

Wairoa District Council



EARTHQUAKE-PRONE BUILDINGS POLICY



EARTHQUAKE-PRONE BUILDING POLICY**Required under S.131 of the Building Act 2004**

The Territorial Authority must adopt a policy on earthquake-prone buildings within 18 months after commencement of this section.

Review of policy under S.132 of the Building Act 2004

Policy must be reviewed within 5 years of adoption and then at intervals of not more than 5 years.

Original Policy

11 April 2006 - Council adopts draft amended policy and approves policy for release for public consultation

12 May 2006 - Submissions closed -No submissions received

25 May 2006 Approved by Council

Amendment 1

26 July 2011 -1st Briefing Note/Report to Council - Advising Council of the five yearly review of policy

9 August 2011 -2nd Report to Council –Determination of Approach – Council endorsed Active Approach

13 September 2011 - 3rd Report to Council —Council adopts draft amended policy and approves policy for release for public consultation

19 September 2011 Public consultation commences

20 October 2011 Submissions close

8 November 2011 Hearings/Deliberations by Council

8 November 2011 Approved by Council

Due for Review

Before 8 November 2016

CONTENTS - POLICY ON EARTHQUAKE-PRONE BUILDINGS

1. INTRODUCTION AND BACKGROUND
 - 1.1 Introduction
 - 1.2 Background
 2. DEFINITIONS
 3. POLICY OBJECTIVE
 4. POLICY PRINCIPLES
 5. OVERALL POLICY APPROACH
 6. POLICY PROCESS
 - 6.1 Identification of Earthquake-Prone Buildings
 - 6.2 Prioritisation and Categorisation
 - 6.3 Assessment Criteria
 - 6.4 Taking Action taken on Earthquake-Prone Buildings
 - 6.5 Serving Notice to Strengthen Buildings
 - 6.6 Maximum Timeframes for Strengthening
 - 6.7 Required level of Structural Improvement/ Strengthening
 7. INTERACTION BETWEEN THIS POLICY AND RELATED SECTIONS OF THE BUILDING ACT 2004
 - 7.1 Section 112: Alterations to Earthquake-prone Buildings
 - 7.2 Section 115: Change of Use
 8. RECORDING THE STATUS OF EARTHQUAKE-PRONE BUILDINGS AND ACCESS TO THIS INFORMATION
 9. HERITAGE BUILDINGS
 10. COUNCIL INFRASTRUCTURE/ BRIDGES
 11. ADOPTION AND REVIEW OF POLICY
- Appendices:**
- A OVERVIEW OF BUILDINGS NOT COMPLYING WITH CURRENT STANDARDS
 - B IMPORTANCE LEVELS FOR BUILDING TYPES
 - C RELEVANT SECTIONS OF THE BUILDING ACT 2004

Under Review

1 INTRODUCTION AND BACKGROUND

1.1 Introduction

Section 131 of the Building Act 2004 requires that Wairoa District Council adopt a policy on earthquake-prone buildings.

Section 132 of the Act requires the policy to be reviewed within five years of being adopted and then at five yearly intervals with any replacement or amendment being subject to the consultative procedures in the Local Government Act 2002.

This document sets out the policy adopted by Wairoa District Council (herein after referred to as the "Council") in accordance with the requirements of the Building Act 2004 (herein after referred to as the "Act"). The policy is required to state:

- Council's approach to performing its functions under the Act
- Council's priorities in performing those functions
- How the policy will apply to heritage buildings.

Council has noted the provisions of the Act, in regard to earthquake-prone buildings, reflect the governments' broader concern with the life safety of the public in buildings and, more particularly, the need to address life safety in earthquakes. The Act seeks to reduce the level of earthquake risk to the public over time and targets the most vulnerable buildings. Strengthening buildings to improve their ability to withstand earthquake shaking will involve costs to the Council, building owners and community generally.

1.2 Background

Wairoa is in a zone of relatively high seismicity. Standards New Zealand has issued a document defining hazard factors for locations across the country. Table 1 below puts the hazard factor for Wairoa in context:

Table 1: Earthquake hazard factors

| Location | Hazard Factor |
|----------------|--|
| Kaitaia | 0.13 (lowest level in New Zealand) |
| Auckland | 0.13 (lowest level in New Zealand) |
| Tokoroa | 0.21 (moderate level seismicity) |
| Christchurch | 0.22 (moderate level seismicity) |
| Gisborne | 0.36 (high level of seismicity) |
| Wairoa | 0.37 (high level of seismicity) |
| Wellington | 0.40 (high level of seismicity) |
| Hamner Springs | 0.55 (maximum level in New Zealand) |

Source: NZS 1170.5:2004 – information in brackets added for clarity

Buildings within the district comprise a range of types and ages reflecting slow development for well over 150 years. Building types include wooden, un-reinforced masonry and brick buildings. These generally do not meet current building codes as they were constructed using the practices of that particular period.

The 1931 Hawke's Bay Earthquake caused damage to buildings in the Central Business District and the 1932 earthquake destroyed the main town bridge. The buildings that survived that earthquake have been subject to many subsequent earthquakes with little apparent visible damage.

Buildings erected after the 1931 earthquake are likely to have been constructed under more strict building requirements. Refer Appendix A.

In 1976 more robust controls covering the earthquake safety of buildings were introduced in NZS 4203:1976 *General Structural Design and Design Loadings*. There is no record of Council or its predecessors pursuing a policy of actively identifying and strengthening earthquake-prone buildings.

2. DEFINITIONS

Earthquake-Prone:

Section 122 Meaning of Earthquake-prone Building

(1) A building is earthquake-prone for the purposes of this Act if, having regard to its condition and to the ground on which it is built, and because of its construction, the building—

(a) will have its ultimate capacity exceeded in a moderate earthquake (as defined in the regulations); and

(b) would be likely to collapse causing—

(i) injury or death to persons in the building or to persons on any other property; or

(ii) damage to any other property.

(2) Subsection (1) does not apply to a building that is used wholly or mainly for residential purposes unless the building—

(a) comprises 2 or more storeys; and

(b) contains 3 or more household units.

Moderate Earthquake:

For the purpose of Section 122 a moderate earthquake has the same meaning as Regulation 7 Building (Specified Systems, Change the Use, and Earthquake-prone Buildings) Regulations 2005.

“A moderate earthquake is an earthquake that would generate shaking at the site of the building that is of the same duration as, but that is one third as strong as, the earthquake shaking (determined by normal acceleration, velocity and displacement) that would be used to design a new building at the site.”

Buildings will need to be assessed to determine whether they are earthquake-prone. As a general guidance, **an earthquake-prone building will have strength that is 34% or less of the seismic loading standard NZS1170.5:2004.**

This definition is significantly more extensive and requires a higher level of structural performance for buildings than that provided by the Building Act 1991. It encompasses all buildings, not simply those constructed of unreinforced masonry or unreinforced concrete, though it exempts small residential buildings.

