Earthquake-Prone Buildings Policy

Introduction and Purpose

The purpose of this Policy is to balance out the need to address earthquake risk and other priorities, taking account of the social, cultural and economic implications for the City. The policy has been developed in response to Section 131 of the Building Act 2004 (the Act) which requires territorial authorities to adopt a policy on earthquake-prone buildings by 31 May 2006.

The definition of an earthquake-prone building is more extensive within this Act than under the Building Act 1991 and now encompasses all building types, not just those constructed of unreinforced masonry or unreinforced concrete. The definition of ‘moderate earthquake’ is linked to the current Standard, which is significantly more demanding than the 1965 Standard referred to in the former Building Act.

In line with the legislation this Policy states:

- The approach the Palmerston North City Council (the Council) will take in performing its functions under Part 2 of the Building Act;
- The Council’s priorities in performing those functions; and
- How the policy will apply to heritage buildings.

The Policy will be reviewed in 5 years.

This document sets out the policy adopted by Palmerston North City Council in accordance with the requirements of the Building Act 2004.

In developing and adopting its earthquake-prone buildings policy, the Palmerston North City Council has followed the consultative procedure set out in section 83 of the Local Government Act 2002.

Context

The Act provides legislative guidance to central governments goals in terms of appropriate protection for buildings and built infrastructure and the life and health of the communities in which these buildings are situated. The Act recognises that certain regions of New Zealand are more seismically active than others and the likely severity of earthquakes is also related to location. There is also a focus on reducing risk over time while focusing on the most vulnerable structures. Finally the government recognises that the costs of implementing the Building Act, as well as the actual strengthening of buildings, will result in costs to local authorities, building owners and the community in general.

While this policy is intended to meet the overall goals of central government and the intent of the legislation, it also reflects the particular economic and social considerations for Palmerston North, as well as other factors such as our exposure to earthquake risk.

Seismic Hazards

There are scattered earthquake sources that have been identified throughout the Manawatu region and beyond.\(^1\) The Wellington and Wairarapa fault systems are major earthquake sources, and the Wellington system in particular can seriously affect Palmerston North. The Report of the Manawatu-Wanganui Regional Lifelines Project in January 2005 indicates that there is a strong probability that Palmerston North will be affected by an earthquake of magnitude 8 at least once every 150 years.

The sources of some of the smaller or moderate events that can affect the City are sometimes less easy to identify. There is no complete map showing all faults and folds within the Manawatu as not all parts of the region have been studied in detail. Also, geological and human processes will have removed any evidence of some features.

\(^1\) Manawatu-Wanganui Regional Council, Hazard Analysis Manual, Volume II Seismic Analysis.
There is a concern that the phenomena of slumping, settlement and liquefaction could occur in areas of soft, geologically recent soils. The 2005 Lifelines Project identifies Palmerston North area as having a low to moderate susceptibility for liquefaction, with most of the urban area of the City being in a zone of moderate susceptibility.\(^2\) Liquefaction is the situation where soils become like liquid due to seismic action and loses its ability to support buildings and other structures. The types of soils most susceptible to this phenomenon are low to medium density sands and silts, generally within 12-15 metres of the ground surface. These soils are also known as flexible soils. Shallow groundwater level is also an important requirement for liquefaction to occur. In soft soils there is also a risk that sometimes quite distant earthquakes can be further amplified by resonant shaking if the earthquake waves match the natural frequency of the ground.

If, in the future, further evidence is found that there are areas of the City that are particularly vulnerable to these phenomena then this information may be incorporated into the policy at that time.

**Policy principles**

The Council has agreed on the following principles, which underlie all its policies. These are:

**Sustainability:** The Council takes into account the long-term social, economic, environmental and cultural well being of communities, now and for the future.

**Participation:** The Council supports and encourages opportunities for individuals and groups to actively participate in community life.

**Accessibility:** The Council is committed to removing barriers that prevent individuals and groups from accessing any aspect of community life.

**Diversity:** The Council respects the diversity of Palmerston North communities and the differing needs of groups within these communities.

**Partnership:** The Council acknowledges the benefits of developing relationships with others in the community, and will work in partnership to progress our common goals.

**Effectiveness:** The Council will allocate resources so that they are directed to where they are most needed.

The Council also acknowledges the status of the Treaty of Waitangi as a founding document of Aotearoa/New Zealand. The Treaty is between iwi and the Crown, and the Council derives its role from central government. The Council is committed to working with local iwi and the wider Maori community.

