Regulatory Impact Statement

Additional decisions to improve the system for managing earthquake-prone buildings

Agency Disclosure Statement

This Regulatory Impact Statement (RIS) has been prepared by the Ministry of Business, Innovation and Employment (the Ministry). It provides an analysis of options intended to improve the system for managing earthquake-prone buildings set out in the Building (Earthquake-prone Buildings) Amendment Bill (the Bill). The Bill amends the Building Act 2004 (the Act) to give effect to reforms announced by Government in August 2013 to improve the system for managing earthquake-prone buildings.

Parameters for development of options

The Bill was introduced into Parliament on 9 December 2013, and is currently being considered by the Local Government and Environment Committee.

A RIS was prepared by the Ministry to help inform the policy decisions taken by Government in August 2013 on a revised system for managing earthquake-prone buildings. A copy of that RIS is available at: http://dbh.govt.nz/UserFiles/File/Publications/Sector/regulatory-impact-statements/epb-policy-ris.pdf. A legislative disclosure statement on the Bill was also prepared, available at: http://disclosure.legislation.govt.nz/bill/government/2013/182/. This includes information on the decisions taken by Government that differ from the options considered in the RIS.

The objectives of this RIS are to keep people from harm in an earthquake while managing the costs of strengthening or removing earthquake-prone buildings in an efficient way, including ensuring that administrative and compliance costs are as low as possible. This includes retaining the emphasis on the disclosure of earthquake-prone buildings and ensuring that there is appropriate focus on the highest risk buildings and parts of buildings.

Limitations on analysis undertaken

The Ministry has refined and updated the quantitative cost-benefit analysis model to inform the analysis in this RIS. We have not been able to quantify all the effects, so some remain qualitative. There is considerable uncertainty surrounding the estimated effect of the options, due to the availability and robustness of data and the methodology used to arrive at estimates. The RIS notes where assumptions have been made and also notes the degree of confidence we have in the data.

In addition, time constraints have limited the analysis and consultation that was possible on the options analysed in this RIS. Given these constraints, the Ministry has endeavoured to indicate the potential direction and significance of the effects of the options analysed as much as possible.

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3 March 2015

Status quo

The Building (Earthquake-prone Buildings) Amendment Bill

1 The Bill amends the Act to give effect to reforms announced by Government in August 2013 to improve the system for managing earthquake-prone buildings.

2 The Bill was introduced into Parliament on 9 December 2013, and is currently being considered by the Local Government and Environment Committee. The Departmental Report on the Bill, which includes a full analysis of submissions received on it, advice from officials advising the Local Government and Environment Committee and the Committee's findings can be found on Parliament's website at:

New Zealand Parliament - Building (Earthquake-prone Buildings) Amendment Bill

Main features of the Bill

3 The Bill repeals the existing provisions in subpart 6 of Part 2 of the Act in relation to earthquake-prone buildings and creates a new subpart 6A in Part 2 of the Act to solely regulate earthquake-prone buildings. Currently, the provisions governing the management of earthquake-prone buildings are located alongside the provisions regulating dangerous and insanitary buildings.

4 The Act defines an 'earthquake-prone building' as one that would have its ultimate capacity exceeded in a 'moderate earthquake' and that would be likely to collapse causing injury or death to persons in the building or to persons on any other property or damage to any other property. Regulations made under the Act define a 'moderate earthquake' as one that would generate shaking at the site of the building that is of the same duration, but a third as strong, as the earthquake shaking used to design a new building at the same site. In practice, an earthquake-prone building is often referred to as one that is less than 34% of the new building standard (NBS).

5 The requirements of the Building Code are different in areas of different seismicity in New Zealand. Therefore, because the definition of an earthquake-prone building is connected to the site of the building, it already takes into account the different levels of seismicity around New Zealand. For example, a building at 34% NBS in Auckland will not be as strong in absolute terms as a building at 34% NBS in Wellington because seismic risk is higher in Wellington.

6 The Bill replicates the definition of an earthquake-prone building in the Act (and regulations), but with the amendments outlined in clauses 23 and 43 of the Bill. These amendments clarify the definition, including that parts of buildings can be earthquake-prone as well as whole buildings. These amendments also link the definition of moderate earthquake to the Building Code as at the date of commencement to provide greater certainty to building owners and increase the transparency around the process for incorporating new knowledge into the moderate earthquake definition.

