
REPORT 3
(1215/52/IM)

COUNCIL RESPONSES TO EARTHQUAKE PRONE BUILDINGS – UPDATE REPORT

1. Purpose of Report

To provide the Committee with the following information:

- an update on Council activities
- an update on the Canterbury Earthquakes Royal Commission (the Royal Commission) findings and other Government work on the Christchurch earthquake of national significance
- an assessment of the nature and scale of the earthquake prone buildings (EPBs) and related issues for Wellington
- possible budget implications to consider for the Long Term Plan (LTP);

and to seek the Committee's agreement to:

- immediate actions for the Council to progress
- priority activities to consider as part of the LTP.

The scope of this report excludes Council's own buildings, city infrastructure, and emergency management, except to the extent they are impacted by policy decisions made in relation to this work. All of these activities are related, but separate, work programmes.

2. Executive Summary

Wellington City Council has a history of raising the performance of its building stock and implementing infrastructure upgrades designed to make the city more resilient in an earthquake event. This report provides Council with the platform to take a leadership role in promoting an understanding of the national issues arising from the Christchurch event, and providing potential solutions to Government.

In September last year, the Committee agreed to take a broad approach to dealing with earthquake prone buildings. A programme of work through to mid 2013 was outlined based on key government decision points including the Royal Commission reports and potential legislative changes.

This report is a further stage in updating Council on activities and response options based on better understanding the impacts of the Christchurch event for Wellington City.

What happened in Christchurch has changed the public's perception of risk and placed scrutiny over the current regulatory framework in dealing with human safety and building resilience. The rebuild cost alone for Christchurch has been estimated at \$20 billion. Commentators have noted that the country can ill afford events of such a scale and the Royal Commission will be making recommendations to help mitigate future losses from major earthquake events.

The report highlights the implications of the Christchurch event, what this potentially means for Wellington and the response activities that the Council can consider. Actions are both immediate and for the LTP. Progress has been made in the areas of public communications, investigating access to finance options for building owners, input into the Government review processes and understanding the policy implications for Council.

Key themes of interest to local government coming from the Royal Commission focus on unreinforced masonry buildings (URMs), councils taking a stronger approach but with local flexibility, dealing with unsafe elements on buildings, raising the earthquake prone threshold, and potential structural weaknesses in more modern buildings. The Council has been, and continues to be involved in the Government review processes that will be looking at how to address findings from Christchurch.

An initial assessment of areas of interest for Council's policy and programme responses includes the following:

- there are around 435 URMs in Wellington City
- 166 of these URMs are heritage listed
- the cost to strengthen all URMs to a higher level of New Building Standard (e.g. 67% NBS) equates to about half of their current capital value
- most major routes in and around the CBD have concentrations of earthquake prone and potentially earthquake prone buildings alongside
- the economic impact of a Christchurch scale event on Wellington would be in the area of \$37 billion. This is based on the quantum of known costs from Christchurch and a potentially greater scale of economic disruption for Wellington due to major infrastructure and network damage.

The wider social and economic impacts of a major event on Wellington warrant taking a city resilience approach. This may extend beyond legislative requirements designed primarily to protect human life. Immediate actions can focus on influencing government funding and legislative responses, education of the general public, addressing dangerous elements on buildings, investigating funding options, prioritising heritage buildings and advancing the current building Initial Evaluation Process (IEP).

A menu of longer term activity options to be considered in the LTP is considered. It is recommended that priority be given to four broad areas of work: identifying URMs and buildings with dangerous elements, heritage work and services, Government and Council funding and programme options, and investigating effective technology options to help reduce strengthening costs.

3. Recommendations

Officers recommend that the Strategy and Policy Committee:

1. *Receive the information.*
2. *Note the activities that the Council has progressed to date as part of its broad response to earthquake prone buildings.*
3. *Note the findings to date from the Canterbury Earthquakes Royal Commission and an initial assessment of what this potentially means for local government.*
4. *Note the Government has commenced a review of policy and practice around earthquake prone buildings and that Council is involved in this process.*
5. *Note the initial assessment for Wellington City on factors arising from the Christchurch event, including:*
 - (a) *unreinforced masonry buildings*
 - (b) *the impact of raising the earthquake prone threshold for buildings*
 - (c) *consideration of multi-unit residential*
 - (d) *heritage buildings and character precincts*
 - (e) *protecting strategic routes*
 - (f) *impacts on suburban areas*
 - (g) *economic impacts from a major event.*
6. *Note the initial assessments are based on available Council data and will be tested and refined with further surveys, government analysis and property sector data.*
7. *Note that a draft Strategy is being developed and will be presented to the Committee following the Royal Commission's final report and the Council agreement on activities that constitute its broad response.*
8. *Agree to progress the immediate actions listed in Section 5.5 related to the following:*
 - (a) *advocacy to government on funding options and legislative changes for local government*
 - (b) *dealing with dangerous elements on buildings*
 - (c) *promoting city resilience*
 - (d) *public communications and education*
 - (e) *services to building owners*

- (f) modelling and promoting access to finance options*
 - (g) continuation of the Initial Evaluation Process.*
9. *Agree that priority activities to consider in the Long Term Plan 2012-22 are those addressing the following areas:*
- (a) unreinforced masonry buildings, critical structural weakness and dangerous elements in conjunction with the current building assessment process*
 - (b) access to capital for residential and commercial strengthening work, and for heritage work*
 - (c) heritage buildings and character precincts*
 - (d) new technologies for low cost and/or low damage solutions.*

4. Background

Wellington has maintained an active response to identifying and requiring remedy to earthquake risk buildings. It is well respected nationally in this regard. Other Councils have taken a more passive approach and relied on market forces and building upgrades to progressively improve the performance of their building stock. Wellington is also recognised as having a high risk of a large earthquake event relative to other parts of New Zealand. When translated into loads that buildings must be designed to withstand, Wellington's seismic hazard is approximately twice that of Christchurch (2008 Code) and three times that of Auckland.

Based on the Christchurch experience, the social and economic costs for Wellington from a major earthquake event would be major, and the recovery very challenging. Costs are not only measured in the loss of life and property but also in loss of employment, relocation of organisations out of the city, the demands on social services and family disruption.

The rationale for an active approach to addressing building safety and city resilience is evident. In addition to the loss of life in the Christchurch earthquake, 12,000 homes may have to be abandoned, up to 900 commercial buildings in the CBD replaced and a \$3 billion city infrastructure bill met¹. The rebuild cost alone for Christchurch is estimated by the Reserve Bank at \$20 billion.

Compared to Christchurch, Wellington commercial property is generally considered to be more resilient due to higher building standards and a history of unsafe buildings being strengthened or demolished. Wellington is however likely to be at greater economic risk following a major event due to hillside damage (affecting homes, roads and infrastructure), transportation links in and out of the city being inoperable for a considerable period, and the vulnerability of some critical infrastructure (e.g. communications with the Cook Strait cable, gravity-flow piping, power and gas). The Council recognises such risks and has

¹ BRANZ Build (Oct/Nov 2011), p34

maintained its infrastructure upgrade and strengthening programme in recognition of these.