3. POLICY OBJECTIVE

- To ensure that Council appropriately discharges its responsibilities and statutory obligations under the Act with respect to earthquake-prone buildings in the Wairoa District.

- In doing so, strengthening work undertaken to comply with the Policy will reduce the potential for injury, loss of life, or damage to other property from the effects of a defined moderate earthquake. It will also reduce the potential social disruption and loss of productivity that may result from an earthquake.
- Council is committed to ensuring that the Wairoa District is a safe place in which to live and work.

4. POLICY PRINCIPLES

- All decisions and activity relating to earthquake-prone buildings should be guided by the provisions and principles contained in the Building Act, The Building Code, and any relevant standards.
- This Policy shall be consistent with the Community Outcomes set out in the Long Term Council Community Plan and contribute to establishing a **Safe and Secure Community, a Lifetime of Good Health and Wellbeing, and an Environment that is Appreciated, Protected and Sustained for Future Generations**. This policy contributes by protecting people and property from earthquake-prone buildings by requiring these buildings to be made safe.
- Council will consult with its communities in developing and reviewing this Policy and endeavour to strike a balance between the need to address earthquake risk while taking into account the social and economic implications of implementing the policy. Council believes the number of potential earthquake-prone buildings is limited. However, the cost of structural improvements may have a significant impact on some building owners.
- Action under the Policy shall focus on dialogue between building owners and Council. Where possible, a course of action and timeframe that is mutually agreed will be sought. Formal action should only be taken when further dialogue cannot be achieved or will not advance the situation and there is a clear need for further action to ensure community wellbeing.
- It is the responsibility of building owners to ensure that buildings comply with the requirements of the Act. Owners of properties deemed to be earthquake-prone, shall bear all costs related to restoring the building to a condition that complies with the requirements of the Act and the current Building Code. Costs shall include those incurred by Council to assess and enforce compliance.

5. OVERALL POLICY APPROACH

Council's Policy reflects Council's determination to reduce the earthquake risk over time in a way that is acceptable in social and economic terms to its ratepayers and citizens and recognises the resources presently available to the Council.

Under an active policy Council would drive the process by determining priorities and time frames.

This active approach includes:

- a programme to identify buildings with the potential to be earthquake-prone in a set time frame and to prioritise and categorise these buildings

- require owners with buildings identified as having the potential to be earthquake-prone to commission engineers reports, Initial Evaluation Process (IEP) on the earthquake readiness of their buildings within a specified time frame
- require owners to undertake any necessary upgrade work within a further specified time frame

6. POLICY PROCESS

6.1 Identification of Earthquake-prone Buildings

Wairoa District Council will:

- Undertake a relatively simple desktop examination of the Council's files and information to determine which buildings have the potential to be earthquake-prone. Building age and construction materials will be key indicators in this preliminary survey (refer Appendix A). Buildings that will **not** require further assessment include:
 - Buildings designed or strengthened to the 1976 NZS4203 and subsequent codes, unless they have a critical weakness
 - Isolated structures unlikely to collapse causing injury, death or damage to other property (refer S122(1)(b) of the Act
 - Buildings used wholly or mainly for residential purposes, unless the building comprises 2 or more storeys and contains 3 or more household units (refer S122(2) of the Act
 - Council and New Zealand Transport Agency infrastructure covered by an Roding Asset Management Plan
- Follow this with a brief exterior visual inspection of each identified building where necessary. Observations of the exterior of the building are to be documented along with photographic records, the vulnerable features of the building, the materials, style, construction, condition etc and the ground upon which the building is constructed.
- Assemble a register, from this broad assessment, of buildings that are potentially earthquake-prone under the Act. Note this assessment has been on-going since 2007 and buildings will be added to the list as they become apparent.
- Record information, on relevant property files, of the potential to be earthquake-prone awaiting further IEP assessment by a chartered professional engineer.
- Contact owners of these "potential to be earthquake-prone buildings" and invite them, within a limited timeframe, to meet with and/or obtain further details from Council on future requirements.
- Require those owners with buildings identified as having the potential to be earthquake-prone to commission engineer's reports, Initial Evaluation Process (herein after referred to as "IEP") on the earthquake readiness of their buildings within a specified time frame (as per Table 2). This evaluation is to be completed, using an agreed methodology and mutually agreed structural engineer. This assessment to be supplied to Council by a stipulated date. Failing delivery of the required assessment, Council will engage an

engineer to carry out the work on their behalf and on-cost charges to the owner for the service.

- On receipt of IEPs Council will review the IEP:
 - If the IEP has a score of less than 34% and/or where there is other evidence, advising that the building is earthquake-prone Council will follow set process in Section 6.4 Taking Action on Earthquake-prone buildings.
 - Where Council is satisfied that the building is not earthquake-prone, the recorded status of the building will be changed and the owner will be advised of the Council's decision.

6.2 Prioritisation and Categorisation

Council has prioritised both the identification and the requirement to strengthen or demolish buildings as follows.

Figures in Table 2 indicate the latest date for identification and notification by the Council and the maximum time (in brackets) for strengthening or demolition by the owner.

Specific times will be assigned for action according to the assessment of structural performance and the nature of concerns.

| Table 2 | | Building Category and Proposed Action Timeframes | |
|-------------------|---|---|--|
| Building Category | Importance Level Based on AS/NZS 1170.0 | Date of Identification and (Subsequent Action) | |
| A | Importance Level 4: Structures with special post-disaster functions as defined in AS/NZS1170.0:2002 | November 2012 – 1 Year (15 Years) | |
| B | Importance Level 3: Structures that as a whole may contain people in crowds or contents of high value to the community or pose risks to people in crowds as defined in AS/NZS1170.0:2002 | November 2013 – 2 Years (20 Years) | |
| B | Heritage buildings identified in District Plan | November 2013 – 2 Years (20 Years) | |
| C | Importance Level of less than 3 as defined in AS/NZS1170.0:2002 | November 2014 – 3 Years (30 Years) | |

Prioritisation is determined by:

- *Importance Level* – whether a building has a post-disaster function, serves a specific community purpose, or is likely to cause injury or damage to other property (refer Appendix B).
- *Building Age and Condition*- the likely structural performance of a building based on the structural code to which the building was designed or strengthened (refer Appendix A).

Once each priority/category has been reviewed and the earthquake-prone building within it identified, the process of liaising with owners and serving notice on them will commence. Identification of buildings in each category will proceed according to the priorities identified above.

6.3 Assessment Criteria

All buildings will be assessed based on information obtained by using the NZSEE Initial Evaluation Method Process.