7 The Bill provides for all existing buildings within the scope of the existing earthquake-prone building provisions to be assessed by territorial authorities within five years of the commencement of the legislation using a methodology set by the Ministry. Most residential buildings are excluded from the system.

8 Remediation of earthquake-prone buildings (so they are no longer earthquake-prone) is required within 15 years from assessment for most buildings (ie in total, within 20 years from commencement).

9 The Bill provides for exemptions from the requirement to remediate in certain circumstances with criteria to be defined in regulations (intended to apply where the consequence of failure is low), and for an extension of time of up to an extra 10 years to remediate for Category 1 listed historic places that are earthquake-prone (owners must manage risk if an extension is granted).[1]

10 The Bill provides that territorial authorities can set a shorter timeframe than 15 years for the remediation of buildings that come within the definition of 'priority building' (to be defined in regulations), after consulting their communities.

11 The Bill enables territorial authorities that are building consent authorities in certain circumstances, despite section 112(1) of the Act, to issue building consents for earthquake strengthening work on buildings that are earthquake-prone without requiring upgrades to the means of escape from fire and access and facilities for persons with disabilities. This provision requires a case by case decision to be made by the territorial authority.[2]

12 The Bill also provides for a seismic capacity register held by the Ministry that will publicly disclose whether or not a building is earthquake-prone. The intention is for all buildings to be on the register (other than those buildings excluded under the residential building exclusion).

Regulatory Impact Statement on the Bill

13 A RIS was prepared by the Ministry to help inform the policy decisions taken by Government in August 2013 on a revised system for managing earthquake-prone buildings. A copy of that RIS is available at:

http://dbh.govt.nz/UserFiles/File/Publications/Sector/regulatory-impact-statements/epb-policy-ris.pdf

14 This RIS informed the decisions made by Government in August 2013 and attempted to bring together all of the inputs into the comprehensive review of the current earthquake-prone building policy undertaken by the Government into one document.

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[1] In the explanatory note to the Bill it was noted that it was intended that, before the Bill is enacted, amendments would be made to enable owners of buildings on the National Historic Landmarks List under the Heritage New Zealand Pouhere Taonga Bill (once enacted) to also apply for the extension of time of up to 10 years to complete seismic work. The Heritage New Zealand Pouhere Taonga Bill has now been enacted.

[2] Under section 112 of the Building Act 2004, a building consent authority must not grant a building consent for the alteration of an existing building unless it is satisfied that the altered building will comply as nearly as is reasonably practicable with the Building Code provisions for means of escape from fire, and access and facilities for people with disabilities.

15 The RIS noted that the government estimates that 15,000 to 25,000 buildings across New Zealand could be earthquake-prone (approximately 8% to 13% of all non-residential and multi-storey/multi-unit residential buildings). Exact numbers are not known at this time.

16 One key input into the August 2013 RIS was a cost-benefit analysis that identified the qualitative costs and benefits of the proposed changes set out in the Bill and included the results of a quantitative cost-benefit analysis model. It is important to note that many of the costs and benefits associated with the proposals set out in the Bill are difficult to quantify. The August 2013 RIS noted that identifying a preferred option requires judgement about whether the expected benefits of the option are justified by the anticipated costs/risks.

17 Monetary Net Present Value (NPV) analysis (summarised in the August 2013 RIS) comparing estimates of indicative quantifiable direct costs of strengthening with direct benefits of reduced fatalities and injuries (and estimates of reduced property damage) indicates that the direct costs outweigh the direct benefits under any scenario, including the current system. The cost-benefit analysis model calculated costs and benefits for each territorial authority area and summed the results to provide a total cost-benefit analysis for New Zealand of -$1,330 million, for the proposed changes set out in the Bill.

Legislative disclosure statement on the Bill

18 A legislative disclosure statement on the Bill was also prepared. This includes information on the decisions taken by Government on the Bill that differ from the options considered in the August 2013 RIS on the Bill. The legislative disclosure statement is available at:

http://disclosure.legislation.govt.nz/bill/government/2013/182/.