A concern for Wellington City is the limited options to temporarily relocate businesses to the periphery of the region such that they would rebuild and return to the CDB. Indeed for many corporates (and potentially government), relocation to another centre may be a preferred option. Mitigating such risks will need to be a consideration in Council policy responses.

On 15 September 2011 the Committee agreed to take a broad approach to addressing earthquake prone buildings and city resilience in light of the Christchurch earthquakes and subsequent implications for Wellington. The work was presented in several stages reflecting timing priorities, taking a more strategic view to dealing with the built environment in/after an earthquake event, and reviewing Council's policy and plans after any regulatory changes by Government.

In addition to a general update on activities, the main thrust of this report is to give Council a sense of the scale of the issues and risks for the city as a consequence of the Christchurch event. Some immediate and future response options for helping address such issues are presented. Future Committee reports will include a draft strategy and an earthquake Prone Building Policy review.

For Council, future interventions will be an exercise of balancing risks, as the associated solutions are not costless. There is also the challenge for government to avoid overly costly regulatory responses to such an infrequent but devastating event. The provision of Council's experience, analysis and leadership to Government will help ensure that final solutions are considered and appropriate.

However relatively modest interventions can help mitigate loss of life in public spaces, preserve key city heritage, protect lifelines in the event of an earthquake and improve the performance of residential buildings. The cost of mitigating the need to demolish and rebuild commercial buildings and allow economic continuity will be more significant.

5. Discussion

The report is presented in three parts.

1. An update on Council activities and preliminary findings coming from the Royal Commission and Government. There are already strong signals that there will be changes to the Building Act and/or Building Codes that will impact on Council policies and service provision.
2. The implications for Wellington of issues arising from the Christchurch. Some initial assessment is provided on the nature and scope of issues for the city and subsequent observations. This information is designed to assist Council to assess the priorities and actions required.

3. Actions that the Council can take in the immediate term and options for future work. Where there are cost implications for activities, these can be considered in the LTP process.

5.1 Activities to Date

An officer working group has been established to help co-ordinate activities across seven earthquake related project areas. These project areas are communications, finance, technical advice and support, policy and strategy development, information and analysis, current policy implementation, and engagement and leadership.

A Programme Director, City Resilience has been appointed with oversight responsibilities for this work programme. Activities to date across the various work streams are summarised in *Table 1* below.

Table 1: Activities Update

Project Area	Activities to Date
<i>Communications – the provision of targeted information and media material</i>	<ul style="list-style-type: none"> • Extensive information has been added to the “Earthquake Prone Buildings” section of the Council website. This information is customised for commercial and residential building owners, the general public, heritage interests and building users. Information includes tips, contacts, guides and reference material. • An <i>Our Wellington</i> story has run with information for property owners on how to quake safe their home and foundations, and letting people know about the building resilience checklist developed. • Advisory notices have been sent to commercial building owners related to potential construction weaknesses identified from the Christchurch earthquake e.g. fixture of stairwells. • The call centre and the communications team continue to deal with enquiries, depending on the “hot” earthquake topic at the time.
<i>Finance – funding modelling and finance solutions</i>	<ul style="list-style-type: none"> • Joint project with BNZ and LGNZ to investigate the use of targeted rates as repayment mechanism for bank loans. Lawyers reviewing legalities and liabilities for Council and if legislative changes are needed. • Meeting with Quotable Value and consideration of potential impacts of building valuation changes on our rating policies. • Further finance options will be explored with government, and the banking and insurance sectors following external peer review of officers’ economic analysis (<i>See Section 5.5.6</i>).

Project Area	Activities to Date
<p>Technical Advice and Support – <i>targeted services by Council</i></p>	<ul style="list-style-type: none"> • Reviewing the current District Plan heritage building list with a view to ensuring that sufficient information is available to assess, evaluate and prioritise those buildings, or groups of buildings. • Identifying whether there are other buildings which are worthy of conservation and management.
<p>Policy and Strategy Development</p>	<ul style="list-style-type: none"> • Submission to Royal Commission on Canterbury. • Feedback to Department of Buildings and Housing (DBH) on potential Building Act changes including addressing dangerous elements and policy implications. • Earthquake considerations included in the review of the District Plan.
<p>Information and Analysis – <i>gathering, collating, analysing to inform decisions and stakeholders</i></p>	<ul style="list-style-type: none"> • Initial analysis of the nature and scale of issues for the city undertaken using existing property records (<i>see Section 5.3</i>). • Extracted findings from the Royal Commission hearings related to local government interests (<i>see Section 5.2</i>). • Reviewed international practices and incentive options provided by state and local government for earthquake work, including understanding the level of owner uptake. • Applied (jointly with Victoria University) for research project funding from Ministry of Science & Innovation for applied research related to understanding the public appetite for risk and willingness to pay.
<p>IEP – Policy Implementation</p>	<ul style="list-style-type: none"> • IEP process continued. At 30 Jan, 233 EPB notices served, 638 buildings identified as potentially earthquake prone, 2288 unlikely EPB. • Working with several earthquake prone building owners on strengthening programme.
<p>Engagement and Leadership</p>	<ul style="list-style-type: none"> • Presentations to the Royal Commission in November. • Establishing an informal reference group to support and peer review potential Council responses, gather market intelligence and promote solutions. • Discussions with building owners, engineers, government departments (DBH, Reserve Bank, EQC, Ministry of Education, Ministry Culture and Heritage) to remain updated on current work and provide advice.

5.2 Canterbury Royal Commission and related reports

The Royal Commission has received submissions and undertaken hearings on several topics that have national implications. Key themes to emerge are very consistent with Council's submission presented in November last year.

The Royal Commission seems to be taking a broad view of Earthquake Prone Building Policy, consistent with Wellington City Council's stated policy objectives to reduce the potential for injury, loss of life, damage to other property, social disruption and loss of productivity in an earthquake. However, achieving these objectives is likely to require higher levels of seismic strengthening than currently required by Council's Earthquake Prone Building Policy.

Whilst much of the focus has been on URMs and the buildings that collapsed, engineering reports have noted that buildings well constructed and well detailed performed well in the Christchurch events, regardless of age. This suggests that some design and construction practices will now come under greater scrutiny, including for buildings not currently assessed as earthquake prone.

The Royal Commission recently received a time extension. Part 1 of the final report and recommendations to Government can now be expected in June and the final report is due in mid November. The building assessment processes and future legislative measures will be the last items on the Royal Commission's agenda, and of most impact for local government. Hearings for these issues will now be in April and May. This situation gives the Council more time to engage with, and provide input into, the various government review processes. However any review of the Council's Earthquake Prone Building Policy will now need be extended beyond the timeframe originally envisaged.