The Palmerston North City Council (the Council) has noted that provisions of the Building Act in regard to earthquake-prone buildings reflect the government’s broader concern with the safety of the public in buildings and, more particularly, the need to address safety in the event of an earthquake. The need to identify and address issues related to earthquake prone buildings has a strong relationship with the Community Outcome of people feeling safe in the City, which makes this a key strategic priority.

The Palmerston North City Council accepts that the development of earthquake-prone building policies is up to each territorial authority and has responded accordingly. This policy has been developed after consultation with the Palmerston North community, including key stakeholders in accordance with section 83 of the Local Government Act 2002.

**Overall approach**

Palmerston North is in a zone of relatively high seismic activity of low to moderate intensity and its buildings comprise a range of types and ages reflecting steady development over the last 130 years from wood, unreinforced masonry and brick buildings to modern multi-storey steel and concrete buildings. Buildings of unreinforced masonry or concrete that are known, including historic buildings, have been listed as earthquake prone in accordance with the Building Act 1991. As with most local authorities the Palmerston North City Council has required

\(^2\) Appendix 4.
building owners to strengthen earthquake-prone buildings as part of the building consents process when the buildings have been upgraded.

Palmerston North City Council’s earthquake-prone building policy under the Building Act 2004 embodies both an active and passive approach that reflects Council’s determination to reduce earthquake risk over time but in a way that is acceptable in social and economic terms to its ratepayers.

Identifying earthquake-prone buildings

Palmerston North City Council will:

- Undertake an initial desktop study of Council’s files and information including building permits and building files to identify which buildings may be earthquake-prone based on available information. Council has previously assessed unreinforced masonry and unreinforced concrete buildings, and while the Council considers that the previous assessment and identification adopted is accurate based on current information, it will reassess these known buildings to check whether any should be deleted or added under the new legislation.
- Carry out visual inspections of individual buildings where this is deemed to be necessary.
- Where appropriate carry out initial evaluation procedures of earthquake performance based on the New Zealand Society of Earthquake Engineering (NZSEE) guidelines.

The Council will continuously evaluate and assess the structural performance of buildings. Evaluations will be triggered by any application under the Building Act for building alterations, change of use, extension of life, subdivision or general information requests by concerned citizens.

If the Council identifies that a building is Dangerous as defined by the Building Act the Council may take action according to Section 124 of the Act.

Once Council has listed earthquake-prone buildings it will:

- Advise and liaise with owners of buildings listed as earthquake prone.
- Allow for owners to carry out an assessment by an independent engineer of the structural performance of those buildings identified as earthquake prone or the Council may require owners to do a detailed assessment on buildings identified as earthquake-prone in the initial evaluation, unless otherwise agreed in discussion following the initial evaluation.
- Review the assessments carried out by the owners within 6 months and revise the list of classified buildings as necessary.
- Allow owners to make submissions to the Council against the classification within 6 months of receiving notice of the classification.
- Serve formal notice on owners of earthquake-prone buildings in accordance with section 124 of the Building Act 2004 to remove the danger. A timeframe will be set for the owner to complete the work required to make the building compliant.
- Hold a hearing to consider the submissions raised by owners and then issue decisions.

Assessment criteria

For practical purposes, the Palmerston North City Council has decided that for the purposes of this policy a building will be listed Earthquake Prone if it is considered that its strength falls below one third of that required for a new building of a similar type and use designed within the requirements of current building codes. The Palmerston North City Council will use the New Zealand Society for Earthquake Engineering (NZSEE) recommendations as its preferred basis for defining technical requirements and criteria. The buildings will be categorised in the following way:

B. Buildings that contain people in crowds or contents of high value to the community as defined in AS/NZS 1170.0: 2002, Importance Level 3.
C. Heritage buildings identified on Council’s register.
D. Buildings with an Importance Level less than 3 as defined in AS/NZS 1170.0:2002.

Taking action on earthquake-prone buildings

Before exercising its powers under section 124 and 125 (below), the Council will seek, within a defined time-frame, to discuss options for action with owners with a view to obtaining from the owner a mutually acceptable approach for the upgrade.

In the event that discussions do not yield a mutually acceptable approach and proposal, the Council may serve a formal notice on the owner to strengthen or demolish the building. In accordance with s124 and s125 of the Act the Council will:

- Advise and liaise with the owner(s) of buildings;
- If found by the Council to be earthquake-prone (Dangerous):
  - May attach written notice to the building requiring work to be carried out on the building.
  - Give copies of the notice to the building owner, occupier, and every person who has an interest in the land, or is claiming an interest in the land, as well as the New Zealand Historic Places Trust, if the building is a heritage building;
- Contact the owner at the expiry of the time period set down in the notice in order to gain access to the building to ascertain whether the notice has been complied with;
- Pursue enforcement action under the Act if the requirements of the notice are not met within a reasonable period of time as well as any other non-compliance matters.