Assessments of potentially earthquake-prone buildings are to be undertaken by an appropriately qualified professional using the New Zealand Society of Engineers document "Recommendations for the Assessment and Improvement of the Structural Performance of Buildings in Earthquakes". These recommendations are designed to be used in conjunction with AS/NZS 1170-Structural Design Actions, NZS 3101-The design of Concrete Structures, NZS 3404-Steel Structures Standard and other materials standards.

For practical purposes earthquake-prone buildings will be defined as those that, when subject to moderate earthquake shaking, do not meet or exceed the criteria for ultimate limit state as defined in the loadings and materials standards for new buildings i.e. buildings with a score of less than 34% are considered to fall within the definition of an earthquake-prone building.

6.4 Taking Action on earthquake-prone buildings

When earthquake-prone buildings have been identified Council will:

- Record the decision and place said information on the property file and update the earthquake-prone register as required.
- Write to owners of buildings with a standard IEP score of less than 34% and/or where there is other evidence, advising that their building is potentially earthquake-prone. The letter will also note any heritage listing and the consequent need for a Management Plan to preserve the heritage fabric of the buildings. The letter will request the building owners to contact Council within a set timeframe, to discuss details of any further requirements with regard to the building. The time allowed will be based on the estimated risk.
- Require those building owners identified by the IEP to have a detailed assessment on buildings identified as earthquake-prone in the initial evaluation, unless otherwise agreed in discussion following the initial evaluation. Evaluations and assessments of buildings, other than the preliminary desk top investigation or primary visual inspection must be undertaken by a chartered professional engineer with experience in structural engineering.
- Building owners will be requested to reduce or remove any danger associated with their building. At this point consideration must be given as to whether surrounding property owners need to be advised of potential risk from an earthquake-prone building.

It may be necessary for building owners to make application for a building consent should remedial work be necessary.

Council will endeavour to liaise with owners prior to taking any action under the Act. Where required, Council will:

- Before exercising its powers under Section 124, seek, within a defined timeframe, to discuss options for owners, with a view to obtaining from the owner a mutually acceptable approach for dealing with the danger, leading to a formal proposal from owners for strengthening or demolishing the building.
- In the event that discussions do not yield a mutually acceptable approach and proposal, or once deadlines have passed, Council will invoke its powers by serving formal notice on owners of earthquake-prone buildings in accordance with the Act requiring them reduce or remove the danger by strengthening or demolishing the buildings.

6.5 Serving Notice to Strengthen Buildings

Council will serve formal notice under Section 124 of the Act requiring a building consent to be obtained and the structural strengthening work to be undertaken where, either:

- Council is still satisfied that the building is earthquake-prone, or
- Where a building owner has failed to respond to Council's letter and the Council is satisfied from the IEP process the building is earthquake-prone

The procedures for serving notice are set out in Section 125 of the Act (Refer Appendix B). The notice should specify the work that needs to be carried out and the time frame in which it is to be completed.

6.6 Maximum Timeframes for Strengthening

The maximum timeframes for carrying out strengthening or demolition work on a building that has been assessed as earthquake prone are as follows in Table3.

| Building Category | IMPORTANCE LEVEL Based on AS/NZS 1170.0 (Refer Appendix B) | Maximum Date of Subsequent Action |
|--------------------------|---|--|
| A | Importance Level 4: Structures with special post-disaster functions as defined in AS/NZS1170.0:2002 | November 2026 (15 Years) |
| B | Importance Level 3: Structures that as a whole may contain people in crowds or contents of high value to the community or pose risks to people in crowds as defined in AS/NZS1170.0:2002 | November 2031 (20 Years) |
| B | Heritage buildings identified in District Plan | November 2031 (20 Years) |
| C | Importance Level of less than 3 as defined in AS/NZS1170.0:2002 | November 2041 (30 Years) |

Times required for strengthening or demolition commence on the date of issue of formal notice or from receipt of formal proposal from owners for strengthening or demolishing the building.

6.7 Required level of Structural Improvement/Strengthening

Council requires buildings, or parts of buildings, identified as earthquake-prone to be strengthened to at least 2/3rds (i.e. 67%) of the new building standard NZS1170.5:2004. In accordance with the recommendations of the NZSEE Council considers this to be an appropriate level for the requirement to reduce or remove the danger.

7 INTERACTION BETWEEN THIS POLICY AND RELATED SECTIONS OF THE BUILDING ACT 2004

Any work that alters the structural performance of a building requires a building consent under the Act.

7.1 Section 112: Alterations to existing building

Whenever a building consent application is received for significant upgrading or alteration of a building that is or could be earthquake-prone then, Council will not issue a building consent until the owner has engaged an appropriate expert to investigate and assess the structural integrity of the building. Council must be satisfied that the building is not earthquake-prone and that the building work will not detrimentally affect the building's compliance with the Building Code. If the building is shown to be earthquake-prone, then Council will require that the building be strengthened to comply as nearly as reasonably practicable with the provisions of the Building Code.

7.2 Section 115: Change of Use

Whenever a building consent application or formal notification is received for change of use of a building that is or could be earthquake-prone, then, it will be a requirement of the owner to obtain a detailed assessment of the earthquake performance of the building to determine whether or not it is an earthquake-prone building in its existing condition.

If the building is shown to be earthquake-prone then the Council will require that the building be strengthened to comply as nearly as is reasonably practicable with every provision of the Building Code that relates to structural performance to that of a new building as is required by Section 115(b)(i)(A). (In this instance the requirement for earthquake-prone buildings would be the same as that for non-earthquake-prone buildings).

8 RECORDING THE STATUS OF AN EARTHQUAKE-PRONE BUILDING AND ACCESS TO THIS INFORMATION

Council will keep a register of all EPB's noting the status of requirements for improvement, the results of improvements as applicable, any notices issued and any agreements with building owners concerning structural improvements to buildings.

Any buildings identified as being earthquake-prone or having potential to be earthquake-prone will be recorded on the property file.

All information, including correspondence and notices relating to current earthquake-prone buildings will be filed on the relevant property file.

This information will be included on any Land Information Memorandum (LIM) issued in respect of that property. This information is to be also placed on a Project Information Memorandum (PIM) where it affects any proposed building work.

9. HERITAGE BUILDINGS

Heritage buildings play an important role in the social and cultural fabric of New Zealand society, but their nature and age mean that even simple rectification requirements may present design and cost challenges for owners.

Council believes it is important that heritage buildings within the District do not pose a risk to the safety of occupants or other buildings and have a good chance of surviving a major earthquake. For the purpose of this policy heritage buildings include, but may not be limited to, buildings on the NZHPT register and buildings on the District Plan register.

Heritage buildings will be assessed in the same way as other potentially earthquake-prone buildings and discussions will be held with owners and the Historic Places Trust and other statutory/interested parties to identify a mutually acceptable way forward. Council does not wish to see the intrinsic heritage values of these buildings adversely affected by structural improvements measures and a lesser level of strengthening may be appropriate where strengthening elements would destroy or mask the heritage characteristics of the buildings.