Problem definition

19 As part of the select committee process, the Local Government and Environment Committee called for public submissions on the Bill on 5 March 2014. It received 121 submissions (several supplementary submissions were also received). Submitters suggested a number of amendments to improve the workability of the Bill.

20 Comments by submitters suggest the need for further refinement of the system in the Bill to reflect society's preference towards a more nuanced balancing of risk and cost.

21 Many submitters on the Bill supported the intent of the proposed legislation. However, several submitters including Local Government New Zealand and some territorial authorities raised concerns about the potentially significant impacts of the Bill, particularly for rural and provincial New Zealand and regions of low seismic risk.

22 Concerns were also expressed about the costs of remediating earthquake-prone buildings, particularly in communities where the underlying economics are not strong. Other concerns were around potential impacts on heritage.

23 Some buildings owners expressed concerns about the potential impacts on themselves, which they considered to be disproportionate.

24 Submitters suggested a range of options to address their concerns including financial assistance and alternative systems (for example, those that rely on local discretion like the current system). In relation to specific clauses of the Bill, amendments suggested by submitters to address concerns include:

- changing the scope of buildings covered by the Bill, including which buildings need to be assessed, and which buildings need to be included on the seismic capacity register
- which buildings (and parts of buildings) should be prioritised for assessment and remediation, locational seismic risk issues, and the timeframes for remediation.

Objectives

25 The objective is to keep people from harm in an earthquake while managing the costs of strengthening or removing earthquake-prone buildings in an efficient way, including ensuring that administrative and compliance costs are as low as possible.

26 The objectives therefore include better focusing effort and scarce resources on identifying and remediating earthquake-prone buildings and reducing the costs of administering the system, while still retaining the emphasis on the disclosure of earthquake-prone buildings. This objective includes ensuring that there is appropriate focus on the highest risk buildings and parts of buildings in an earthquake.

Options and impact analysis

27 Three broad options for the system for managing earthquake-prone buildings were identified during analysis of the submissions to the Local Government and Environment Committee. These options are the system for managing earthquake-prone buildings in the Bill (Option 1), packages of amendments to refine the system in the Bill (Option 2) and alternative approaches to the Bill that rely on the market and/or local discretion and decision making (including the current system).

28 Decisions made by Government in August 2013 reflect the view that the alternative approaches to the Bill do not adequately address the problems identified with the current system for managing earthquake-prone buildings. For this reason, the alternative approaches are not considered in detail in this RIS. More information on these problems and how the alternative approaches to the Bill address them can be found in the August 2013 RIS.

29 Option 2 contains two packages of amendments. Both packages refine the Bill to reflect a more nuanced balancing of cost and risk and make incremental changes to the system for managing earthquake-prone buildings set out in the Bill. Option 2A retains more of the decisions made in August 2013, while Option 2B is a larger incremental change.

30 In summary, both packages of amendments propose to reduce the scope of buildings covered by the Bill by excluding additional buildings from the definition of an earthquake-prone building. Options 2A and 2B also refine the identification and assessment provisions to better focus the Bill on the identification and remediation of earthquake-prone buildings. Under Option 2B, priority buildings are defined in connection with hospitals, schools, early childhood education centres and tertiary education facilities. Option 2B also makes changes to timeframes in relation to the different levels of seismic risk around New Zealand.

31 The main features of Options 1 and 2 are summarised in Table 1.

Table 1: Options for a revised system for managing earthquake-prone buildings in the Bill