All owners have a right of appeal as defined in the Act, which can include applying to the Department of Building and Housing for a determination under s 177(e) of the Act.

Taking action on dangerous buildings

The Council will follow the powers under Sections 124 and any other relevant provision of the Building Act.

The Building Act allows the Council to:

- Put up a fence around the building
- Place notices on the building
- Prevent people from entering the building
- And the Council must advise all those who have an interest in the building

Required level of structural improvement

The Palmerston North City will require buildings listed as earthquake prone to be strengthened to at least 67% of the current building code standard or as near as is considered reasonable practical. In accordance with the recommendations of the New Zealand Society for Earthquake Engineers the Palmerston North City Council considers this to be an appropriate level for the requirement to reduce or remove the danger.

Alterations to existing building

Where a building consent application is received for alteration of a listed Earthquake Prone building, depending upon the type and extent of alteration, type of building use, and its assessed current earthquake strength, the Council may at its discretion require whole or parts of the building to be upgraded to within 67% of current code requirements or as is considered reasonably practicable, as part of the alteration.

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, irrespective of the general priorities set by Palmerston North City for dealing with earthquake-prone buildings, it will be a requirement of the owner to make 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 67% of current code and will comply as
nearly as is reasonably practicable with every provision of the Building Code that relates to structural performance 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).

**Recording a building’s earthquake-prone status**

Palmerston North City Council will keep a record of all earthquake-prone buildings on the hazard register noting the status of requirements for improvement or the results of improvement as applicable. In addition, the following information will be placed on the LIM for each earthquake-prone building:

- Address and legal description of land and building
- Statement that the building is on the Council’s register of earthquake-prone buildings.
- Date by which strengthening or demolition required, (if known).
- Statement that further details are available from the Council’s property file.

**Economic impact of policy**

The economic impact of the earthquake prone building policy can only be assessed after the building evaluation phase has been completed and the scale and extent of the required strengthening work identified.

A separate report on the economic impact of the policy will be made to the Environmental and Planning Well-being Committee after the initial desktop review has been completed. The Committee will review the timing of the draft implementation programme to ensure that a balance is struck between the need to address earthquake risk while taking into account the social and economic implications of implementing the policy.

A report including potential economic impacts will take place when the policy is reviewed in 5 years.

**Access to earthquake-prone building information**

Information concerning the earthquake status of a building will be contained on the relevant LIM. In addition, Council will keep a record of the NZSEE grade of all buildings assessed, and will encourage all owners of significant buildings to have them assessed and graded. Council recognises the long-term benefits of increased public awareness. Palmerston North City will not require earthquake-prone buildings to have an identifying plaque. The Council believes that having the information available at the Council offices is sufficient notice at present. In granting access to information concerning earthquake-prone buildings, Council will conform to the requirements of the relevant legislation.

**Priorities**

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

Figures in brackets indicate the latest date for identification and notification and the maximum time for strengthening or demolition respectively. Times required for strengthening or demolition commences on the date of issue of formal notice. Specific times will be assigned for action according to the assessment of structural performance and the nature of the concerns. The order will be as indicated below.

A. Buildings with special post-disaster functions as defined in AS/NZS 1170.0: 2002, Importance Level 4 (December 2008, 15 years).
B. Buildings that contain people in crowds or contents of high value to the community as defined in AS/NZS 1170.0: 2002, Importance Level 3 (December 2009, 20 years).
C. Heritage buildings recorded in Council’s District Plan (December 2010, 25 years).
D. Buildings with an Importance Level of less than 3 as defined in AS/NZS 1170.0: 2002 and identified as being earthquake-prone (December 2011, 30 years).
Once each category has been reviewed and the earthquake-prone buildings 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.
Heritage buildings - Special considerations and constraints

The Palmerston North City Council believes it is important that its heritage buildings have a good chance of surviving a major earthquake. However, the Palmerston North City Council does not wish to see the intrinsic heritage values of these buildings adversely affected by structural improvement measures.

While heritage buildings will be assessed in a manner consistent with assessments for other potentially earthquake-prone buildings, special efforts will be made to meet heritage objectives. It is important that in undertaking earthquake strengthening of buildings, heritage values and their protection are not lost sight of. Discussions will be held with owners and the Historic Places Trust to identify a mutually acceptable way forward. The addition of buildings to the heritage items recorded in Council’s District Plan would be subject to an earthquake-prone building assessment as part of the process.

Following the consultation period with the owners, notices will be served requiring improvement or demolition within a stated (and preferably agreed) time frame.

