efficiency of this option is considered low. It fails to deliver on the intent of the proposed objectives in terms of the potential amenity, health and safety and reverse sensitivity effects that it could cause, while the potential benefits are not enough to outweigh these significant costs.</p>	<p>Effectiveness: the effectiveness for this option is considered high for achieving the proposed objectives. The Marshall Day Report has concluded that the increased noise limits will allow greater provision for appropriate activities wishing to operate in the Living 1, 2 and 3 and Open Space Environments while maintaining noise limits that: are consistent with existing ambient noise levels in the majority of areas and; acceptable in terms of existing amenity and character values and health and safety.</p> <p>Efficiency: the efficiency of this option is considered high as it strikes a balance between allowing appropriate activities and maintaining noise levels that are consistent with National Standards and international guidelines.</p>
Risk of Acting		N/A – Maintaining the status quo implies no action.	There is a high risk associated with adopting this option. The potential amenity, health and safety effects would be inconsistent with the intent of the proposed objectives and by	There is considered to be a moderate risk associated with adopting this option. This is largely associated with the potential for increased complaints as a result of higher noise

TABLE 5 – REVIEW OF OPTIONS FOR NOISE LIMITS FOR LIVING 1, 2 & 3 AND OPEN SPACE ENVIRONMENTS

	Option 1- Status Quo	Option 2- No Noise Limits	Option 3- Increased Noise Limits
		association, the relevant provisions of Part 2 of the Act. Furthermore there is significant risk for Council associated with potential public conjecture and increased noise complaints and associated monitoring costs.	limits. However it is noted that this is offset by conclusions drawn in the Marshall Day report which note that the proposed noise limits will be more consistent with existing ambient levels.
Risk of Not Acting	The risk of not acting is considered moderate as the District Plan will continue to impose noise limits in the Living 1, 2 and 3 and Open Space Environments that are not appropriate for existing ambient noise levels and amenity values in general. This will result in continued uncertainty for appropriate activities seeking to locate in these areas and perpetuate increasing consenting and compliance costs.		
Overall	Overall maintaining the status quo is not considered a viable option as current noise limits unnecessarily restrict appropriate activities seeking to establish in the Living 1, 2 and 3 and Open Space Environments while not necessarily resulting in perceivable gain in terms of health and safety and amenity.	Overall no noise limits is not considered a viable alternative in terms of achieving the proposed objectives and in many ways represents a worse alternative than the status quo. The costs clearly outweigh the benefits and there is a high risk associated with Council adopting this option with potential significant health and wellbeing effects and increased costs associated with complaints.	Overall this option is the recommended option as it represents the most efficient and effective way to achieve the intent of the proposed objectives. The higher noise limits are consistent with what is a reasonable level of noise in residential areas and strike a more appropriate balance between the needs of land users and sensitive receivers while still providing for the relatively high level of amenity required by the District Plan.

TABLE 6 – NOISE LIMITS FOR COUNTRYSIDE, COASTAL COUNTRYSIDE AND URBAN TRANSITION ENVIRONMENTS

TABLE 6 – NOISE LIMITS FOR COUNTRYSIDE, COASTAL COUNTRYSIDE AND URBAN TRANSITION ENVIRONMENTS				
		Option 1- Status Quo	Option 2- No Noise Limits	Option 3- Increased Noise Limits
		<i>Maintain noise levels at current levels for the Countryside, Coastal Countryside and Urban Transition Environments.</i>	<i>Remove noise limits for Countryside, Coastal Countryside and Urban Transition Environments.</i>	<i>Increase noise limits as recommended by Marshall Day Report for Countryside, Coastal Countryside and Urban Transition Environments.</i>
Benefits	Environmental	<ol style="list-style-type: none"> Noise limits within the Countryside, Coastal Countryside and Urban Transition Environments are maintained at levels that have been previously deemed consistent with amenity and character values anticipated by the District Plan. 	<ol style="list-style-type: none"> No noise restrictions on rural activities will mean that they could more easily operate within the Countryside, Coastal Countryside and Urban Transition Environments. This would reinforce rural production values and their associations with rural character and amenity. 	<ol style="list-style-type: none"> The Marshall Day report (pg 10) highlights that the proposed increase in noise limits will still provide for a reasonable level of amenity in the area and would provide greater flexibility for the establishment of appropriate permanent rural and non-rural activities. The Marshall Day Report recommends a higher daytime limit for noise in the Countryside Environment but maintains a lesser limit in the Coastal Countryside and Urban Transition Environments. This acknowledges that while rural activities are anticipated in the latter, a lower level is more consistent with the amenity and character elements anticipated and existing in these areas.
	Economic	<ol style="list-style-type: none"> There will be no additional implementation costs to the Council, businesses and landowners.* 	<ol style="list-style-type: none"> Rural production is crucial to the District's economy. No noise limits will allow rural activities and other business to operate with no restrictions in terms of the noise they produce. This could lead to increases in productivity, wealth creation and potential employment opportunities. 	<ol style="list-style-type: none"> The Marshall Day report recommends higher day time noise limits in the Countryside Environment and higher night time limits for all three Environments. These changes will allow appropriate permanent rural and non-rural activities to operate in rural environments. This could lead to increases in productivity, wealth creation and potential employment opportunities. The provision of less stringent and more appropriate noise limits in these Environments could lead to reduced compliance and consenting costs.
	Social/Cultural	<ol style="list-style-type: none"> Ensures consistency and simplicity for the general community, business operators and landowners. Noise levels will be maintained at levels that have been previously deemed consistent with health and safety of people and communities in accordance with Part 2 of the Act. 	<ol style="list-style-type: none"> Ensures consistency and simplicity for the general community, business operators and landowners. 	<ol style="list-style-type: none"> The noise limits proposed in the Marshall Day report are consistent with research into setting noise limits that relate to background noise limits. This will result in increased confidence for people and communities that the District Plan's noise limits are consistent with national / international best practice.