Council may also provide relatively longer timeframes for the building to be strengthened. In particular, when deciding on an appropriate timeframe for building work to be completed and certified, principles in Section 4(2)(d) and 4(2)(l) of the Act will be emphasised.

Council will exercise their judgment concerning the nature and importance of the building and the level of risk it poses to the community. However, the provisions of the Act will continue to apply to these buildings.

Should a notice be served on a heritage building, a copy of the notice is to be sent to the Historic Places Trust.

10 COUNCIL INFRASTRUCTURE /BRIDGES

For the purpose of this policy, bridges, except those identified as having a special post disaster recovery function, are exempt if they are covered by an asset management plan, this includes Council bridges as well as those administered by New Zealand Transport Agency. Bridges deemed to have a special post disaster recovery function are as per Appendix D.

The management of Council's infrastructure, including roads, bridges, water reservoirs etc are also relevant to this Policy. Currently Asset Management Plans set out how Council will meet its obligations under the Civil Defence and Emergency Management Act 2002, which places a duty on a local authority to plan and provide for civil defence emergency management within a district. It must also ensure that it is able to function, even at a reduced level, after an emergency such as an earthquake. All works carried out on infrastructure currently comply with the risk analysis, best practice and relevant standards as set out in the Asset Management Plan.

11. ADOPTION AND REVIEW OF POLICY

In developing and adopting earthquake-prone building policy, Council has followed consultative procedure set out in Section 83 of the Local Government Act 2002. This policy may be amended or replaced only in accordance with the special consultative procedure.

As soon as practicable after this policy is adopted Council must provide a copy to the Chief Executive of the Department of Building and Housing (DBH). When reviewed or amended Council may be required to provide a copy to DBH and this is to be ascertained at the time.

Section 132 of the Act requires the policy to be reviewed within five years of being adopted and then at five yearly intervals with any replacement or amendment being subject to the consultative procedures in the Local Government Act 2002. This policy does not cease to have effect because it is due for review or being reviewed.

Under Review

Appendix A:

Overview of Buildings not complying with Current Standards

Suggested Changes to the Earthquake-Prone Provisions of the Building Act: March 1998 Background Paper

History

The relevant history of the development of the form of commercial buildings and design standards for earthquake in New Zealand is summarised as follows:

Before 1935:

- Commercial buildings were generally constructed of unreinforced masonry;
- Little or no consideration of earthquake effects.

From 1935 until 1965:

- Buildings became increasingly larger (higher);
- Lateral strength provided to a uniform load level;
- Inadequate detailing to enable ductile response.

From 1965 until 1976:

- Buildings were designed for variable lateral load according to seismic zone;
- Design lateral load did not vary with building type and ductility;
- No mandatory detailing to enable ductile response;
- Only general requirements in the terms of the regularity of structural configuration.

Since 1976:

- Buildings have been designed for variable lateral load according to seismic zone;
- Design lateral load varied according to building type and ductility;
- Appropriate detailing required to achieve assumed ductility;
- Guidance as to acceptable structural configurations.

The loadings standard published in 1976 therefore represented a significant improvement in seismic design standards. There were similar advances in seismic codes in California in the mid-1970's. There have been only minor refinements of the fundamental concepts since and so 1976 is referred to as the onset of "modern" or "current" standards for earthquake design.

It must be acknowledged that the principles behind the development of these current standards were applied to a number of buildings designed from the late 1960's and these are likely to perform appreciably better than others of this era.

APPENDIX B

AS/NZS1170.0:2002 TABLE 3.2
 IMPORTANCE LEVELS FOR BUILDING TYPES – NEW ZEALAND STRUCTURES

| | Importance Level | Comment | Examples |
|---|------------------|--|---|
| Category C 30 years to upgrade or demolish | 1 | Structures presenting a low degree of hazard to life and other property | <ul style="list-style-type: none"> Structures with a total floor area of < 30m² Farm buildings, isolated structures, towers in rural situations Fences, masts, walls, in-ground swimming pools |
| | 2 | Normal structures and structures not in other importance levels | <ul style="list-style-type: none"> Buildings not included in importance levels 1,3 or 4 Single family dwellings Car parking buildings |
| Category B 20 years to upgrade or demolish | 3 | Structures that as a whole may contain people in crowds or contents of high value to the community or pose risks to people in crowds | Buildings and facilities as follows: (a) Where more than 300 people can congregate in one area (b) Day care facilities with a capacity greater than 150 (c) Primary school or secondary school facilities with a capacity greater than 250 (d) Colleges or adult education facilities with a capacity greater than 500 (e) Health care facilities with a capacity of 50 or more resident patients but not having surgery or emergency treatment facilities (f) Airport terminals, principal railway stations with a capacity greater than 250 (g) Correctional institutions (h) Multi-occupancy residential, commercial (including shops), industrial, office and retailing buildings designed to accommodate more than 5000 people and with a gross area greater than 10 000 m ² (i) Public assembly buildings, theatres and cinemas of greater than 1000m ² Emergency medical and other emergency facilities not designated as post-disaster. Power-generating facilities, water treatment facilities and other public utilities not designated as post-disaster. Buildings and facilities not designated as post-disaster containing hazardous materials capable of causing hazardous conditions that do not extend beyond the property boundaries |
| | 4 | Structures with special post-disaster functions | Buildings and facilities designated as essential facilities. Buildings and facilities with special post-disaster function. Medical emergency or surgical facilities. Emergency service facilities such as fire, police stations and emergency vehicles garages. Utilities or emergency supplies or installations required as backup for buildings and facilities of Importance Level 4. Designated emergency shelters, designated emergency centres and ancillary facilities. Buildings and facilities containing hazardous materials capable of causing hazardous conditions that extend beyond the property boundaries. |
| Category A 15 years to upgrade or demolish | 5 | Special structures (outside the scope of the Standard) | <ul style="list-style-type: none"> Structures that have special functions or whose failure poses catastrophic risk to a large area (e.g. 100km²) or a large number of people (e.g.100,000) Dams, extreme hazard facilities |

APPENDIX C:**Relevant Sections of the Building Act 2004****Part 1, Subpart 1, 3 Purpose**

The purpose of this Act is to provide for the regulation of building work, the establishment of a licensing regime for building practitioners, and the setting of performance standards for buildings, to ensure that—

- (a) people who use buildings can do so safely and without endangering their health; and*
- (b) buildings have attributes that contribute appropriately to the health, physical independence, and well-being of the people who use them; and*
- (c) people who use a building can escape from the building if it is on fire; and*
- (d) buildings are designed, constructed, and able to be used in ways that promote sustainable development.*

Part 1, Subpart 1, 4 Principles to be applied in performing functions or duties, or exercising powers, under this Act

(2) In achieving the purpose of this Act, a person to whom this section applies must take into account the following principles that are relevant to the performance of functions or duties imposed, or the exercise of powers conferred, on that person by this Act:

- (d) the importance of recognising any special traditional and cultural aspects of the intended use of a building:*
 - (l) the need to facilitate the preservation of buildings of significant cultural, historical, or heritage value:*

Section 12(2)(j)

Role of building consent authority and territorial authority—

- a. Under this Act, a territorial authority—*
 - (j) performs functions relating to dangerous, earthquake prone, or insanitary buildings;*

Section 121(1)

“A building is dangerous for the purposes of this Act if, -

- (a) In the ordinary course of events (excluding the occurrence of an earthquake), the building is likely to cause-*
 - (i) Injury or death (whether by collapse or otherwise) to any persons in it or to persons on other property; or*
 - (ii) Damage to another property; or*
- (b) In the event of a fire, injury or death to any person in the building or to persons on other property is likely because of fire hazard or the occupancy of the building.”*

Section 124

Powers of territorial authorities in respect of dangerous, earthquake-prone, or insanitary buildings—

- (1) If a territorial authority is satisfied that a building is dangerous, earthquake prone, or insanitary, the territorial authority may—*

- (a) *put up a hoarding or fence to prevent people from approaching the building nearer than is safe:*
 - (b) *attach in a prominent place on, or adjacent to, the building a notice that warns people not to approach the building:*
 - (c) *give written notice requiring work to be carried out on the building, within a time stated in the notice (which must not be less than 10 days after the notice is given under Section 125), to—*
 - (i) *reduce or remove the danger; or*
 - (ii) *prevent the building from remaining insanitary.*
- (4) *Any person who fails to comply with a notice given under Subsection (1)(c) is committing an offence and is liable to a fine not exceeding \$200,000.*

Section 125

Requirements for notice given under Section 124—

(1) *A notice given under Section 124(1)(c) must—*

- (a) *be fixed to the building concerned; and*
 - (b) *state whether the owner of the building must obtain a building consent in order to carry out the work required by the notice.*
- (2) *A copy of the notice must be given to—*
- (a) *the owner of the building; and*
 - (b) *an occupier of the building; and*
 - (c) *every person who has an interest in the land on which the building is situated under a mortgage or other encumbrance registered under the Land Transfer Act 1952; and*
 - (d) *every person claiming an interest in the land that is protected by a caveat lodged and in force under Section 137 of the Land Transfer Act 1952; and*
 - (e) *any statutory authority, if the land or building has been classified; and*
 - (f) *the New Zealand Historic Places Trust, if the building is a heritage building.*
- (3) *However, the notice, if fixed on the building, is not invalid because a copy of it has not been given to any or all of the persons referred to in subsection (2).*

Section 126

Territorial authority may carry out work

- (1) *A territorial authority may apply to a District Court for an order authorising the territorial authority to carry out building work if any work required under a notice given by the territorial authority under section 124(1)© is not completed, or not proceeding with reasonable speed, within-*
- (a) *the time stated in the notice; or*
 - (b) *any further time that the territorial authority may allow.*
- (2) *Before the territorial authority applies to a District Court under subsection (1), the territorial authority must give the owner of the building not less than 10 days' written notice of its intention to do so.*
- (3) *If a territorial authority carries out the building work under the authority of an order made under subsection (1),-*
- (a) *the owner of the building is liable for the costs of the work; and*
 - (b) *the territorial authority may recover those costs from the owner; and*
 - (c) *the amount recoverable by the territorial authority becomes a charge on the land on which the work was carried out.*

Section 127

Building work includes demolition of a building Any work required or authorised to be done under section 124(1)(c) or section 126 may include the demolition of all or part of the building.

Section 128

Prohibition on using dangerous, earthquake-prone or insanitary building

- (1) *If a territorial authority has put up a hoarding or fence in relation to a building or attached a notice warning people not to approach a building under section 124(1), no person may—*
- (a) *use or occupy the building; or*
 - (b) *permit another person to use or occupy the building.*

Section 129

Measures to avoid immediate danger or to fix insanitary conditions—

- (1) *This Section applies if, because of the state of a building,—*
- (a) *immediate danger to the safety of people is likely in terms of Section 121 or Section 122 or Section 123; or*
 - (b) *immediate action is necessary to fix insanitary conditions.*
- (2) *The chief executive of a territorial authority may, by warrant issued under his or her signature, cause any action to be taken that is necessary in his or her judgment to—*
- (a) *remove that danger; or*
 - (b) *fix those insanitary conditions.*
- (3) *If the territorial authority takes action under sub Section (2),—*
- (a) *the owner of the building is liable for the costs of the action; and*
 - (b) *the territorial authority may recover those costs from the owner; and*
 - (c) *the amount recoverable by the territorial authority becomes a charge on the land on which the building is situated.*
- (4) *The chief executive of the territorial authority and the territorial authority are not under any liability arising from the issue, in good faith, of a warrant under sub Section (2).*

Section 130

Territorial authority must apply to District Court for confirmation of warrant

- (1) *If the chief executive of a territorial authority issues a warrant under section 129(2), the territorial authority, on completion of the action stated in the warrant, must apply to a District Court for confirmation of the warrant.*
- (2) *On hearing the application, the District Court may—*
- *(a) confirm the warrant without modification; or*
 - *(b) confirm the warrant subject to modification; or*
 - *(c) set the warrant aside.*
- (3) *Subsection (1) does not apply if—*
- *(a) the owner of the building concerned notifies the territorial authority that—*
 - *(i) the owner does not dispute the entry into the owner's land; and*
 - *(ii) confirmation of the warrant by a District Court is not required; and*

- o (b) the owner pays the costs referred to in section 129(3)(a).

Section 131

Territorial authority must adopt policy on dangerous, earthquake-prone, and insanitary buildings—

- (1) *A territorial authority must, within 18 months after the commencement of this Section, adopt a policy on dangerous, earthquake-prone, and insanitary buildings within its district.*
- (2) *The policy must state—*
 - (a) *the approach that the territorial authority will take in performing its functions under this Part; and*
 - (b) *the territorial authority's priorities in performing those functions; and*
 - (c) *how the policy will apply to heritage buildings.*

Section 132

Adoption and review of Policy

- (1) *A policy under section 131 must be adopted in accordance with the special consultative procedure in section 83 of the Local Government Act 2002.*
- (2) *A policy may be amended or replaced only in accordance with the special consultative procedure, and this section applies to that amendment or replacement.*
- (3) *A territorial authority must, as soon as practicable after adopting or amending a policy, provide a copy of the policy to the chief executive.*
- (4) *A territorial authority must complete a review of the policy within 5 years after the policy is adopted and then at intervals of not more than 5 years.*
- (5) *A policy does not cease to have an effect because it is due for review or being reviewed.*