When considering heritage buildings under the Earthquake-Prone Buildings Policy, account will be taken of:

- The importance of recognising any special traditional and cultural aspects of the intended use of a building; and
- The need to facilitate the preservation of buildings of significant cultural, historical or heritage value.

In particularly important cases, public consultations will be included in the process.

For further guidance on identifying buildings with heritage features refer to Policy 1.1 of Section 17 of the District Plan which provides a list of criteria for identifying buildings of significant cultural heritage value within the City.

When dealing with earthquake-prone heritage buildings, the Council will ensure the development of special and appropriate recovery management and planning for heritage buildings to ensure, where possible, risk mitigation for the protection of heritage fabric and values. The skills of suitably qualified professionals with heritage expertise will be engaged to advise and recommend actions.

Contribution to Community Outcomes

Nine Community Outcomes were developed for Palmerston North in 2005. The Earthquake-Prone Buildings Policy (2006) primarily contributes to three of these Community Outcomes:

- People have lots of fun things to do
- People feel safe
- Palmerston North is attractive, clean and green
- Businesses grow here and people have lots of job opportunities
- People have lots of learning opportunities
- People can move easily around Palmerston North
- Palmerston North’s physical infrastructure is reliable
- The community is supportive and people and organisations work together
- People are well-housed and healthy.

The Earthquake-Prone Building Policy contributes primarily to the Community Outcomes of ‘Palmerston North’s physical infrastructure is reliable’ and ‘People feel safe’ and ‘People are well housed and healthy’. This Policy contributes to these Outcomes by growing confidence in the resilience of the City’s infrastructure to future earthquakes and ensuring that this confidence is based on quality information, to identify the structures that are at risk, as well as develop practical and sound solutions to ensure significant risk is mitigated appropriately.
<table>
<thead>
<tr>
<th>Where are we in 2006?</th>
<th>Where do we want to be in 2016?</th>
</tr>
</thead>
<tbody>
<tr>
<td>The City has a list of known earthquake prone buildings in the central area of the city</td>
<td>A list of buildings that are earthquake prone in terms of the Building Act 2004 has been completed</td>
</tr>
<tr>
<td>Building owners have a good understanding of their requirements under existing legislation</td>
<td>Building owners have a clear understanding of their obligations under the new policy</td>
</tr>
<tr>
<td>The Council manages the risk of losing significant heritage buildings through pressure to achieve greater public safety by targeting assistance to owners of earthquake prone heritage buildings through the Natural and Cultural Heritage Incentive Fund, with a total annual budget of $35 000.</td>
<td>Where buildings have been identified as needing urgent strengthening under the new legislative requirement this has now been completed</td>
</tr>
<tr>
<td></td>
<td>For all other buildings both owners and the Council have a shared agreement on the appropriate timeframe for completing any necessary strengthening work</td>
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<td></td>
<td>Council continues to work with owners of buildings with significant heritage value to strengthen them to ensure the ongoing protection of heritage values and public safety. Appropriate assistance continues to be targeted to achieve this goal under the Natural and Cultural Heritage Incentive Fund, with a total annual budget of $35 000.</td>
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</table>
Policy Goals

The Council has developed the following three goals in relation to Earthquake–Prone Buildings to ensure the Community Outcomes related to a well managed and safe physical environment are achieved for Palmerston North over the next 10 years.

Implementation of these goals will take in to account the following:

- *City Contact Strategic Plan and Business Plan*
- *The District Plan*
- *The Environmental Core Policy*
- *Earthquake Prone and Heritage Building Strategy*
Goal 1: Ensuring the City’s building stocks are structurally safe in terms of current building codes

The Council will develop a comprehensive list of buildings that are earthquake prone in terms of the Building Act 2004, working with Councils own files and affected building owners to ensure that they are informed and steps taken to encourage and where appropriate required to take remedial action to be taken within the timeframes of the policy.

<table>
<thead>
<tr>
<th>Current Actions</th>
<th>Key Performance Indicator</th>
<th>Timeframe</th>
<th>LTCCP Reference/cost</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Records held of 77 listed earthquake prone buildings including 14 identified in the District Plan Schedule of Buildings and Objects of Cultural Value.</td>
<td>Expanded list completed to include buildings now defined as earthquake prone under the 2004 Building Act.</td>
<td>List update completed by 2008 (approximately 2 years from the implementation of the new Earthquake Prone Buildings Policy)</td>
<td>Regulatory</td>
</tr>
</tbody>
</table>

Goal 2: Ensuring there is a balance maintained between the need for buildings to be structurally sound and people to be safe, with the maintenance and protection of the important heritage assets of the City

The Palmerston North City Council believes it is important that its heritage buildings have a good chance of surviving a major earthquake, however the Council does not wish to see the intrinsic heritage values of these buildings adversely affected by structural improvement measures.