TABLE 6 – NOISE LIMITS FOR COUNTRYSIDE, COASTAL COUNTRYSIDE AND URBAN TRANSITION ENVIRONMENTS

		Option 1- Status Quo	Option 2- No Noise Limits	Option 3- Increased Noise Limits
Benefits				<p>6. It is considered that the increased noise limits will maintain noise limits which are appropriate for the health and safety of people and communities in these Environments.</p> <p>7. Increased noise limits would allow greater provision for activities appropriate for amenity and character of the area to operate in the Environments. This would result in the greater provision of existing rural activities and services without compromising the existing character and amenity elements in the local environment.</p>
Costs	Environmental	<p>1. There are no additional environmental costs anticipated with this option.</p>	<p>1. Marshall Day measurements show that the Countryside, Coastal Countryside and Urban Transition Environments can have low background noise levels, especially at night time during still conditions. In areas with low background noise even relatively low levels of noise can sound intrusive, therefore a reasonably high level of protection is required to ensure that the amenity of the area is not unacceptably compromised. Unrestricted limits on noise could result in the degradation of the amenity of the Environments.</p> <p>2. Notwithstanding other restrictions on business activities within the District Plan (e.g. traffic movements, signage, parking), a lack of noise limits could result in unmitigated “business creep” in the Countryside, Coastal Countryside and Urban Transition Environments, whereby over time business activities (not associated with rural activities) will locate in rural environments and will fundamentally alter the underlying amenity and character.</p>	<p>1. Increased noise limits have the potential to affect the amenity and character of the local environment. However it is noted that the Marshall Day Report assesses that the proposed noise limits will still provide for a reasonable level of amenity consistent with what exists / anticipated for the Countryside, Coastal Countryside and Urban Transition Environments.</p>
	Economic	<p>2. The Marshall Day Report highlights that the limits contained in the District Plan are stricter than necessary in rural areas. This can affect productive values of rural land within these environments by hindering the ability of rural land to be used for the production of goods.</p>	<p>3. There would be an additional cost to Council to administer the plan change.</p> <p>4. Even though this option would remove existing noise limits people are still required to comply with section 16 of the Act and the duty to avoid unnecessary noise. Therefore it</p>	<p>2. There would be an additional cost to Council to administer the plan change.</p> <p>3. There is potential that there would be financial costs associated with Council having to monitor and respond to increased noise complaints as a result of increased</p>

TABLE 6 – NOISE LIMITS FOR COUNTRYSIDE, COASTAL COUNTRYSIDE AND URBAN TRANSITION ENVIRONMENTS

		Option 1- Status Quo	Option 2- No Noise Limits	Option 3- Increased Noise Limits
Costs		<p>This can result in the loss of opportunity for increased productivity / income and associated potential job creation.</p> <p>3. Increased compliance and consenting costs for appropriate rural / business activities wishing to operate in the Countryside, Coastal Countryside and Urban Transition Environments.</p>	<p>is foreseeable that there would be financial costs associated with Council having to monitor and respond to increased noise complaints.*</p> <p>5. With no noise limits residents may be compelled to improve the standard of their house in terms of acoustic insulation to avoid sleep disturbance, loss of concentration. There would be an economic cost associated.</p>	<p>noise limits.*</p> <p>4. With increased noise limits people susceptible to noise may be compelled to improve the standard of their house in terms of acoustic insulation to avoid sleep disturbance, loss of concentration. There would be an economic cost associated with this upgrade.</p>
	Social/ Cultural	<p>4. Increased compliance and consenting costs create uncertainty for appropriate rural / business activities wishing to locate in the Countryside, Coastal Countryside and Urban Transition Environments.</p> <p>5. The inability for certain activities to locate can lead to a reduction of appropriate services in these areas and a loss of the rural production values of the land</p>	<p>6. Unrestricted noise limits in these Environments would likely result in significant impacts on the health and wellbeing of people and communities, through sleep disturbance, loss of concentration and chronic mental health issues.</p>	<p>5. Increased noise limits in these Environments could result in impacts on the health and wellbeing of people and communities, through sleep disturbance, loss of concentration and chronic mental health issues.</p>
Efficiency & Effectiveness		<p>Effectiveness: maintaining the status quo is considered low for achieving the proposed objectives and addressing the underlying issues associated with noise. The Marshall Day Report concludes that the current provision of extremely stringent noise levels are not necessary and have been demonstrated by the above assessment to result in a number of environmental, economic and social / cultural costs that outweigh potential benefits.</p> <p>Efficiency: it is considered that the current approach is not efficient as current noise limits can unnecessarily restrict appropriate rural / business activities seeking to establish in the Countryside, Coastal Countryside and Urban Transition Environments while not necessarily resulting in perceivable gain in terms of health and safety and amenity. As such the efficiency of the status quo option is considered low.</p>	<p>Effectiveness: the effectiveness for this option is considered low for achieving the proposed objectives. No noise limits will not protect the amenity and character of the local environment, could result in significant health and wellbeing effects and could lead to reverse sensitivity effects in various environments. While there are perceived benefits in terms of flexibility and unrestricted operation in terms of noise for rural and business activities, it is considered that this benefit does not outweigh the significant costs identified previously.</p> <p>Efficiency: the efficiency of this option is considered low. It fails to deliver on the intent of the proposed objectives in terms of the potential amenity, health and safety and reverse sensitivity effects that it could cause, while the potential benefits are not enough to outweigh these significant costs.</p>	<p>Effectiveness: the effectiveness for this option is considered high for achieving the proposed objectives. The Marshall Day Report has concluded that the increased noise limits will allow greater provision and flexibility for the establishment of appropriate rural and non rural activities within for appropriate activities in the Countryside, Coastal Countryside and Urban Transition Environments while maintaining noise limits that are acceptable in terms of existing amenity and character values and health and safety.</p> <p>Efficiency: the efficiency of this option is considered high as it strikes a balance between allowing appropriate activities and maintaining noise levels that are acceptable in terms of existing amenity and character values and health and safety.</p>
Risk of Acting		<p>N/A – Maintaining the status quo implies no action.</p>	<p>There is a high risk associated with adopting this option. The potential amenity, health and safety effects would be inconsistent with the</p>	<p>There is considered to be a moderate risk associated with adopting this option. This is largely associated with the potential for</p>