Key findings and indications to date are discussed below.

5.2.1 *Unsafe features or falling hazards*

The view of Council officers, and most other councils presenting at the Royal Commission, is that there is not a lot we can do under current legislation about parapets, chimneys, verandas and such features on non- earthquake prone buildings. However DBH says it was not intended that the Act exclude situations where part of a building is earthquake prone and wants to now ensure that the issue is clarified to avoid doubt. In addition, the Royal Commission may recommend that securing unsafe features should be a legal obligation.

DBH is currently looking at the best way of addressing this matter. It has sought feedback from the Council officers on the issue and one option being considered would involve an amendment to the Building Act that would allow a building, or any part of it, to be assessed as earthquake prone. Officers supported such an approach and sought assurance that any subsequent amendment to the Building Act requiring remedy to unsafe elements can be enforced under current council policies; and that such elements are treated as hazardous and therefore require more immediate attention.

5.2.2 Threshold for strengthening work

Understanding the impacts of the loss of life and buildings in Christchurch, and the reasons for this are primary objectives of the Royal Commission's work. Considerable focus has been on the level of building performance required under current legislation, especially the percentage of New Building Standard (%NBS) measure that might deem a building to be "safe".

Discussion is centred on two categories, buildings less than 33.3% of NBS (earthquake prone), and buildings over 33.3%NBS but less than 66.6% NBS (earthquake risk). There are two different interpretations of the law regarding whether councils can legally require building owners to conduct strengthening over 33% NBS. The first interpretation is that it can't, while the second is that additional strengthening can be required in order to reduce or remove the danger.

The scale of EPB challenges and in particular the need for a strategic and long term approach was highlighted in the hearings. The 33% NBS standard was originally envisaged by the DBH as a trigger to capture the worst EPBs, and to start the process and engage the community. Future shifts of the required standard were envisaged, and the DBH's advice has been for building owners to upgrade as much as near as technically possible to 100% NBS, and at least to 67%.

However in practice it seems this attempt at strategic policy has been lost in implementation, since instead of being used as a trigger, the 33% standard has become a lower legal benchmark for strengthening. DBH acknowledge that there are issues with the current law that will be considered, along with the current threshold and whether it should be changed, as part of the broad review process.

The indication so far from the Royal Commission is that a relatively high level of strengthening (possibly implemented progressively) is favoured. At a minimum this might be expected to be consistent with DBH's original view of the 33% being a trigger, with 67% NBS recommended by the NZ Society of Earthquake Engineers (referred to in DBH guidance to councils) as a desired threshold. Such an expectation will ultimately have to balance the significant cost to buildings owners, the benefits potentially obtained and the level of risk.

If the Royal Commission recommends a higher threshold it may lead to concern about the scale of costs imposed on building owners and the economic impact of this compared to the potential benefits gained.

5.2.3 Requiring a stronger approach

As discussed above, a stronger and more serious approach to improving the seismic performance of buildings was expected of councils from DBH. Future alignment with this expectation may require higher performing inner city buildings, legally requiring councils to act on priority buildings, and shorter timeframes for strengthening. Mechanisms to assist this stronger approach might include uncoupling seismic strengthening from fire and disability escape

and disabled access; and obliging building owners to report critical structural weaknesses if discovered.

To be consistent with the view emerging from the Royal Commission's work pertaining to URM buildings and EPB policy, higher levels of strengthening than currently required by Council's current EPB policy will be necessary. Also required will be legal powers of enforcement for local government.

From an overarching policy and economic perspective, New Zealand is proportionately more exposed to the impacts of a large earthquake affecting one of its main cities than a larger country would be, making the case for greater building resilience stronger.

5.2.4 Flexibility

DBH's current policy guidelines for councils emphasise that the context of each community should be taken into account in setting EPB policy.

Balancing compelling heritage and historic values with the competing and compelling need to protect public safety is a central and inherently complex issue within EPB policy. Issues that must be taken into account include scale; the identity and presence that these buildings provide; the social, cultural and economic value placed on identity and presence; and the costs and risks associated with retaining or losing identity and atmosphere.

Christchurch building owners have informed the Royal Commission how the current heritage rules make it a long and difficult process to get approval to make a demolition, even when from a safety and business perspective it is the more appropriate option. They also report inflexibility in dealing with heritage elements as part of building's strengthening solutions. National and local heritage interests will have a heritage preservation imperative and often have to rely on provisions in the Resource Management Act (RMA) and limited funding incentives to promote heritage preservation objectives.

Given this inherent complexity it is unlikely that the current flexible approach and local decision-making will change; yet it is also unlikely that councils will be able to take a passive approach. Instead the Christchurch experience will highlight where councils should be taking a more active stance despite the infrequent nature of such an event. For example, Christchurch City had detailed liquefaction information but this was not necessarily applied or used for planning purposes². Future policies and plans will be required to address earthquake hazard responses and recovery matters.

5.2.5 Staged improvements

The Royal Commissions interim report recommended a staged approach in dealing with URMs, emphasising the importance being placed on securing falling hazards. This assumes that the business case to do remedial and

² The 1855 Wairarapa Earthquake Symposium (2005), MCDEM Paper. P109

strengthening work is evident in the first instance. For some owners, demolition will be the prudent option. The recommended stages approach would be:

1. secure unsafe features
2. strengthen walls
3. link and connect building parts and structural elements.
4. supplementary reinforcement.

Drawing on this staged improvements approach, and the priority being placed on protecting the community from falling hazards, Council might consider initiating work on stages 1 and 2 as soon as is possible. However there do not appear to be sufficient provisions within current legislation for Council to require building owners to secure earthquake falling hazards unless the whole building is earthquake prone.

Amendments to the Building Act to provide for unsafe features (part of a building) to be considered dangerous in an earthquake event are currently being reviewed.

5.2.6 Critical Structural Weaknesses

Technical Reports prepared for engineers by Structural Engineering Society New Zealand (SESOC) on *Detailed Engineering Evaluation for Christchurch* and *Design of Conventional Structural Systems*, have resulted from some structures being assessed as performing poorly in the Christchurch events. Feedback is currently being sought and it is likely there will be subsequent changes to the Building Code.

In general, post 1992 buildings performed well in Christchurch in terms of life safety. However some structures and design details were found to perform poorly. In addition to concerns related to URMs, twelve areas of critical structural weakness have been identified and recommendations to remedy provided by SESOC. Potential weaknesses include specific construction practices for foundations, seismic joints, flooring systems and framing. The Royal Commission is considering these as part of its deliberations on understanding why some more modern buildings failed or required demolition post the event.

The Royal Commission had added more Christchurch buildings to its review. This is an indication of wanting to understand why so many buildings will now require demolition; and therefore what needs to change in the legislative framework or standards to achieve higher performing buildings.