Heritage buildings will be assessed in the same way as other potentially earthquake-prone buildings and discussions held with owners and the Historic Places Trust to identify a mutually acceptable way forward. Special efforts will be made to meet heritage objectives.

Options for addressing Hazards from Earthquake-Prone Buildings

The Palmerston North City Council, in implementing procedures under the Building Act 2004 with regard to earthquake-prone buildings, will ensure that generally non-residential heritage buildings will be considered in the development and implementation of the Policy as follows.
Non-residential buildings may include any structure on the NZHPT Register, listed heritage places, buildings of significance to iwi, and other buildings of significance to the community.

In relation to any detailed assessment of buildings at risk and in relation to heritage buildings, the following matters will be considered:

- The heritage significance, integrity and condition of the historic heritage, including any significant components or fabric or features of heritage value;
- Any relevant economic matters;
- Any statutory protection, including any listing in the District Plan, reserve management provision, covenant, heritage order, or as an archaeological site under the Historic Places Act 1993;
- Any advice from NZHPT or professional conservation organisation, heritage professional, including Councils own heritage advisors;
- The principles of ICOMOS New Zealand Charter; and
- Any relevant conservation report, conservation plan, condition report, management plan, heritage assessment or other document.

In implementing the provisions of Sections 124-129 of the Buildings Act, the Council will consider alternative methods to avoid unnecessary demolition of heritage buildings including:

- Restricting public access and erecting public warning notices (Section 124 (1)(a)(b);
- Consulting owners and NZHPT in relation to any proposed written notices requiring work;
- Providing extended timeframes for heritage buildings in relation to any written notice requiring work;
- Ensuring that any written notice requiring work provides options to repair the building as appropriate.

<table>
<thead>
<tr>
<th>Current Actions</th>
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<th>Timeframe</th>
<th>LTCCP Reference/cost</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Implementation of Heritage Building Strategy</td>
<td>Strategy offers engineering and technical advice in response to application from building owners.</td>
<td>Ongoing (from 1999)</td>
<td>Strategic Planning</td>
<td>City Future, City Contact.</td>
</tr>
</tbody>
</table>
**Goal 3: Ensuring an appropriate balance between a determination to reduce earthquake risk over time, in a way that is acceptable in social and economic terms to ratepayers**

The prime concern of the new legislation is to improve safety however in determining its requirements the Council will consider the short-term and long-term costs of the work while giving appropriate considerations to issues of human safety.

Where the Council seeks to provide concessions in cases of economic hardship this is most easily accommodated in the time allowed for the required improvement work.

While the Council considered taking action in 1997 after the identification of buildings at risk notices to strengthen were not issued until it could consider the results of the Building Act Review and develop policies related to the nature and extent of structural strengthening to be required. While owners were not requested to strengthen their buildings they were encouraged to do so.

<table>
<thead>
<tr>
<th>Current Actions</th>
<th>Key Performance Indicator</th>
<th>Timeframe</th>
<th>LTCCP Reference/cost</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>An economic impact assessment will be completed by 2010 when the policy is reviewed and there is a clear understanding of the actual scale of economic impact. A provisional assessment of the potential scale of the economic impact will be completed for Council in 2007 after the completion of a desktop review from current Council files.</td>
<td>2007 - 2010</td>
<td>Regulatory, Strategic Planning</td>
<td>City Contact, City Future</td>
</tr>
</tbody>
</table>
Links to Other Policies and Plans

The Natural and Built Environment Policy is one of the Council’s four core policies, and is closely linked with the following other Council documents:

- City Contact Strategic and Business Plans 2005-2010
- Natural and Built Environment Policy
- District Plan
- Economic Development Policy
- Regulatory Activity Management Plan
Appendices

Appendix One: Development of the Policy

Policies, plans, and supporting documents that have contributed to this policy, and the location of these, can be found in the ‘Links to Other Policies and Plans’ section of this document. These documents are either available electronically or can be requested from the Council.

Appendix Two: Policy Administration

<table>
<thead>
<tr>
<th>Policy developed and approved by the Council</th>
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<tbody>
<tr>
<td>Policy to be reviewed by City Future no later than</td>
<td>June 2012</td>
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</tbody>
</table>

Appendix Three: Monitoring

The City Contact Unit and the City Future Unit of the Palmerston North City Council are responsible for monitoring the progress towards implementing the Earthquake-Prone Buildings Policy.