TABLE 6 – NOISE LIMITS FOR COUNTRYSIDE, COASTAL COUNTRYSIDE AND URBAN TRANSITION ENVIRONMENTS

	Option 1- Status Quo	Option 2- No Noise Limits	Option 3- Increased Noise Limits
		intent of the proposed objectives and by association, the relevant provisions of Part 2 of the Act. Furthermore there is significant risk for Council associated with potential public conjecture and increased noise complaints and associated monitoring costs.	increased complaints as a result of higher noise limits. However it is noted that this is offset by conclusions drawn in the Marshall Day report which note that the proposed noise limits will be consistent with existing amenity and character values and health and safety.
Risk of Not Acting	The risk of not acting is considered moderate as the District Plan will continue to impose noise limits in the Countryside, Coastal Countryside and Urban Transition Environments that have been assessed as extremely stringent and ultimately unnecessary. This can result in lasting effects on the ability for appropriate rural production activities to occur in these Environments and the associated environmental, economic and social / cultural effects.		
Overall	Overall maintaining the status quo is not considered a viable option as current noise limits can unnecessarily restrict appropriate rural activities seeking to establish in the Countryside, Coastal Countryside and Urban Transition Environments while not necessarily resulting in perceivable gain in terms of health and safety and amenity.	Overall no noise limits is not considered a viable alternative in terms of achieving the proposed objectives and in many ways represents a worse alternative than the status quo. The costs clearly outweigh the benefits and there is a high risk associated with Council adopting this option with potential significant health and wellbeing effects and increased costs associated with complaints.	Overall this option is the recommended option as it represents the most efficient and effective way to achieve the intent of the proposed objectives. The higher noise limits are consistent with what is a reasonable level of noise in rural areas and strike a more appropriate balance between the needs of land users and sensitive receivers while still providing for the relatively high level of amenity required by the District Plan.

TABLE 7 – OPTIONS FOR BUSINESS 1, 2, 3 & TOWN BASIN ENVIRONMENT

	Option 1- Status Quo	Option 2- Prohibit Residential Units	Option 3- Entertainment Precinct	Option 4- MD Recommendations	Option 5 – Education and Publicity	
	<i>Maintain noise levels at current levels and existing rules for the Business and Town Basin Environments</i>	<i>Include new provisions totally prohibiting residential activities, short stay accommodation and other activities where sleep disturbance is possible in the Business and Town Basin Environments.</i>	<i>Create an Entertainment Precinct in the Business 1 Environment which include the following planning measures:</i> <ul style="list-style-type: none"> • <i>Activities, where sleep disturbance is possible would be prohibited.</i> • <i>Elevated night time limits would apply.</i> • <i>A non-residential buffer between the precinct and adjacent mixed use area.</i> 	<i>Implement the Marshall Day recommendations for the Business and Town Basin Environments detailed in section 4.2.3 of this report.</i>	<i>Use education and publicity to encourage property owners to voluntarily insulate their bedrooms in residential units.</i>	
Benefits	Environmental	<ol style="list-style-type: none"> 1. Noise limits within the Business and Town Basin Environments are maintained at levels that have been previously deemed consistent with amenity and character values anticipated by the District Plan. 2. The night time noise limits are permissive and favour nightlife. This makes it easy for nightspots to operate and in turn maintains vibrancy at night time in the CBD. 	<ol style="list-style-type: none"> 1. Business activities will be able to perceivably operate without the fear of noise complaints from sensitive residential uses. This would contribute to the maintenance of a vibrant inner city night life. 	<ol style="list-style-type: none"> 1. Business activities will be able to perceivably operate without the fear of noise complaints from sensitive residential uses or failure to comply with lesser noise limits. This would contribute to the maintenance of a vibrant inner city night life. 2. The Entertainment Precinct would locate around existing clusters of bars / restaurants (e.g. Vine Street, Cameron Street) or in a new area. Either option represents an opportunity to regenerate an existing area of town to provide a quality urban environment in accordance with various Council strategies identified in section 3.5 of this report. 	<ol style="list-style-type: none"> 1. This option strikes a balance between the needs of high noise generating night time business activities and noise sensitive activities. The lesser night time limit will help address potential sleep disturbance for existing and future residential units in the Business and Town Basin Environments, while the extended daytime period until 12am on Friday and Saturday will account for the operation of bars and restaurants on what are traditionally their busiest nights. This would maintain the ability of the CBD to provide a vibrant inner city night life while allowing greater provision for a truly mixed use environment and the benefits it brings from an urban design perspective. 	<ol style="list-style-type: none"> 1. No Environmental benefits anticipated with this option
	Economic	<ol style="list-style-type: none"> 3. There will be no additional implementation costs to the Council, businesses and landowners.* 4. The night time limit is generally considered permissive. This makes it easier for night time business activities to operate, thus reducing potential consenting and compliance costs, and maintaining income and employment opportunities. 	<ol style="list-style-type: none"> 2. Business activities will be able to perceivably operate without the fear of noise complaints from sensitive residential uses. This makes it easier for night time business activities to operate, thus reducing potential consenting and compliance costs, and maintaining income and employment opportunities 	<ol style="list-style-type: none"> 3. Same as option 2(2.) 	<ol style="list-style-type: none"> 2. Appropriately insulated bedrooms in residential units in the Business and Town Basin Environments would result in a reduction in the likelihood of noise complaints against high noise generating night time activities (bars and restaurants). This will allow such activities to operate without the threat of complaints, thus maintain income and employment opportunities associated with the continued operation of the business activities. 3. Insulating a building to reduce noise produces small benefits in reducing heat loss and the cost of heating or cooling the building. 4. Additional economic benefits may be realised when the residential unit is sold. It is expected that well insulated residential units will sell at a higher price than poorly insulated noise sensitive land uses in the same area, where sleep disturbance and a lower quality of life may have a negative impact on the value of the property. 	<ol style="list-style-type: none"> 2. As there is no statutory obligation with this option, there would be no monetary cost to those residential activities that wish to locate next to high noise generating activities, which chose not to include sound insulation. 3. Residents who chose to undertake noise insulation would experience similar benefits to those stated in option 4 (2.-4.)
	Social/Cultural	<ol style="list-style-type: none"> 5. Ensures consistency and simplicity for the general community, business operators and landowners. 6. Noise levels will be maintained at levels that have been previously deemed consistent with health and safety of people and communities in accordance with Part 2 of the Act. 7. Permissive night time limits allow night spots to continue operating and allow people and communities to enjoy a vibrant night life. 	<ol style="list-style-type: none"> 3. Former or potential occupiers of residential units will not be subject to noise levels that could affect their health and wellbeing from sleep disturbance. 	<ol style="list-style-type: none"> 4. Same as Option 2(3.) 5. With higher nighttime noise limits and prohibited status for residential units, high noise generating night time activities such as bars and restaurants will be able to perceivably operate with minimal disturbance. This will contribute to accessibility to a vibrant inner city at night time and the associated social benefits for people and communities. 	<ol style="list-style-type: none"> 5. Enhanced indoor acoustic privacy/amenity for new or altered noise sensitive land uses so that sleep is not disturbed by high noise generating activities during the night. Further health risks associated with exposure to high levels of noise are also reduced. 6. People living in well insulated homes tend to have fewer sick days and fewer trips to the doctor. The health risks associated with exposure to high levels of noise are also reduced. 	<ol style="list-style-type: none"> 4. Provides greater flexibility and choice for people wishing to establish residential units in the Business and Town Basin Environments. People who don't think noise will be an issue will not be forced to pay for acoustic insulation where they may not be able to afford to or don't care.
	Environmental	<ol style="list-style-type: none"> 1. Permissive night time noise limits could discourage people potentially wanting to live in residential units in the Business and 	<ol style="list-style-type: none"> 1. This option would hinder the ability of the CBD to become a truly mixed use environment and the benefits associated. 	<ol style="list-style-type: none"> 1. Same as Option 2 costs (1. & 2.) 2. Presently there is a cluster of bars / night clubs along Vine Street, lower Bank Street 	<ol style="list-style-type: none"> 1. No Environmental costs anticipated with this option. 	<ol style="list-style-type: none"> 1. No Environmental costs anticipated with this option