Assuming that councils would have an implementation role in identifying structural weaknesses, this could mean two things for Council:

1. Additional factors to consider as part of the current IEPs.
2. Informing and/or identifying those buildings in the city that are potentially impacted by structural weaknesses found as a result of the Christchurch earthquake.

5.2.7 Government's review programme

DBH is leading a review of the legislative framework and practices related to EPBs. This will include providing evidence to the Royal Commission on possible legislative changes, and subsequent recommendations to Government in responses to the Royal Commission's final report. A contracted consultant is embarking on an initial national evaluation and modelling exercise to help identify the nature and scale of issues for Government. The type of analysis being undertaken mirrors Council's initial assessment as discussed in the next section, but at a national scale.

The Council is well placed to actively contribute to the national review process and influence the nature of solutions. Indeed, Wellington will be viewed as an important partner in the review exercise and provide the opportunity to lead local government responses in the immediate term.

The DBH review structure includes an associated Government policy reference group. This means changes to the Resource Management Act and/or Local Government Act, and/or public funding options can also be promoted through this process. The Council is connected to this whole legislative review process and expressed a willingness to actively contribute.

5.3 Implications for Wellington – an initial assessment

Future policy development and other Council interventions will need to be informed by good data and market intelligence on the nature and scale of issues for the city. Desktop analysis has been undertaken on issues associated with higher risk buildings, protecting lifelines, understanding the cost implications for building owners of regulatory changes; and other considerations such as heritage preservation, apartment buildings in the city, and suburban centres. Information is presented with a focus on the greater CBD area.

Because Council property records are held primarily for valuation and rating purposes, there is incomplete and/or dated information on other building factors such as construction type, activity use, date of construction and floor area. The IEP collates limited individual property information beyond location and earthquake prone status. This information is also held in a separate database from other primary property records. As a result multiple property records have had to be cross referenced to ensure a degree of accuracy.

The desktop analysis undertaken used readily accessible information and assumptions have had to be made where data is incomplete. This initial analysis is designed purely to give a sense of the scale of the issues involved for the city and building owners. It will also provide a basis to validate assumptions, share findings with the Government legislative review programme and test some of the these findings. Further detailed analysis by way of buildings surveys, area by area site inspections, property sector information and property record searches will be required to give precise numbers and information.

Maps attached as Appendix 1 show the location and/or concentration of the following:

- (a) URMs and/or pre 1939 concrete and brick buildings as a total of all pre 1939 buildings in the greater CBD (Map 1).
- (b) Heritage buildings as they relate to the previous groups of buildings (Map 2).
- (c) Concentrations of assessed and potentially EPB's on strategic routes (Map 3).

Commentary is provided on a scenario of raising the earthquake prone threshold, the number of apartment buildings potentially earthquake prone and suburban areas that exhibit a higher proportion of EPBs or potentially EPBs. Because the level of New Building Standard is unknown for the majority of buildings, broad assumptions have had to be made for some of this analysis. The approach taken is consistent with how the Council has historically categorised potentially earthquake risk buildings for further assessment- by age of construction, specifically in this case:

- Pre 1939 buildings as a proxy for EPBs
- 1940 – 1979 buildings as a proxy for earthquake risk buildings (<67%NBS)
- Post 1980 buildings as proxy for higher performing buildings

5.3.1 Unreinforced masonry buildings (URMs) (Appendix 1, Map 1)

URMs (masonry, concrete or brick construction) have historically been a focus for strengthening work. These types of buildings came under greater scrutiny as a result of performance failures, and subsequent deaths, in Christchurch. It has been previously reported that there is an estimated 670 URMs in the Wellington Region³.

Officer assessment is that the figure for Wellington City is around 435 which includes buildings that are partially URM and identified as mixed construction, and those of mixed age. A number lower than that reported in national information seems in line with the fact that many such buildings were demolished after the 1942 earthquake, and work in the city during the 1970's and 80's on removing high risk buildings in the city.

URMs are also associated with dangerous elements such as parapets which can be evident regardless of a building's earthquake prone status. In addition to the human safety risks, URMs will pose a greater risk to adjacent properties, and in Wellington, a disruption to the city's lifelines.

Of the estimated 435 URMs in the city, 166 are heritage buildings (there are 604 listed heritage buildings in the District Plan). The number of these URM buildings that have already been strengthened beyond 33% NBS and/or have had dangerous elements secured is unknown without a property by property assessment. The performance of retro-fitted URMs in Christchurch varied

³ Ingham and Griffith (2011) *The Performance of URMs in the 2010/2011 Canterbury Earthquake Swarm*. Report to the Canterbury Earthquakes Royal Commission.

greatly. Some techniques were clearly shown to be more effective than others, so on this basis some further review of Wellington buildings may be warranted.

Technical reports suggest the cost of strengthening a building to >33% NBS can vary from \$200 to \$700 per square metre⁴. URMs are generally at the upper end of this range and a multiplier factor of 2.5 is applied to strengthen such buildings to 67% NBS. In many cases, achieving such a threshold for URMs will be technically challenging and cost prohibitive.

Assuming all these 435 URMs in Wellington required strengthening to >33%NBS, and cost \$700/m², then the total cost would equate to \$535 million. The cost of strengthen to >67% NBS would represented almost 50% of the current total capital value of these buildings. On such a basis, the business case (on average) to strengthen URM type buildings to 67% NBS would not be evident in a tough economic climate with rising vacancy rates. The development and trialling of new lower cost strengthening techniques would improve the business case for building owners. Council could partner with research organisations on such projects.

An immediate practical option to reduce costs to owners is to facilitate solutions by aggregating adjacent earthquake prone or risk buildings so they can be strengthened to perform as a single building. Organising “bulk” repairs at a discounted rate is another option. A focus for action would be precincts like Cuba and Courtney where there is a high concentration of URMs and heritage buildings. Such approaches would likely require a facilitation role by the Council to be effective.

5.3.2 Heritage (Appendix 1, Map 2)

The tensions for building owners and local authorities between heritage provisions in the RMA and public safety in earthquake objectives in the Building Act are evident. Costs for both heritage preservation and building strengthening are imposed on a building owner, largely for public benefit. Property investment and upgrade decisions will be influenced by the financial business case, and heritage considerations must be factored in. Demolition will be a preferred option in many cases, particularly if the earthquake prone threshold is increased.

The Council however has a requirement, and desire, to protect heritage listed buildings. Demolition will be a last resort option in most cases. Public acceptance of such an approach may have swung towards public safety imperatives as a result of Christchurch and the public are therefore prepared to compromise some heritage considerations. Understanding this balance and finding local solutions to preserving Wellington’s heritage is important and potentially complex.

There are 604 heritage listed buildings in the Wellington City District Plan. These are not categorised into any form of importance as is the case in other

⁴ Holmes Consulting Group (2009) *Heritage Earthquake Prone Building Strengthening Cost Study* for Christchurch City Council.t

city's District Plans. There are also heritage and character areas defined for the CBD and suburban precincts. These are the Civic Centre, Cuba, Courtney, Thorndon, Mt Victoria, Newtown, Aro Valley, Hataitai, John St, Berhampore and Shelly Bay.