**APPENDIX D
BRIDGES WITH SPECIAL POST DISASTER RECOVERY FUNCTIONS AS AT 30.08.2011**

Under Review

| BSN | SH | RS | Displacement | Region | name | Start_Location | NMA | ContractArea |
|------|----|-----|--------------|--------|--------------------------------|-------------------|--------|--------------|
| 4925 | 2 | 483 | 9.47 | 3 | TUNANUI BRIDGE | 6236154 / 2924728 | NAPIER | HB |
| 4935 | 2 | 483 | 10.53 | 3 | MANGAKAWA BRIDGE | 6235345 / 2924905 | NAPIER | HB |
| 8239 | 2 | 483 | 11.96 | 3 | MUDDY CREEK CULVERT | 6234353 / 2924109 | NAPIER | HB |
| 4970 | 2 | 497 | 0 | 3 | RAKAIPAKA BRIDGE | 6232550 / 2923305 | NAPIER | HB |
| 4971 | 2 | 497 | 1.09 | 3 | MANGPATIKI CULVERT | 6231948 / 2922416 | NAPIER | HB |
| 5008 | 2 | 497 | 3.67 | 3 | OMANA CULVERT | 6230231 / 2920871 | NAPIER | HB |
| 5008 | 2 | 497 | 3.76 | 3 | OMANA BRIDGE | 6230186 / 2920794 | NAPIER | HB |
| 5070 | 2 | 497 | 9.93 | 3 | TAHAENUI RIVER BRIDGE | 6229503 / 2915266 | NAPIER | HB |
| 5110 | 2 | 497 | 14.05 | 3 | OPOHO STREAM BRIDGE | 6229341 / 2911258 | NAPIER | HB |
| | 2 | 497 | 14.05 | 3 | OPOHO BRIDGE (EXTENSION) | 6229341 / 2911258 | NAPIER | HB |
| 5147 | 2 | 497 | 17.7 | 3 | TE RAMA RAMA CULVERT | 6230303 / 2908137 | NAPIER | HB |
| 5152 | 2 | 497 | 18.25 | 3 | TE ARA WAAREA CULVERT | 6230451 / 2907613 | NAPIER | HB |
| 5160 | 2 | 516 | 0 | 3 | WAIKATUKU BRIDGE | 6230574 / 2906949 | NAPIER | HB |
| 5189 | 2 | 516 | 2.86 | 3 | ROTONUI CULVERT | 6230664 / 2904374 | NAPIER | HB |
| 5200 | 2 | 516 | 3.98 | 3 | WHAKAKI (PRYDES DRAIN) CULVERT | 6230933 / 2903305 | NAPIER | HB |
| 5210 | 2 | 516 | 4.95 | 3 | WHAKAKI LAGOON CULVERT | 6231484 / 2902548 | NAPIER | HB |
| 5228 | 2 | 516 | 6.82 | 3 | TUHARA CULVERT | 6232050 / 2900790 | NAPIER | HB |
| 5298 | 2 | 516 | 13.8 | 3 | WAIATAI CULVERT | 6233057 / 2894546 | NAPIER | HB |
| 5317 | 2 | 516 | 15.75 | 3 | AWATERE NO 3 BRIDGE | 6232353 / 2893525 | NAPIER | HB |
| 5334 | 2 | 533 | 0.42 | 3 | WAIROA RIVER BRIDGE | 6232026 / 2892483 | NAPIER | HB |
| 5354 | 2 | 533 | 2.42 | 3 | TAWHARA CULVERT | 6231186 / 2890975 | NAPIER | HB |
| 5412 | 2 | 533 | 8.23 | 3 | THORPES BRIDGE | 6233835 / 2887759 | NAPIER | HB |
| 5435 | 2 | 533 | 10.48 | 3 | OHINEPAKA STREAM BRIDGE | 6234141 / 2885563 | NAPIER | HB |
| 5440 | 2 | 544 | 0 | 3 | OHINEPAKA OVERBRIDGE | 6234194 / 2885401 | NAPIER | HB |
| 5456 | 2 | 544 | 1.6 | 3 | TE MAIRE CULVERT | 6233562 / 2884037 | NAPIER | HB |
| 5481 | 2 | 544 | 4.04 | 3 | AWAHO CULVERT | 6231433 / 2883027 | NAPIER | HB |
| 5541 | 2 | 544 | 10.11 | 3 | WAIHUA RIVER BRIDGE | 6227089 / 2880428 | NAPIER | HB |
| 5676 | 2 | 562 | 5.62 | 3 | MANGATURANGA BRIDGE | 6226976 / 2869670 | NAPIER | HB |
| 5714 | 2 | 562 | 9.36 | 3 | MOHAKA RIVER BRIDGE | 6228356 / 2867341 | NAPIER | HB |
| 5741 | 2 | 562 | 12.12 | 3 | BLUEGUM FLAT OVERBRIDGE | 6229968 / 2865384 | NAPIER | HB |
| 5760 | 2 | 562 | 14 | 3 | CHIMNEY CREEK CULVERT | 6229758 / 2863639 | NAPIER | HB |
| 5779 | 2 | 577 | 0.9 | 3 | KIWI CREEK CULVERT | 6230424 / 2862106 | NAPIER | HB |
| 5893 | 2 | 577 | 12.31 | 3 | MCKENZIES RAIL CULVERT | 6224920 / 2855550 | NAPIER | HB |
| 5916 | 2 | 577 | 14.59 | 3 | WAIKARE RIVER BRIDGE | 6222918 / 2855421 | NAPIER | HB |
| 5918 | 2 | 577 | 14.79 | 3 | KINGS BRIDGE | 6222793 / 2855574 | NAPIER | HB |
| 5938 | 2 | 592 | 1.81 | 3 | KINGS CREEK BRIDGE | 6221689 / 2854593 | NAPIER | HB |
| 1310 | 38 | 131 | 0 | 3 | ANIWANIWA STREAM BRIDGE | 6264801 / 2871809 | NAPIER | HB |
| 1413 | 38 | 131 | 10.38 | 3 | SPILLWAY CULVERT | 6258884 / 2868072 | NAPIER | HB |
| 1473 | 38 | 147 | 0.31 | 3 | MANGAONE STREAM BRIDGE | 6256334 / 2870037 | NAPIER | HB |
| 1561 | 38 | 147 | 9.08 | 3 | TARAPATIKI BRIDGE | 6252224 / 2873923 | NAPIER | HB |
| 1562 | 38 | 147 | 9.2 | 3 | DONALDS BRIDGE | 6251436 / 2874236 | NAPIER | HB |
| 1625 | 38 | 147 | 11.78 | 3 | FANTAIL CULVERT | 6251339 / 2874307 | NAPIER | HB |
| 1625 | 38 | 147 | 11.78 | 3 | MANGAPAPA BRIDGE | 6250418 / 2875701 | NAPIER | HB |
| 1625 | 38 | 161 | 1.54 | 3 | MANGAHOHI BRIDGE | 6249322 / 2878817 | NAPIER | HB |