TABLE 7 – OPTIONS FOR BUSINESS 1, 2, 3 & TOWN BASIN ENVIRONMENT

TABLE 7 – OPTIONS FOR BUSINESS 1, 2, 3 & TOWN BASIN ENVIRONMENT						
		Option 1- Status Quo	Option 2- Prohibit Residential Units	Option 3- Entertainment Precinct	Option 4- MD Recommendations	Option 5 – Education and Publicity
Costs		Town Basin Environments. This would impact on the ability of the CBD to become a truly mixed use environment and potential urban design benefits such as surveillance and vibrancy.	<p>This is a key aim of many of the Council non-statutory documents assessed in section 3.5 of this report.</p> <p>2. There are a number of existing residential units within the Business and Town Basin Environments. Under this proposal the existing residential units would be forced to be decommissioned or relocated outside of the Business and Town Basin Environments to the fringes of the CBD.</p>	and Cameron Street. One option would be to form the Entertainment Precinct around this existing cluster. However there a number of other establishments scattered throughout the inner city (such as Frings bar along lower Dent Street). The Entertainment Precinct would see the establishment of one preferred area for these existing activities to locate. While this could be seen as a positive effect, consideration needs to be given to the effect that the movement of other activities into this area would have. This could affect night spots (such as Frings) being located on the fringes and the vibrancy they bring to the area they are located.		
	Economic	<p>2. Increased monitoring costs for noise complaints from residential units in the Business and Town Basin Environments.</p> <p>3. Higher noise limits discourage demand for residential units, and therefore demand for development of residential units in the Business and Town Basin Environments. This results in a loss of development potential and the associated economic benefits in terms of wealth and job creation.</p> <p>4. While it is acknowledged that there are minimal residential units currently located in the Business and Town Basin Environments, the current provisions do not provide any restrictions on locating noise sensitive residential activities adjacent to high noise generating activities. Non-statutory strategies covering the CBD (see 3.5 of this report). This can result in complaints that may ultimately affect the ability of business activities to operate in the CBD, and consequently affect productivity and employment.</p>	<p>2. There would be an additional cost to Council to administer the plan change.</p> <p>3. Loss of development opportunity for developers who would seek to establish residential units in the CBD and the positive economic effects associated with this.</p>	<p>3. Same As Option 2 costs (2. & 3.).</p> <p>4. The establishment of the Entertainment Precinct could have a disproportionate effect on property prices in the inner city. Presumably high noise generating night time activities will want to locate within the Entertainment Precinct. While this would likely increase the value of properties located in the precinct, it is also possible that it would result in a decrease of value for land located outside of the precinct as their ability to attract night time activities would be diminished.</p> <p>5. One of the recommendations for the Entertainment Precinct is a no residential buffer between the Precinct and adjacent mixed use areas. The same effect expressed above on property values could happen in these areas, and perhaps even more acute as these areas would be unable to have residential units or high noise generating activities.</p>	<p>2. There would be an additional cost to Council to administer the plan change.</p> <p>3. There would be a cost to developers / owners for complying with sound insulation requirements. The costs to achieve adequate noise insulation to meet the proposed requirements are estimated⁴ at 1-8% of the total cost of construction for a new building, depending on the method and the amount of noise insulation required to comply with established internal noise levels. Table D4 of NZS 6806 2010 (Acoustics – road traffic noise – new and altered roads) has indicative 2008 costs for noise barriers, acoustic insulation and ventilation systems for buildings exposed to high levels of noise. While this standard is specifically relevant to road traffic noise it is considered that the figures contained within can also be applied to the current situation. For instance Table D4 estimates that acoustic insulation (double glazing, floor ceiling and wall cladding/fill/lining door seals etc. costs approximately \$15,000 per unit and ventilation systems cost approximately \$10,000 per unit⁵.</p>	<p>2. To be effective, mass media campaigns must be noticed (using appropriate media channels and placement to reach the target group), perceived as persuasive (experienced by the target group as engaging, relevant and/or emotionally affecting) and remembered (seen often enough for them to be recalled and acted upon). Advertising research reveals that the effects of advertising linger over the days and weeks after broadcast ends, but are unlikely to linger over weeks to months. The costs of an effective campaign to encourage noise protection could therefore become very expensive because of the need to keep the issue in the eye of the target audience.</p> <p>3. Council would incur costs associated with producing educational material to encourage land owners to protect themselves from high noise.</p> <p>4. Building owners who wanted to insulate their buildings from high levels of noise would still need some professional advice on the level of noise that they might be exposed to and the methods to be used to ensure suitable indoor noise levels were achieved. Those that volunteered to provide noise reduction would expect to pay the same costs as those in option 4(3.)</p>
	Social/Cultural	<p>5. Residential Units in the Business and Town Basin Environments currently have no requirements in terms of acoustic insulation. Therefore existing or proposed residential units and short stay accommodation in the Business and Town Basin Environments contain no protection against higher night time noise limits. A common argument is that people who live in central city areas accept a greater level of noise as 'part of life'. However experience in other districts (such as Queenstown) show that where unprotected noise sensitive activities are</p>	<p>4. Various Council non statutory strategies (see section 3.5 of this report) that have been developed through public consultation with key stakeholders including business operators and the community, have highlighted the inner city as an area for mixed use. Prohibiting residential units would undermine the ability for that and would affect people and communities' confidence in Council upholding the direction set out in these documents.</p>	<p>6. Same as Option 2 cost (4.)</p>	<p>4. The economic cost of insulating bedrooms indicated above could discourage people from purchasing / establishing residential units in the Business and Town Basin Environments. Like options 2 and 3 this would affect the ability of the inner city to operate as a truly mixed use environment.</p> <p>5. The economic cost could also create equity concerns, whereby people from lower socio-economic demographics would be priced out of living in the inner city by an inability to provide affordable housing.</p>	<p>5. This option is potentially not effective in protecting the sleep and indoor amenity of people who live or stay near noisy activities in the Business and Town Basin Environments and does not mitigate the health effect costs arising from exposure to high levels of noise.</p>