The Christchurch event highlighted the risk to a city's heritage and street character. For Wellington City there is a strong correlation between high risk buildings (e.g. URMs) and heritage listings. As outlined above, the Cuba and Courtney precincts have significant numbers of buildings that are earthquake prone (or earthquake risk), and are heritage listed URMs.

The cost to strengthen such high risk buildings to greater than a 33% NBS threshold will render many uneconomic. From an owner's perspective, demolition will be a preferred option where legislative requirements and heritage preservation expectations pose unreasonable costs.

Strengthening a building to a higher performing but minimum standard under the Building Code does not necessarily preserve or protect heritage. In some cases 100%NBS and/or targeted structural strengthening may be required to significantly reduced the risk of losing a heritage building in the event of a major earthquake.

What is currently required is a basis for determining which heritage buildings should be protected (regardless of cost) through to those that might require a "reasonable endeavours" approach to preservation. This is a complex exercise, particularly in the absence of understanding how/why some buildings have been listed; and what value the community puts on heritage buildings in light of Christchurch.

Other related work will be identifying which of the heritage buildings have dangerous elements that will likely come under greater scrutiny with amendments to the Building Act. Remedial work on heritage features is likely to pose higher costs on these buildings as opposed to any other buildings where permanent removal is the cost effective option. This raises the questions of acceptable remedial practices for heritage buildings and who pays for the public good (heritage) component of remedial work.

The factors outlined above will need to be progressed and then considered in the review of the Earthquake Prone Building Policy. Advocacy to Government and progressing finance options will include consideration of dealing with heritage buildings. Other practical steps are included in the URM section above (5.3.1).

5.3.3 Raising the EPB threshold

The Royal Commission and Government will be considering the EPB threshold and what constitutes a safe building based on evidence coming out of the Christchurch event. Meantime the Wellington City property sector is responding to a market expectation of requiring buildings to be assessed as >67%NBS. Several Councils already require strengthening to this level in their existing policies (e.g. Hutt City, Gisborne District). The estimated number of additional buildings that an increased threshold would capture in the Wellington CBD is

350. Although scattered across the CBD, there is a higher concentration of these buildings at the northern end and their total capital value indicates that they are larger scale buildings.

This number of 350 additional buildings may be an underestimate considering there are a further 300 buildings of the relevant age categorised as “mixed/remodelled”. These have been excluded on the assumption that they have been remodelled to a standard 67% NBS or greater. This will not always be the case.

Additional work will be required in order to provide greater certainty for this estimate of 350 buildings, particularly where owners of larger property have already responded by strengthening to a market expectation of buildings being >67% NBS.

Putting aside the above uncertainties, assuming that all 350 buildings required strengthening to >67% NBS, then the total cost is estimated at \$1.15 billion. This total cost uses an average upgrade figure of \$1000 per square metre as explained under the URM section (average \$400/m² times factor of 2.5 to strengthen from 34% to 67%NBS). This figure is consistent with the reported \$34 million cost to strengthen the Majestic Centre building.

A further indication of the potential scale of cost for the whole city can be drawn from Council’s current IEP information provided by engineers. Of the 1860 buildings currently assessed as not earthquake prone from IEPs, 72% (1340) would fall into the <67% NBS range. However the majority of these buildings would be at a far smaller size than those identified in the CBD as potentially affected by an increased threshold.

It is noticeable that an increased threshold would have a significant impact in some suburban centres like Kilbirnie, Strathmore Park, Khandallah, Newlands, Churton Park and Tawa. This will be a reflection of industrial, shopping centre and multi-residential developments in these areas from the 1960’s.

5.3.4 Protecting Strategic Routes (*Appendix 1, Map 3*)

In the event of a major earthquake, transportation routes for supplies and emergency services will need to be functional. This applies particularly to the north-south corridor through the central city area. A potential danger to having these strategic routes open immediately post an event is the number of high risk buildings (therefore most likely to collapse) alongside them.

Map 3 in the Appendix highlights those sections of the roading network that dissect areas with a concentration of high risk buildings (defined as earthquake prone and coloured red). There will be instances in the city where potentially earthquake prone buildings and larger post 1940 buildings also pose a threat to strategic routes being operable (coloured orange).

It may be appropriate for priority attention to be given to buildings that pose a greater risk to lifelines from collapse in a major event. Policy responses could include shorter timeframes for such buildings to strengthen to the required

standard, and/or indeed requiring a higher performance threshold for buildings adjacent to key lifelines.

Sections of most major routes throughout the greater CBD are potentially at risk from building collapsing across the roadway. Building by building analysis on their current earthquake rating (%NBS) and height will be required to get a more accurate picture of the risks and therefore what responses may be warranted to mitigate the risk.

5.3.5 Suburban Areas

Some analysis was conducted on buildings (in industrial and suburban centre areas) subject to the EPB provisions in the Building Act and outside the CBD. The objective was to identify if there were centres where concentrations of “at risk” buildings may warrant specific attention by Council. The level of risk is indicated by the concentration of EPBs, threat to heritage buildings or character, or the impact of raising the threshold for earthquake prone.

In terms of relative numbers, the greater CBD (extended to include Thorndon, Te Aro, Newtown and the Mt Victoria areas) warrants priority attention. Outer suburbs by comparison have a limited number or scale of EPBs and/or URMs. Building structures in these areas will typically be wooden construction and/or low rise. Therefore cost implications on a city scale are modest, but not necessarily for individual owners obviously.

However a different picture is provided in the scenario where an increased threshold of building performance is required and the value (proxy for building size) of affected buildings is considered. Initial assessment indicates that while Tawa, Johnsonville, Newlands, Khandallah, Kilbirnie and Strathmore have a relatively limited number of EPBs, the potential costs are significant due to the size of buildings presented.

The type of buildings involved varies. For example Strathmore Park would be attributed to residential developments, Kilbirnie and Khandallah more commercial, and Johnsonville and Tawa a mix.

Once more detailed analysis has been conducted and the current earthquake prone status of suburban buildings is better understood, community education and town centre programmes may be warranted to work with building owners.

5.3.6 Multi-Unit Residential

Residential buildings involving 2 or more storeys and 3 or more units are included in the earthquake prone provisions of the Building Act. Such properties have come under media scrutiny related to a landlord’s responsibility to their tenants (eg. Council flats, Housing New Zealand Corporation flats) and the challenges for individual unit title holders within apartment complexes. For the latter group the cost of strengthening falls to individuals and there is no ability to pass on costs. Indeed in some instances there will be limited ability to access finance or fund their proportion of repairs due to personal circumstances or banks not providing security against individual units.