| | | | | | | | | |
|------|----|-----|-------|---|----------------------------|-------------------|--------|----|
| 1625 | 38 | 161 | 1.54 | 3 | MANGAHOHI BAILEY | 6249322 / 2878817 | NAPIER | HB |
| 1666 | 38 | 161 | 5.6 | 3 | MAKAPUA STREAM BRIDGE | 6247575 / 2880828 | NAPIER | HB |
| 1704 | 38 | 161 | 9.35 | 3 | MANGAKINO STREAM BRIDGE | 6245283 / 2880304 | NAPIER | HB |
| 1733 | 38 | 161 | 12.34 | 3 | MATAI CULVERT | 6243579 / 2881208 | NAPIER | HB |
| 1772 | 38 | 161 | 16.22 | 3 | O'KANES CULVERT | 6242904 / 2882994 | NAPIER | HB |
| 1787 | 38 | 161 | 17.74 | 3 | TITIRANGI CULVERT | 6242984 / 2884441 | NAPIER | HB |
| 1797 | 38 | 179 | 0.7 | 3 | MAHANGA CULVERT | 6242501 / 2885238 | NAPIER | HB |
| 1802 | 38 | 179 | 1.15 | 3 | DAVIES BRIDGE | 6242552 / 2885685 | NAPIER | HB |
| 1833 | 38 | 179 | 4.24 | 3 | DOUBLE CROSSING CULVERT | 6240671 / 2887462 | NAPIER | HB |
| 1879 | 38 | 179 | 8.91 | 3 | FRASERTOWN BRIDGE | 6239472 / 2891771 | NAPIER | HB |
| 1892 | 38 | 189 | 0.22 | 3 | SCAMPERDOWN BRIDGE | 6238710 / 2892424 | NAPIER | HB |
| 1912 | 38 | 189 | 2.19 | 3 | GOLFCOURSE CULVERT | 6236808 / 2892126 | NAPIER | HB |
| 1946 | 38 | 189 | 5.6 | 3 | AWATERE STREAM BRIDGE No.2 | 6233555 / 2892300 | NAPIER | HB |
| 1952 | 38 | 189 | 6.2 | 3 | AWATERE BRIDGE NO. 1 | 6232968 / 2892411 | NAPIER | HB |

| BSN | SH | RS | Displacement | Region | Name | Start Location |
|------|----|-----|--------------|--------|-----------------------------------|-------------------|
| 4925 | 2 | 483 | 9.47 | 3 | TUNANUI BRIDGE | 6236154 / 2924728 |
| 4935 | 2 | 483 | 10.53 | 3 | MANGAKAWA BRIDGE | 6235345 / 2924905 |
| 8239 | 2 | 483 | 11.96 | 3 | MUDDY CREEK CULVERT | 6234353 / 2924109 |
| 4970 | 2 | 497 | 0 | 3 | RAKAIPAKA BRIDGE | 6232550 / 2923305 |
| 4971 | 2 | 497 | 1.09 | 3 | MANGAPATIKI CULVERT | 6231948 / 2922416 |
| 5008 | 2 | 497 | 3.67 | 3 | OMANA CULVERT | 6230231 / 2920871 |
| 5008 | 2 | 497 | 3.76 | 3 | OMANA BRIDGE | 6230186 / 2920794 |
| 5070 | 2 | 497 | 9.93 | 3 | TAHAENUI RIVER BRIDGE | 6229503 / 2915266 |
| 5110 | 2 | 497 | 14.05 | 3 | OPOHO STREAM BRIDGE | 6229341 / 2911258 |
| | 2 | 497 | 14.05 | 3 | OPOHO BRIDGE (EXTENSION) | 6229341 / 2911258 |
| 5147 | 2 | 497 | 17.7 | 3 | TE RAMA RAMA CULVERT | 6230303 / 2908137 |
| 5152 | 2 | 497 | 18.25 | 3 | TE ARA WAAREA CULVERT | 6230451 / 2907613 |
| 5160 | 2 | 516 | 0 | 3 | WAIKATUKU BRIDGE | 6230574 / 2906949 |
| 5189 | 2 | 516 | 2.86 | 3 | ROTONUI CULVERT | 6230664 / 2904374 |
| 5200 | 2 | 516 | 3.98 | 3 | WHAKAKI (PRYDES DRAIN) CULVERT | 6230933 / 2903305 |
| 5210 | 2 | 516 | 4.95 | 3 | WHAKAKI LAGOON CULVERT | 6231484 / 2902548 |
| 5228 | 2 | 516 | 6.82 | 3 | TUHARA CULVERT | 6232050 / 2900790 |
| 5298 | 2 | 516 | 13.8 | 3 | WAIATAI CULVERT | 6233057 / 2894546 |
| 5317 | 2 | 516 | 15.75 | 3 | AWATERE NO 3 BRIDGE | 6232353 / 2893525 |
| 5334 | 2 | 533 | 0.42 | 3 | WAIROA RIVER BRIDGE | 6232026 / 2892483 |
| 5354 | 2 | 533 | 2.42 | 3 | TAWHARA CULVERT | 6231186 / 2890975 |
| 5412 | 2 | 533 | 8.23 | 3 | THORPES BRIDGE | 6233835 / 2887759 |
| 5435 | 2 | 533 | 10.48 | 3 | OHINEPAKA STREAM BRIDGE | 6234141 / 2885563 |
| 5440 | 2 | 544 | 0 | 3 | OHINEPAKA OVERBRIDGE | 6234194 / 2885401 |

**WAIROA DISTRICT COUNCIL
EARTHQUAKE-PRONE BUILDINGS POLICY**

C:\Documents and Settings\sanform\Local Settings\Temporary Internet Files\Content.Outlook\FP0W173Y\3 - 2011 Policy- Earthquake