⁴ based on research of other Council's information including " Auckland Council's 2.43 land transport noise – section 32 evaluation for the Proposed Auckland Unitary Plan

⁵ These estimated costs do not include ongoing maintenance costs.

TABLE 7 – OPTIONS FOR BUSINESS 1, 2, 3 & TOWN BASIN ENVIRONMENT

TABLE 7 – OPTIONS FOR BUSINESS 1, 2, 3 & TOWN BASIN ENVIRONMENT					
	Option 1- Status Quo	Option 2- Prohibit Residential Units	Option 3- Entertainment Precinct	Option 4- MD Recommendations	Option 5 – Education and Publicity
	<p>located in proximity to high noise generating bars and restaurants, noise complaints and reverse sensitivity conflicts are endemic. Further to the economic costs discussed above, this can also result in a loss of night time activities and services.</p> <p>6. The Marshall Day Report has highlighted that the current night time noise limit along with a lack of requirement for appropriate acoustic insulation mean that noise levels considered acceptable to avoid sleep disturbance cannot be achieved in residential units / short stay accommodation.</p>				
Efficiency & Effectiveness	<p>Effectiveness: maintaining the status quo is considered low for achieving the proposed objectives and addressing the underlying issues associated with noise. The Marshall Day Report concludes that the current provision of lenient night time noise levels and a lack of requirement for acoustic insulation for noise sensitive activities will result in a number of environmental, economic and social / cultural costs that outweigh potential benefits.</p> <p>Efficiency: it is considered that the current approach is not efficient as current noise limits can result in reverse sensitivity and health and safety effects while not necessarily resulting in perceivable gain in terms of the operation of appropriate business activities. As such the efficiency of the status quo option is considered low.</p>	<p>Effectiveness: the effectiveness for this option is considered moderate for achieving the proposed objectives. While prohibiting residential units will enable the continuing operation of appropriate business activities in the CBD and will avoid adverse health effects on occupiers of residential units, it will restrict the ability of creating a truly mixed use environment in the CBD as is directed in non-statutory Council strategies.</p> <p>Efficiency: the efficiency of this option is considered low as the costs far outweigh the potential benefits.</p>	<p>Effectiveness: the effectiveness for this option is considered moderate for achieving the proposed objectives. While the establishment of an Entertainment Precinct would provide an area for high noise generating night time activities to locate / operate without the threat of conflict with noise sensitive residential activities, it is considered that it would restrict the ability of creating a truly mixed use environment in the CBD as is directed in non-statutory Council strategies.</p> <p>Efficiency: the efficiency of this option is considered moderate as the costs outweigh the potential benefits.</p>	<p>Effectiveness: it is considered that the effectiveness of this option is high as it will achieve a reasonable level of noise in new or altered residential units while not unduly affecting the ability of appropriate business activities to operate in the Business and Town Basin Environments.</p> <p>Efficiency: the efficiency of this option is considered high. While the economic cost of achieving proposed sound insulation requirements will be moderate, it is considered that this cost is outweighed by the significant benefits relating to enhanced acoustic privacy / amenity and the creation of a truly mixed use inner city environment in accordance with the strategic direction set by non-statutory Council strategies.</p>	<p>Effectiveness: the effectiveness for this option is considered low for achieving the proposed objectives. As discussed previously, it would take large investment to ensure the success of an education and publicity campaign for encouraging volunteer noise insulation with no guarantee of results. This will in turn perpetuate potential reverse sensitivity issues and potential health and safety effects on people currently or thinking of living in the Business and Town Basin Environments.</p> <p>Efficiency: The efficiency of this option is estimated to be low as education/publicity may have limited benefits and the health and amenity costs to people in noise sensitive land uses may be very high. The potential costs to businesses is also believed to outweigh the benefits of this proposal.</p>
Risk of Acting	N/A – Maintaining the status quo implies no action.	There is a moderate risk associated with adopting this option. While health and safety concerns would diminish, there is a risk that it would undermine the ability of the inner city to provide a truly mixed use environment.	There is a moderate risk associated with adopting this option. While health and safety concerns would diminish, there is a risk that it would undermine the ability of the inner city to provide a truly mixed use environment.	There is considered to be a moderate risk associated with adopting this option. The sound insulation requirements only addresses noise insulation for bedrooms in residential units and do not establish requirements in other habitable rooms or other noise sensitive activities. Furthermore there is a risk associated with housing affordability with the economic cost of establishing sound insulation requirements potentially discouraging the establishment of residential units entirely and/or making them for lower income families.	There is considered to be a high risk associated with adopting this option as it may not adequately address the environmental, economic and social risks associated with noise sensitive activities being exposed to high levels of noise in the Business and Town Basin Environments.
Risk of Not Acting	The risk of not acting is considered moderate as the District Plan will continue to impose night time noise limits in the Business and Town Basin Environments that have been assessed as lenient. This can result in significant reverse sensitivity conflicts and potential impacts on health and safety.				
Overall	Overall maintaining the status quo is not considered a viable option as the current limits do not adequately protect health and safety requirements and can lead to conflict between high noise generating activities and noise sensitive residential units in the Business and Town Basin Environments.	Overall prohibiting residential units in the Business and Town Basin Environments is not considered a viable option. While prohibiting residential units will enable the continuing operation of appropriate business activities in the CBD and will avoid adverse health effects on occupiers of residential units, it will restrict the ability of creating a truly mixed use environment in the CBD as is directed in non-statutory Council strategies	Overall this option is not the recommended option. While the establishment of an Entertainment Precinct would provide an area for high noise generating night time activities to locate / operate without the threat of conflict with noise sensitive residential activities, it is considered that it would restrict the ability of creating a truly mixed use environment in the CBD as is directed in non-statutory Council strategies.	Overall this option is the recommended option as it represents the most efficient and effective way to achieve the intent of the proposed objectives. The sound insulation requirements will uphold what is required to achieve acceptable levels of noise required to avoid sleep disturbance in residential units. Furthermore the proposed provisions will allow high noise generating activities to occur at night, particularly on Friday and Saturday nights, with a decreased likelihood of noise complaints from residential activities.	Overall this option is not considered to be a viable option as an education and publicity program will require significant Council investment without any guarantee of delivering any tangible contribution to achieving the proposed objectives.