For the buildings assessed as earthquake prone to date through the IEPs, 23% are recorded as having a residential use (wholly or partly). Of the total number of buildings in the wider CBD that were constructed pre 1979 (most likely to be earthquake prone or earthquake risk), 61% are categorised as being wholly or partly residential. A significant proportion is of timber construction and/or small complexes on the periphery of the CBD. There are only 18 buildings in this group of buildings categorised as “apartments”.

This number would appear very low and some of the property classified as “flats” in the property records will qualify as “apartments” in the public’s mind. Regardless of the terminology used, there will be a significant number of body corporate, company share and other multi-unit title properties determined as earthquake prone or earthquake risk.

The degree to which apartments built post 1976 (Code Change) are classified as earthquake prone will be depend on several factors: the level of NBS any conversions to residential use were built to; whether the threshold for earthquake prone is raised; and whether they have certain construction or design weaknesses identified from Christchurch building failures.

Consideration of the provision of services and access to finance options should include this group of properties.

5.3.7 Economic Impacts

It is possible to model a number of scenarios to estimate the economic impact of a major earthquake on Wellington City, and the region. The parameters that are included can be extensive, although putting a dollar value on some (e.g. social disruption, loss of heritage character, permanent loss of population) is challenging. For simplicity and merely to give a magnitude of impact, a total dollar value has been calculated on the following basis:

- a similar scale of commercial and residential building loss as experienced in Christchurch
- rebuilding at replacement cost
- the majority of the central city being inoperable and transport links limited for 12 months
- loss of employment and business based on the Christchurch experience
- a 10% drop in net Gross Domestic Product (GDP) for 4 years.
- assumed provision of benefits and social services (including temporary housing) by Government agencies
- Government responses and EQC liability at a similar level to Christchurch
- infrastructure and transport links rebuild, and land stabilisation at \$5 billion
- reduction in tax for Government of \$5 billion over 4 years (same as estimate for Christchurch)

On this basis the economic impact of a major earthquake in Wellington is estimated at \$37 billion. The accuracy of this estimate is less important than the

overall scale in relation to the local and New Zealand economy. The Wellington region constitutes 13.7% on the national economy reported as \$134 billion (expressed as real GDP/year to Dec 2010).

An active approach to mitigating the loss of commercial and residential buildings would help reduce rebuild costs, lessen the impact of economic disruption and reduce the need for social services.

For other losses such as heritage, little work has been done in New Zealand on cost benefit analysis or evaluation of the economic value of historic heritage resources and the economic impact to the community of the loss of large numbers or groups of heritage places. Background research on issues such as the wider economic value of heritage buildings is required to identify their significance. Arguments which clarify the economics of heritage preservation, taking into account intangibles such as social values, are important in order for decision-makers evaluating options to retain, for example, a representative collection of the city's heritage places.

In conclusion, officers re-iterate that the all the numbers and assessments in Section 5.3 are preliminary and based on current property information held by the Council. The property sample is accurate: however some of the related information may not be consistently applied or current. External peer reviews, cross referencing with industry information and sharing information with government agencies will result in more building data over time. The Council is also in the process of upgrading its interface between the GIS system and property records which will allow more detailed and timely analysis in the future.

5.4 Strategic Response by Council

It is proposed that a strategy be developed based on Council's agreement to delivering a range of services, finalisation of the Long Term Plan 2012 – 2022, any changes to current regulations and standards, and input from interested parties. In the interim, agreement is sought on some priority and future activities

General discussions with affected parties such as property owners and engineers support the Council taking a broad approach. However the nature and level of services provided will depend on the Council priorities and resources available to undertake additional functions.

Council actions and focus within a strategy will change over time. There are some obvious and immediate actions that are discussed below in Section 5.5. Other work will not be clear until findings from the Royal Commission are translated into action and the Government legislative changes are finalised. Where Council wishes to take a more active role in supporting building owners through technical and facilitative services, such programmes would likely have a 5-10 year time frame.

5.5 Proposed Immediate Actions

As reported above in Section 5.1, some work has already been progressed. Continuation of this work can be conducted largely within existing budgets, and management have allocated \$140,000 from existing budgets for further communications material, research and technical consultancy. Additional staff resourcing and/or additional funding would be required where there was a significant increase in the scale of service being provided, for example to building owners.

Medium to longer term options and their financial implications for the LTP are outlined in Section 5.6.

5.5.1 Advocacy

Council's submission to the Royal Commission approved on 13 September 2011 covered three areas of local government interest: legal and best practice, standards and design codes, and future measures. Discussion of the first two has been largely concluded with subsequent presentations and material provided by the Council to the Royal Commission and DBH. The third item (originally titled "Future Measures") will now be included as part of hearings in April (dates to be determined) on building assessments, and Building Code and Design.

It appears that changes to legislative and engineering practices are already being considered. Advocacy by Council will need to be more immediate if it wishes to influence the outcomes. Indeed the Council is well placed to take a national leadership role in promoting local government interests and knowledge. It is proposed that Council present to government agencies, Ministers and the Royal Commission as required on the following matters below that are consistent with the submission agreed by the Committee. This advocacy role would be in partnership with, or on behalf of national and regional interests.

(a) Funding

The potential costs to buildings owners to strengthen to a higher standard and/or meet costs associated with heritage protection will be significant. Public investment is warranted where public safety, economic resilience and national heritage protection objectives are either required by legislation or to mitigate future financial losses largely borne by the state.

Funding options promoted are:

- Tax treatment to allow earthquake strengthening work to be considered as repairs and maintenance rather than capital expenditure
- Government funding available for the public good element of priority heritage building preservation
- A national scheme to incentivise residential (single dwelling/single unit) repairs for elements like foundations (including solutions in liquefaction prone areas), chimneys and concrete tiles where these reduce risk of significant property damage and injury to residents. A comparative residential scheme is the Heat Smart programme.

(b) Legislation

The current legislative framework and powers available to local government to deal with earthquake prone buildings is generally sound. Some detailed changes are promoted to help address current gaps:

- Changes to the Local Government Act (LGA) to allow the use of targeted rates for loan repayment to lending institutions by building owner; and that ensure that building performance liabilities lie with the service provider and building owner, not the Council.
- Raising of the threshold for earthquake prone buildings to 66.6% NBS (or performance rating system equivalent) in the Building Act with flexibility to allow staged strengthening; a reduced threshold where the cost is prohibitive and all other practical strengthening has been undertaken; and flexibility on timeframes for different types of buildings.
- Provisions in the Building Act to require dangerous building elements adjacent to or over public space to be sufficiently secured or removed immediately where there is a risk to public safety in an earthquake event.
- Guidance in land development sections of the Resource Management Act as to what weighting is placed on seismicity factors in relation to other environmental considerations.
- Alignment of heritage preservation objectives in the RMA and the Building Act.
- Resourcing for local government to deliver additional services required as a result of legislative changes and new standards.