| | | | | | | |
|------|----|-----|-------|---|----------------------------|-------------------|
| 5456 | 2 | 544 | 1.6 | 3 | TE MAIRE CULVERT | 6233562 / 2884037 |
| 5481 | 2 | 544 | 4.04 | 3 | AWAHO CULVERT | 6231433 / 2883027 |
| 5541 | 2 | 544 | 10.11 | 3 | WAIHUA RIVER BRIDGE | 6227089 / 2880428 |
| 5676 | 2 | 562 | 5.62 | 3 | MANGATURANGA BRIDGE | 6226976 / 2869670 |
| 5714 | 2 | 562 | 9.36 | 3 | MOHAKA RIVER BRIDGE | 6228356 / 2867341 |
| 5741 | 2 | 562 | 12.12 | 3 | BLUEGUM FLAT OVERBRIDGE | 6229968 / 2865384 |
| 5760 | 2 | 562 | 14 | 3 | CHIMNEY CREEK CULVERT | 6229758 / 2863639 |
| 5779 | 2 | 577 | 0.9 | 3 | KIWI CREEK CULVERT | 6230424 / 2862106 |
| 5893 | 2 | 577 | 12.31 | 3 | MCKENZIES RAIL CULVERT | 6224920 / 2855550 |
| 5916 | 2 | 577 | 14.59 | 3 | WAIKARE RIVER BRIDGE | 6222918 / 2855421 |
| 1310 | 38 | 131 | 0 | 3 | ANIWANIWA STREAM BRIDGE | 6264801 / 2871809 |
| 1413 | 38 | 131 | 10.38 | 3 | SPILLWAY CULVERT | 6258884 / 2868072 |
| 1473 | 38 | 147 | 0.31 | 3 | MANGAONE STREAM BRIDGE | 6256334 / 2870037 |
| 1551 | 38 | 147 | 8.08 | 3 | TARAPATIKI BRIDGE | 6252224 / 2873923 |
| 1561 | 38 | 147 | 9.08 | 3 | DONALDS BRIDGE | 6251436 / 2874236 |
| 1562 | 38 | 147 | 9.2 | 3 | FANTAIL CULVERT | 6251339 / 2874307 |
| 1625 | 38 | 147 | 11.78 | 3 | MANGAPAPA BRIDGE | 6250418 / 2875701 |
| 1625 | 38 | 161 | 1.54 | 3 | MANGAHOHI BRIDGE | 6249322 / 2878817 |
| 1625 | 38 | 161 | 1.54 | 3 | MANGAHOHI BAILEY | 6249322 / 2878817 |
| 1666 | 38 | 161 | 5.6 | 3 | MAKAPUA STREAM BRIDGE | 6247575 / 2880828 |
| 1704 | 38 | 161 | 9.35 | 3 | MANGAKINO STREAM BRIDGE | 6245283 / 2880304 |
| 1733 | 38 | 161 | 12.34 | 3 | MATAI CULVERT | 6243579 / 2881208 |
| 1772 | 38 | 161 | 16.22 | 3 | O'KANES CULVERT | 6242904 / 2882994 |
| 1787 | 38 | 161 | 17.74 | 3 | TITIRANGI CULVERT | 6242984 / 2884441 |
| 1797 | 38 | 179 | 0.7 | 3 | MAHANGA CULVERT | 6242501 / 2885238 |
| 1802 | 38 | 179 | 1.15 | 3 | DAVIES BRIDGE | 6242552 / 2885685 |
| 1833 | 38 | 179 | 4.24 | 3 | DOUBLE CROSSING CULVERT | 6240671 / 2887462 |
| 1879 | 38 | 179 | 8.91 | 3 | FRASERTOWN BRIDGE | 6239472 / 2891771 |
| 1892 | 38 | 189 | 0.22 | 3 | SCAMPERDOWN BRIDGE | 6238710 / 2892424 |
| 1912 | 38 | 189 | 2.19 | 3 | GOLFCOURSE CULVERT | 6236808 / 2892126 |
| 1946 | 38 | 189 | 5.6 | 3 | AWATERE STREAM BRIDGE No.2 | 6233555 / 2892300 |
| 1952 | 38 | 189 | 6.2 | 3 | AWATERE BRIDGE NO. 1 | 6232968 / 2892411 |

| Road Name | Displacement | ID # | Type | Arrangement |
|---------------|--------------|------|--------------------------|----------------------|
| AWAMATE ROAD | 98-153m | 38 | HURUMUA BRIDGE | 1/13.4 1/20.1 1/20.1 |
| AWAMATE ROAD | 8540-8583m | 136 | TUTAEKURI BRIDGE | 1/20.4 1/20.4 |
| AWAMATE ROAD | 9118-9132m | 99 | PHILLIP BRIDGE | 1/13.7 |
| AWAMATE ROAD | 11582-11670m | 32 | HOMELEIGH BRIDGE | 1/27.4 1/39.6 1/21.3 |
| RUAPAPA ROAD | 613-674m | 140 | WAIKARETAHEKE BRIDGE | 1/20.1 1/20.1 1/20.1 |
| RUAPAPA ROAD | 1328m | 201 | Culvert 10426 | |
| RUAPAPA ROAD | 2594-2622m | 126 | TE IRINGI-O-WHARE BRIDGE | 1/13.4 1/13.4 |
| RUAPAPA ROAD | 3833-3861m | 56 | MANGAKAHAKA BRIDGE | 1/27.4 |
| RUAPAPA ROAD | 11974-12017m | 22 | FALLS BRIDGE | 1/12.3 1/16.9 1/12.3 |
| RUAPAPA ROAD | 16479-16558m | 93 | PAERAEROA BRIDGE | 1/12.5 2/16.0 1/15.5 |
| RUAPAPA ROAD | 25202m | 186 | RUAPAPA RD 25.32 CULVERT | |
| TINIROTO ROAD | 2149-2161m | 149 | WAITAHORA BRIDGE | 1/11.7 |

**WAIROA DISTRICT COUNCIL
EARTHQUAKE-PRONE BUILDINGS POLICY**

C:\Documents and Settings\sanforni\Local Settings\Temporary Internet Files\Content.Outlook\FP0W173Y\3 - 2011 Policy- Earthquake

| | | | | |
|---------------|--------------|-----|--------------------|--------------------------------|
| TINIROTO ROAD | 4692-4743m | 73 | MCRAES BRIDGE | 1/16.5 1/17.0 1/16.5 |
| TINIROTO ROAD | 8142-8170m | 117 | SINCLAIRS BRIDGE | 1/27.7 |
| TINIROTO ROAD | 12314-12348m | 62 | MANGATAWA BRIDGE | 1/10.7 1/12.2 1/10.7 |
| TINIROTO ROAD | 14148-14239m | 88 | OPOITI BRIDGE | 1/3.2 1/15.1 3/18.1 1/15.1 1/3 |
| TINIROTO ROAD | 14287m | 145 | WAINWRIGHT CULVERT | Culvert Size = 2 x 1.83 dia. |
| TINIROTO ROAD | 16431-16465m | 128 | TE KURA BRIDGE | 1/8.0 1/17.7 1/8.0 |
| TINIROTO ROAD | 21565-21602m | 54 | MANGAHEHE BRIDGE | 1/18.3 1/18.3 |
| TINIROTO ROAD | 23638-23680m | 15 | DEEP CREEK BRIDGE | 1/11.2 1/18.3 1/11.2 |

The Hawke's Bay Engineering Lifelines Project 2001 identified SH2, SH38, Awamate and Tiniroto Roads as "lifeline" routes and noted Ruapapa Road as important road for accessing aggregates in the event of an emergency within Wairoa District.

These assets are unlikely to be changed/alterd or removed within the next 5 years. This list will be maintained by the Wairoa District Council Engineering Department.

Under Review

Under Review