TABLE 8 – OPTIONS FOR NOISE SENSITIVE ACTIVITIES NEAR HIGH / MODERATE TRAFFIC LEVELS

TABLE 8 – OPTIONS FOR NOISE SENSITIVE ACTIVITIES NEAR HIGH / MODERATE TRAFFIC LEVELS					
		Option 1- Status Quo	Option 2- Prohibit Noise Sensitive Activities	Option 3- MD Recommendations	Option 4 – Education and Publicity
		<i>maintain the current approach whereby there are no insulation requirements for noise sensitive buildings adjacent to roads that experience moderate – high traffic volumes.</i>	<i>include new provisions totally prohibiting new noise sensitive activities within 80 metres from high noise routes and 40 metres from any moderate noise routes.</i>	<i>In accordance with the recommendations of the Marshall Day Report require new noise sensitive activities constructed within 80 metres of any high noise route and 40 metres of any moderate noise route to achieve stated indoor sound levels.</i>	<i>Use education and publicity to encourage property owners to voluntarily insulate their new dwellings.</i>
Benefits	Environmental	1. There are no environmental benefits associated with this option	1. Same as Option 1 (1.).	1. Same as Option 1 (1.).	1. Same as Option 1 (1.).
	Economic	2. There will be no additional implementation costs to the Council, businesses and landowners.* 3. The main benefit of this option is that there will be no monetary costs to those noise sensitive activities that wish to locate next to high and moderate noise traffic routes.	2. Land transport activities / corridors will be able to perceivably operate without the fear of noise complaints from new noise sensitive activities. This makes it easier for them to operate, thus reducing potential consenting and compliance costs, and maintaining income and employment opportunities.	2. Appropriately insulated noise sensitive buildings / activities would result in a reduction in the likelihood of noise complaints against high noise transport corridors. This will allow roading corridors to operate without the threat of complaints, thus maintaining income and employment opportunities associated with the continued operation of the roading network. 3. Insulating a building to reduce noise produces small benefits in reducing heat loss and the cost of heating or cooling the building. 4. Additional economic benefits may be realised when the noise sensitive building is sold. It is expected that well insulated buildings will sell at a higher price than poorly insulated noise sensitive land uses in the same area, where sleep disturbance and a lower quality of life will have a negative impact on the value of the property.	2. As there is no statutory obligation with this option, there would be no monetary cost to those noise sensitive activities that wish to locate next to moderate, high noise routes, who chose not to include sound insulation. 3. Residents who chose to undertake noise insulation would experience similar benefits to those stated in option 3 (2.-4.)
	Social/Cultural	4. There are no social / cultural costs associated with this option.	3. Potential occupiers of noise sensitive activities will not be subject to noise levels that could affect their health and wellbeing from sleep disturbance, annoyance and loss of concentration.	5. Enhanced indoor acoustic privacy/amenity for new noise sensitive land uses so that sleep is not disturbed by high noise generating road corridors. Further health risks associated with exposure to high levels of noise are also reduced. 6. People living in well insulated homes tend to have fewer sick days and fewer trips to the doctor. The health risks associated with exposure to high levels of noise are also reduced.	4. Provides greater flexibility and choice for people wishing to establish noise sensitive activities Environment. People who don't think noise will be an issue will not be forced to pay for acoustic insulation where they may not be able to afford to or don't care.
Costs	Environmental	1. The noise created by traffic on high to moderate noise routes will continue to potentially affect the amenity of a number of people who live in close proximity to these existing transport routes.	1. There are already a significant number of noise sensitive activities located within proximity to existing moderate – high noise transport corridors. These would have existing use rights and therefore would remain unprotected 2. The prohibition of existing and future potential noise sensitive activities would significantly alter the amenity and character values in these areas.	1. Council's Roading Department has produced material and traffic count figures showing the location of existing roads in the district that will experience volumes in excess of 5,000 vehicle movements per day for moderate noise routes, and 10,000 movements per day for high noise routes. These routes generally tend to be in already developed areas with little room for further development within the setbacks proposed by the Marshall Day report. The Marshall Day recommendations would not apply to existing houses, which is logical considering the significant barriers that would be encountered if this was proposed. However the addition of habitable rooms to existing residential units would be required to be acoustically insulated. This would lead to inconsistency within these existing areas where only parts of residential units are insulated, thus reducing the overall potential health and amenity benefits expressed above.	1. Same as option 3 (1.)