The concept of a standardised building earthquake performance rating for public display has been raised by some in the engineering and property sectors. Conceptually this was supported in the Council's submission to the Royal Commission however such a scheme could equally be voluntary. Further investigation of a performance rating system can be promoted as part of the legislative review process.

5.5.2 Dangerous elements and buildings

As outlined above, DBH is already proposing amendments to the Building Act to address dangerous elements (parapets, chimneys etc) on buildings. Officers have provided feedback to DBH supporting this proposal.

How this would be implemented and agreeing the role of local government is still to be finalised. However Government will be looking for some more immediate actions arising from the Christchurch event. Dealing with dangerous elements is an obvious, non-controversial and cost effective option. Establishing a programme of identification and remedying dangerous elements is likely to receive both public and government support.

This is also an area where Council can provide advice and information on techniques of strengthening and/or stabilising architectural features.

The same principal of immediate action can be applied to URM buildings. The Christchurch earthquakes highlighted a number of concerns with these older type buildings and a legislative and/or building code response to these seems inevitable. In the first instance the Council could proceed with registering all of these in the city, including the current level of NBS where known, methods of strengthening, specific dangerous features and threats posed to other buildings or services.

Any such work would require extra staff or financial resourcing if it were additional to existing EPB policy implementation.

5.5.3 Buildings and city resilience

The New Zealand built environment has existed on the presumption that in the event of a major disaster that insurance would cover any losses. However the impact on Christchurch due to the number of buildings that were non-functional after the event was not envisaged. Nor was the subsequent initial retraction of the insurance sector in covering earthquake risk in New Zealand.

Consequently, officers expect a philosophical policy shift by government and a market response towards a higher performance of commercial buildings such that they, and the CBD areas, can be largely functional immediately post a major earthquake event. Commentators have noted that the country cannot afford another Christchurch scale event. Also the insurance and banking sectors will be responding more favourably to well engineered and constructed buildings based on findings emerging from Christchurch.

Residential homes warrant targeted treatment to reduce the risk of loss of houses in the city. Research undertaken by Victoria University in 2007 estimated that 70% of Wellington properties, particularly on sloping sites, were susceptible to easily coming off their foundations in a major event. The remedies to prevent such a scenario are relatively simple and inexpensive compared to the benefits potentially gained. A regulatory requirement to upgrade residential properties is unlikely to find favour with homeowners and government. Effort and resources would be better targeted at education and incentive programmes to achieve these safety and resilience objectives.

In order to help promote better performing buildings and reduce the wider risks to the CBD and residential homes, there are some immediate actions that the Council could take, including:

- formulating a plan to mitigate risks from collapsing buildings impeding emergency lifelines and infrastructure
- working with the engineering sector to promote low damage solutions for earthquake strengthening work
- trialling new technologies where traditional upgrade costs may be prohibitive for a building owner
- providing material and advice to home owners on how to make their home more resilient in an earthquake
- promoting national funding options to incentivise residential upgrades.

5.5.4 Communications and education

Public awareness of risk from earthquakes will remain high in the immediate term as findings from the Christchurch event continue to roll out. A corresponding thirst for information and progress updates from the Council is likely to continue.

Council has an emergency preparedness strategy setting out its overall approach to raising awareness within our community of the need to be prepared for earthquakes, tsunamis and other emergencies. A range of activities to support the strategy are being implemented, including Our Wellington stories, social media communications, website information and promotion of the community preparedness grant.

A communications plan has been prepared and will continue to be developed to cover a range of groups with an interest in building safety, such as the general public, residential property owners, commercial property owners, and heritage building owners.

A number of additional web pages are now online with information about building safety and earthquake strengthening for these groups, along with general information about the Council's policy, design for earthquake resilience and links to the Royal Commission and DBH content. An initial building resilience checklist for residential property owners has been developed as a quick resource to help identify potential problems.

It is proposed to expand the range of resources available to property owners in the future to include brochures and other information. This would be done in conjunction with other organisations with the relevant knowledge and skills. The availability of information and resources would be promoted through Our Wellington, social media, through emergency management networks and other mechanisms.

5.5.5 Services to Building Owners

The Council already works with buildings owners, particularly where their property has been assessed as earthquake prone and/or the time within which to remediate strengthening has been reached. Services are also provided to owners of heritage properties. The scale of services provided in relation the future potential demand is modest.

Further facilitation, technical and advisory services will be required if the Council wishes to take a more interventionist approach. This will apply particularly in the heritage area, earthquake prone apartment blocks (multi-title), "high risk" precincts and urban planning opportunities where there is greater probability of demolitions.

5.5.6 Finance

As with all large scale projects there is the inevitable question of “who pays”. Treasury, the Reserve Bank and the Royal Commission are all considering the cost implications of findings (and subsequent solutions) coming out of Christchurch. Balancing cost, benefit and risk factors will be challenging.

Robust economic modelling will be required to influence government policy, regulatory responses and any funding programme. An analogy can be drawn with local government efforts to secure a funding package for leaky homes.

It is proposed that Council undertake a modelling exercise with the objective of identifying potential finance options to help building owners fund strengthening work and incentivise heritage preservation for example. In addition to government funding, this exercise would include working with the finance and insurance sectors on possible solutions and ways to incentivise public safety, heritage and city resilience objectives.

Work is advanced in looking at how targeted rates might be used in conjunction with commercial bank lending to provide building owners access to finance. Such a mechanism would require that liability for strengthening work rested with the suppliers and buildings owners; and that debt was not required to be recorded on Councils’ balance sheet. Indications are that this would require minor amendments to the Rating and/or Local Government Acts.

5.5.7 Current Policy Implementation

The Council is continuing with its IEP programme and engineer’s assessments are still to be done on a further 1036 properties. Some of these will include multiple buildings. The need to answer questions related to the number of EPBs in the city presents a good case to complete a list of buildings identified as potentially earthquake prone as soon as possible.

Counter to such a case is the possibility of a revised threshold for “earthquake prone” and/or additional factors to consider in the IEP being introduced. The risk then is that all the post 2006 IEPs by Council may need to be revisited. Uncertainty will prevail until Government makes all its regulatory changes and initiates any support programmes.

It is proposed that the IEP process be accelerated and at the same time, the process collects as much additional property data as practical. Such data would include dangerous features, previous strengthening methods, construction type, the risk to other property in the event of collapse and activity use. This way the Council is better prepared to respond to any subsequent amendments in the Buildings Act and/or additional powers for local government, without necessarily having to fully re-appraise previous IEPs.

5.6 Activity Options and LTP Implications

In this section it is assumed that the existing IEP programme, basic communications, heritage and policy work will continue within existing baselines. However if Council wishes to take a more interventionist approach to building safety and city resilience then there will be budget implications. The development of a strategy would assume a broader interventionist approach.

Some options for further activities are presented in *Table 2* below. A distinction is made between activities that relate to the existing policy and potential future regulatory requirements, and what would be non-regulatory responses. The menu of activities includes estimated budget considerations for the LTP totalling \$2.9 million over ten years.