Costs	Economic	<p>2. Residential development that is not adequately insulated against road or rail noise may be less attractive to buyers.</p>	<p>3. Loss of development opportunity for developers who would seek to establish noise sensitive activities in these areas and the positive economic effects associated with this.</p> <p>4. Land values in these areas may decrease as the types of activities that could locate in these areas would be minimal.</p>	<p>2. There would be a cost to developers / owners for complying with sound insulation requirements. The costs to achieve adequate noise insulation to meet the proposed requirements are estimated⁶ at 1-8% of the total cost of construction for a new building, depending on the method and the amount of noise insulation required to comply with established internal noise levels. Table D4 of NZS 6806 2010 (Acoustics – road traffic noise – new and altered roads) has indicative 2008 costs for noise barriers, acoustic insulation and ventilation systems for buildings exposed to high levels of noise. For instance Table D4 estimates that acoustic insulation (double glazing, floor ceiling and wall cladding/fill/lining door seals etc. costs approximately \$15,000 per unit and ventilation systems cost approximately \$10,000 per unit⁷.</p>	<p>2. To be effective, mass media campaigns must be noticed (using appropriate media channels and placement to reach the target group), perceived as persuasive (experienced by the target group as engaging, relevant and/or emotionally affecting) and remembered (seen often enough for them to be recalled and acted upon). Advertising research reveals that the effects of advertising linger over the days and weeks after broadcast ends, but are unlikely to linger over weeks to months. The costs of an effective campaign to encourage noise protection could therefore become very expensive because of the need to keep the issue in the eye of the target audience.</p> <p>3. Council would incur costs associated with producing educational material to encourage land owners to protect themselves from high noise.</p> <p>4. Building owners who wanted to insulate their buildings from high levels of noise would still need some professional advice on the level of noise that they might be exposed to and the methods to be used to ensure suitable indoor noise levels were achieved. Those that volunteered to provide noise reduction would expect to pay the same costs as those in option 3(2.)</p>			
	Social/Cultural	<p>3. The noise from high use roads would continue to potentially disturb the sleep and amenity of a large number people in close proximity to these transport routes. This has potential costs in lost productivity and absenteeism. Even during the daytime the noise may be annoying and interfere with the comfort and enjoyment of indoor activities. Students in poorly designed classrooms might struggle to hear the material presented by teachers/tutors.</p>	<p>5. Negative social effects associated with the relocation of noise sensitive activities already located in these areas. Could lead to a reduction of services (such as educational facilities) and a degradation of local communities.</p>	<p>3. The economic cost of insulating noise sensitive activities indicated above could discourage people from purchasing / establishing noise sensitive activities in these areas.</p> <p>4. The economic cost could also create equity concerns, whereby people from lower socio-economic demographics would be priced out of operating noise sensitive activities in these areas.</p> <p>5. Council's Roading Department and Monitoring and Compliance team have noted that there have been no recorded complaints around any of the District's roads that experience traffic volumes in excess of 5,000 for moderate noise routes, and 10,000 for high noise routes. This implies that property owners / residents of existing residential units within the proposed setbacks accept a higher level of noise / reduced level of amenity as part of living next to a busy road, or alternatively move out of the area. As such the MD recommendations do not appear to align with any apparent issues being expressed by residents living next to roads producing moderate – high noise levels.</p>	<p>5. This option is potentially not effective in protecting the sleep and indoor amenity of noise sensitive activities and does not mitigate the health effect costs arising from exposure to high levels of noise.</p>			
Efficiency & Effectiveness	<p>Effectiveness: maintaining the status quo is considered moderate for achieving the proposed objectives and addressing the underlying issues associated with noise from moderate – high noise routes. While noise sensitive activities would continue to be subject to road noise, it is noted that there are no recorded complaints from residents regarding noise from the normal operation of busy existing roads to justify a measurable reverse sensitivity effect. Furthermore the majority of areas within 40-80 metres of identified roads experiencing traffic levels in excess of 5000 movements per day are already developed. This coupled with an inability to acoustically insulate existing buildings, and the financial cost of acoustic insulation will result in ad hoc acoustic insulation, and therefore make the status quo more effective than options 3 and 4.</p> <p>Efficiency: the efficiency of maintaining the status quo is considered moderate when compared to the efficiency of the other alternative options. Ultimately the costs of the other options outweigh the potential benefits.</p>		<p>Effectiveness: the effectiveness for this option is considered low for achieving the proposed objectives. While prohibiting residential units will enable the continuing operation of land transport corridors and will avoid adverse health effects on occupiers / users of noise sensitive activities, it may affect land values and fundamentally alter the amenity and character of a number of areas. Furthermore it would not address existing noise sensitive activities within these transport corridors which would have existing use rights.</p> <p>Efficiency: the efficiency of this option is considered low as the costs far outweigh the potential benefits.</p>		<p>Effectiveness: it is considered that the effectiveness of this option is moderate as it will achieve a reasonable level of noise in new noise sensitive activities located adjacent to moderate – high noise roading corridors but will do nothing to address the potential amenity and noise issues in existing noise sensitive activities. Furthermore there would be little gain in terms of reverse sensitivity as the majority of noise sensitive activities within the specified setbacks from moderate and high noise routes would remain unprotected.</p> <p>Efficiency: the efficiency of this option is considered low. While there will be the potential benefit of protecting new noise sensitive activities from moderate – high noise traffic corridors, the economic cost of achieving proposed sound insulation requirements coupled with the already established nature of many of these areas and the lack of complaints from existing residents mean that the costs outweigh the potential benefits.</p>		<p>Effectiveness: the effectiveness for this option is considered low for achieving the proposed objectives. As discussed previously, it would take large investment to ensure the success of an education and publicity campaign for encouraging volunteer noise insulation with no guarantee of results. This will in turn perpetuate potential reverse sensitivity issues and potential health and safety effects on people currently or thinking of living adjacent to moderate / high noise routes.</p> <p>Efficiency: The efficiency of this option is estimated to be low as education/publicity may have limited benefits and the health and amenity costs to people in noise sensitive land uses may be very high. The potential costs to land transport operations are also believed to outweigh the benefits of this proposal.</p>	

⁶ based on research of other Council's information including " Auckland Council's 2.43 land transport noise – section 32 evaluation for the Proposed Auckland Unitary Plan

⁷ These estimated costs do not include ongoing maintenance costs.