Table 2. Menu of Activity Options with any additional Budget Estimates

Council Area	Activity	LTP Budget estimate	Timeline
Building Regulatory Responses			
Building, Consents & Licensing (BCLS)	Continue the current IEP. Include identification of unsafe features and additional design feature concerns.	Baseline to 2013	Immediate. Additional work would slow IEP process down.
BCLS	Establish register of URMs in the city, identify buildings with potential structural weaknesses, and identify buildings with dangerous elements.	\$150,000	Immediate
BCLS	Advance IEP to complete all assessments by early 2014 (assuming available capacity).	\$400,000 over next 2 years	Immediate
BCLS	Contingency for more IEPs and/or building appraisals if NBS threshold raised and other regulatory conditions required.	\$500,000 over 4 years	From 2014
BCLS	Investigate and implement building earthquake performance audit or rating system.	\$250,000	2013
Non-Regulatory Activities			
BCLS	Provision of advisory, technical and facilitation services to building owners in conjunction with agencies	\$500,000 over 5 years	Immediate and next 5 years

Council Area	Activity	LTP Budget estimate	Timeline
	such as DBH, IPENZ, BRANZ.		
Mayor and Chief Executive Offices	National and regional leadership advocating to Government on regulatory, programme and funding requirements.	Baseline	Immediate
Communications	Targeted technical publications and advisory material on options to make buildings safer and more resilient in an earthquake event. Focus on residential buildings and projects in partnership with credible agencies.	\$100,000 over 3 years (WCC contribution)	Immediate
Urban Development	<p>Review of District Plan heritage lists to identify discrete buildings and groupings of buildings where resources will be focussed on long-term protection and management.</p> <p>Programme working with CBD and suburban precincts at greater risk of building loss, ensuring the preservation of heritage character and facilitating new development where demolition is likely to occur.</p>	\$500,000 over 5 years	From 2013
Policy and Planning, Research	Purchase of legal, econometric and technical consultancy re funding options and mitigating economic disruption. Contributions to research projects eg. study on the economics of heritage building retention.	\$100,000	Immediate
P & P, Finance	Investigating and establish funding mechanisms to incentivise and support	\$200,000 (WCC contribution)	Immediate

Council Area	Activity	LTP Budget estimate	Timeline
	building safety, heritage and city resilience objectives.		
Special Projects	New technologies – programme working with the engineering sector and property owners trialling and promoting low cost-low damage strengthening options.	\$200,000 (WCC contribution)	From 2013

Officers' recommendation is that priority be given to funding in the LTP from 2012/13 for the following areas of additional activity (highlighted in table above):

- Identifying URMs, their earthquake prone status, potential structural weaknesses and dangerous elements on buildings with a view to implementing remedial actions for this group of buildings; combined with advancing IEPs (\$550,000).
- Heritage work and services including categorisation of listed buildings, working with Cuba and Courtney precincts, and promoting remedial options (\$500,000).
- Investigation and modelling of finance options both to promote to government for public contribution, and for the use of Council's financial tools to help meet city resilience objectives. (\$200,000)
- A programme of investigating and trialling (in partnership with appropriate institutions) new technologies that would reduce costs to buildings owners and/or promote low damage solutions (\$200,000)

5.7 Consultation and Engagement

This report draws on information from stakeholder workshops conducted in July last year and subsequent meetings with government agencies, engineers, property owners and heritage interests. As indicated in the paper, some of the assessments made on the scale of issues for Wellington will be tested and refined with further engagement with these other parties.

Engagement occurred with officials undertaking the Government's regulatory review process. The research and policy component of this review mirrors Council's activities and thinking to date. Council is well placed to inform national work.

Specific projects have also been advanced in partnership with other agencies, for example a research project with Victoria University to understand resident's appetite for risk and willingness to pay for earthquake work.

5.8 Financial Considerations

The menu of options presented in this report includes an estimate of costs to the Council. While some activities can be conducted within baseline funding, new Council interventions will require additional funding to be included in the LTP.

5.9 Climate Change Impacts and Considerations

There are no direct climate change implications. The development of a strategy for city resilience will include climate change considerations.

5.10 Long-Term Council Community Plan Considerations

This report includes activity, resource and budget considerations for the Long Term Plan, see 5.6.

6. Conclusion

The implications of the Christchurch earthquakes for Wellington and the legislative framework for buildings in earthquakes are significant. In the more immediate term, Council can play an important role in informing and influencing Government decisions, and preparing for the likely changes arising from the Royal Commission findings.

Understanding the nature and scale of issues is required so that Council can respond in a considered and practical way to help make the city safer and more resilient in a major earthquake event. Learnings from Christchurch and the Royal Commission will aid in this process as Council reviews its policy and programme responses.

Helping to address important areas such as heritage preservation, public safety in and from buildings, access to finance for building owners, and the cost of strengthening options will require a longer term approach. There are budget implications for Council, particularly where it wishes to take a more interventionist approach and work with building owners.

Agreeing to progress a range of activities will be another step for the Council in developing a strategic implementation and policy response. Progressive changes can be made. However a final policy response will ultimately be dependent on Government regulatory and programme responses to findings from the Christchurch event. Council can take a leadership role and have some influence on final solutions.

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Supporting Information

1) Strategic Fit / Strategic Outcome

Recommendations in this report support current earthquake prone building objectives and future outcomes in Toward s2040: Smart Capital. It promotes a continued proactive approach to addressing risks from earthquake events and national leadership in this area.

2) LTCCP/Annual Plan reference and long term financial impact

The project is contained in Activity 6.4, Earthquake Risk Mitigation. Adoption of a broad response to earthquake risk will require a broader scope to be included in 6.4 in the future. The list of options presented totals \$2.9 million for contracted services and/or additional staff resources. These options will be considered during preparation of the draft LTP.

3) Treaty of Waitangi considerations

There are no Treaty considerations in this report. Subsequent work agreed by Council may have implications for iwi and will be considered accordingly.

4) Decision-Making

This report sets out a number of options for the Council that reflects its previous decision to take a broad approach to dealing with buildings in earthquakes. The choice between these options is not significant, however the report provides background information that may be used in future decision making processes that may be significant.

5) Consultation

a) General Consultation

Following focus group workshops 2011, there have been continued discussions with property owners, engineers, researchers, government agencies and, other local authorities. An external reference group is planned to support and peer review activities.

b) Consultation with Maori

Mana whenua will be provided with a strategy outline and invited to input into a draft strategy.

6) Legal Implications

No direct legal implications have been identified in this report.

7) Consistency with existing policy

This report recommends measures which are consistent with existing Council policies and strategies.

List of Appendices

APPENDIX 1

Map 1 - Pre 1939 Buildings by Construction Type (focus on URMs)

Map 2 - Wellington City Heritage Listed Buildings and Earthquake Prone.

Map 3 - Wellington City Strategic Routes