Risk of Acting	N/A – Maintaining the status quo implies no action.	There is a moderate risk associated with adopting this option. While health and safety concerns would diminish, there is a risk that it would undermine land values and fundamentally alter the amenity and character of a number of areas.	There is considered to be a moderate risk associated with adopting this option. For existing buildings there are no proposed requirements to meet the new standards and consequently no requirement to retrofit existing bedrooms, sleeping areas and other habitable rooms or classrooms with insulation to decrease land transport noise. These land uses will continue to be subject to high levels of noise unless the building owner takes some action to reduce indoor noise levels or the infrastructure owner takes some action to reduce the noise affecting those properties.	There is considered to be a high risk associated with adopting this option as it may not adequately address the environmental, economic and social risks associated with noise sensitive activities being exposed to high levels of noise in adjacent to moderate / high noise routes.
Risk of Not Acting	The risk of not acting is moderate that noise levels from moderate to high noise routes will continue to impact on the amenity and health and safety of noise sensitive activities in the vicinity.			
Overall	Overall maintaining the status quo is considered the most appropriate option . This conclusion is drawn from comparison with the other options identified. While noise sensitive activities would continue to be subject to road noise, it is noted that there are no recorded complaints from residents regarding noise from the normal operation of existing busy roads to justify a potential reverse sensitivity effect. Furthermore the majority of areas within 40-80 metres of identified roads experiencing traffic levels in excess of 5000 movements per day are already developed. This coupled with an inability to acoustically insulate existing buildings, and the financial cost of acoustic insulation will result in ad hoc uptake in acoustic insulation, and therefore make the status quo more appropriate than the other options identified.	Overall prohibiting noise sensitive activities in these areas is not considered a viable option. While prohibiting residential units will enable the continuing operation of land transport corridors and will avoid adverse health effects on occupiers / users of noise sensitive activities, it will likely affect land values and fundamentally alter the amenity and character of a number of areas.	Overall this option is not considered a viable option. This option would result in gains in reasonable levels of noise for new noise sensitive activities, however on balance this is offset by the inability to retrofit existing noise sensitive activities, the cost to landowners and the fact that there is no correlation with complaints from existing owners of noise sensitive activities.	Overall this option is not considered to be a viable option as an education and publicity program will require significant Council investment without any guarantee of delivering any tangible contribution to achieving the proposed objectives.

Appendix B – Proposed Plan Change 110 provisions

Appendix C – Changes to Existing Noise & Vibration Provisions in the Operative District Plan

Appendix D - Meaning of Words: Changes / Alterations to existing definitions

Blue = Additions

Red = Deletions

Italics = Comments from Marshall Day Report

Air Noise Boundary

Airnoise Boundary defines the area around Whangarei Airport within which the 24 hour daily aircraft noise exposure will be sufficiently high as to require appropriate landuse controls or other measures to avoid, remedy or mitigate any adverse effect on the environment, including effects on community health and amenity values, whilst recognising the need to operate an airport efficiently. The average night-weighted sound exposure over a 24- hour period at the Airnoise Boundary shall not exceed 65Ldn. The Airnoise Boundary shall be established in accordance with NZS6805:1992

Notes for changes [not for inclusion within final plan]

1) Remove reference to pasques (Pa2s). It is the Ldn level that is most meaningful. While pasques are referred to in NZS6802:1992, this metric is not in general use in NZ and can be removed for simplicity.

2) Remove “current or future”. Airnoise boundaries are generally based on a forecast level of use at some future time. It is not necessary to repeat this from the standard verbatim.

3) Remove the requirement to average over 3 months and replace with reference to the current standard.

Bird Scaring Device

means a gas gun, avian distress alarm, firearm or other such device used primarily for the purposes of bird scaring.

Day

means the period 0700 to 2200 hours unless specified otherwise.

High noise area

means an area where the average background sound level (LA90) is greater than 45 dB LA90 between 0630 and 2130 hours; or greater than or equal to 35 dB LA90 between 2130 and 0630 hours.

Notes for changes [not for inclusion within final plan]

the definitions in Chapter 64 of the plan for high and low noise areas do not correlate well in that “low noise areas” are those with daytime noise levels below 45 dB LA90 whereas “high noise areas” are those with noise levels above 50 dB LA90. Areas with noise levels of between 45 and 50 dB LA90 are not defined. This approach fixes this issue by reducing the threshold to become a “high noise area”.

L_{Aeq} (Time Averaged Sound Pressure Level)

means the time-averaged, A-weighted sound level measured in decibels (dB). L_{AFmax} (Maximum Sound Level)

means the maximum, A-frequency-weighted, fast-time-weighted sound level, in decibels (dB), in a given measurement period.

L_{dn} (Day/Night Level)

means the day-night sound level which is calculated from the 24 hour LAeq with a 10 dB penalty applied to the night-time (2200-0700 hours) LAeq to account for potentially increased annoyance during this time. Low noise area

is an area where the average background sound level (L_{A90}) is less than or equal to 45 dB L_{A90} between 0630 and 2130 hours; or less than or equal to 35 dB L_{A90} between 2130 and 0630 hours.

Notes for changes [not for inclusion within final plan]

the definitions in Chapter 64 of the plan for high and low noise areas do not correlate well in that “low noise areas” are those with daytime noise levels below 45 dB LA90 whereas “high noise areas” are those with

noise levels above 50 dB LA90. Areas with noise levels of between 45 and 50 dB LA90 are not defined. This approach fixes this issue by reducing the threshold to become a “high noise area”.

Night

means the period 2200 to 0700 hours unless specified otherwise.

Noise Sensitive Activities

means those activities that involve habitation of people within which concentration (of thoughts) is required and includes, residential units, residential institutions, marae, hospitals, health care facilities and education facilities, excluding airport staff and aviation training facilities or aero clubs (other than airport staff training facilities).

Notional Boundary

means a line 20 metres from the facade of any noise sensitive activity, or the legal boundary, where this is closer to the noise sensitive activity..

Outer Control Boundary

defines an area outside the Air Noise Boundary within which there shall be no further incompatible land uses. The predicted 3 month average night-weighted sound exposure at or outside, the outer control boundary shall not exceed 55 dB L_{dn}.

Recognised Acoustician

means a recognised member of the Acoustical Society of New Zealand or equivalent as determined at Whangarei District Council’s discretion.

Visitor Accommodation

means short stay accommodation such as short stay apartments, hotels, motels, hostels or boarding houses.

Wind Turbine

means a wind turbine used to extract kinetic energy from the wind and having a swept area of greater than 200m².