Option	Sub-option	Description	Main Features
Option 1 System in the Bill		System set out in the Bill ('status quo' option)	• territorial authorities to assess all buildings within the scope of the existing earthquake-prone building provisions within 5 years of commencement using a methodology set by the Ministry • remediation required within 15 years of assessment (in total within 20 years of commencement) • opt-in exemptions from remediation for buildings with low consequence of failure • opt-in extensions of up to 10 years for earthquake-prone Category 1 listed historic places • territorial authorities can set a shorter remediation timeframe for priority buildings • priority buildings to be defined in regulations • national seismic capacity register that discloses whether or not a building is earthquake-prone • all buildings within scope of the existing earthquake-prone building provisions on the register
Option 2 Package of amendments	Option 2A	First package of amendments to clarify and refine the system in the Bill	***Reducing the scope of buildings covered by the Bill*** • exclude additional buildings from the definition of an earthquake-prone building (most residential buildings are excluded) along the lines of the following: farm buildings, retaining walls, fences, monuments that cannot be entered (eg, statues), wharves, bridges, tunnels and storage tanks (eg, water reservoirs) • notices already issued requiring the remediation of these excluded buildings and structures would lapse upon commencement of the Bill ***Identification and assessment*** • require territorial authorities to identify earthquake-prone buildings in their district within five years of commencement using a methodology set and published by the Ministry • include residual, discretionary powers for territorial authorities to apply their earthquake-prone building powers to those buildings not initially identified as earthquake-prone, including after the five-year identification period, if necessary • ensure the methodology is risk-based by requiring the methodology to specify: – building categories likely to contain earthquake-prone buildings and therefore require further investigation – building categories not likely to contain earthquake-prone buildings and therefore require no further investigation (it is anticipated this may include, for example, most timber framed buildings and post-1976 buildings, some low-rise non-unreinforced masonry buildings, and some 1936-1976 multi-storey buildings in low seismicity areas such as Auckland and Northland) – the tools and methods to be used to assess the seismic capacity of buildings to determine whether or not they are earthquake-prone ***Earthquake-prone building notification/disclosure*** • national register only to include details of buildings that have been identified as being earthquake-prone

Option	Sub-option	Description	Main Features
			• clarify that the register includes relevant details where only part of the building is earthquake-prone • change the name of the register to the earthquake-prone buildings register • remove the requirement for territorial authorities to provide copies of seismic work notices to the occupiers of the building ***Priority buildings*** • define priority building in the Bill as: – certain parts of unreinforced masonry buildings that are falling hazards (such as façades, parapets, verandas, chimneys and appendages) – buildings that could, if they were to collapse in an earthquake, impede a transport route of strategic importance in an emergency – buildings with special post-disaster functions (such as civil defence centres and hospitals) ***Miscellaneous matters*** • clarify some miscellaneous matters, eg territorial authority cost recovery ***Infringement offences*** • clarify that the infringement regime that currently applies for earthquake-prone buildings continues to apply under the Bill and that failures related to displaying earthquake-prone building notices and exemption notices on buildings under clause 23 new section 133AY(2) and (3) are infringement offences, and that the fine for these offences is set at $250 (the same fine as failing to display a building warrant of fitness)
		Possible extension of Option 2A	• opt-in time extension of up to 10 years when the priority building elements of unreinforced masonry buildings are dealt with 'as soon as is reasonably practicable'. Any additional risk that might arise would be offset by greater public safety benefits arising from the highest risk building elements being dealt with as soon as is reasonably practicable
Option 2 Package of amendments (continued)	Option 2B	Second package of amendments to clarify and refine the system in the Bill	***Reducing the scope of buildings covered by the Bill*** • exclude additional buildings from the definition of an earthquake-prone building (most residential buildings are excluded) along the lines of the following: farm buildings, retaining walls, fences, monuments that cannot be entered (eg, statues), wharves, bridges, tunnels and storage tanks (eg, water reservoirs) • notices already issued requiring the remediation of these excluded buildings and structures would lapse upon commencement of the Bill ***Identification and assessment*** • require territorial authorities to undertake initial investigations to identify potentially earthquake-prone buildings in their district within five, 10 or 15 years of commencement (timeframe dependent on the seismic risk of the area), using a methodology set and published by the Ministry (with no ability for territorial authorities to recover the costs of doing so directly from the individual building owner), and to notify owners

Option	Sub-option	Description	Main Features
			by way of an outcome notice • define areas of high, medium and low seismic risk within primary legislation • require building owners to provide an engineering assessment to their territorial authority within 12 months of being advised that their building is potentially earthquake-prone, using tools and methods specified in the methodology set and published by the Ministry, unless they can provide conclusive evidence that their building is not earthquake-prone • provide territorial authorities with a limited discretion to extend the 12 month period for assessment (for up to a further 12 months), for example where there is insufficient engineering resource available to undertake assessments • provide territorial authorities with discretionary powers to undertake an engineering assessment using the tools and methods specified in the methodology set by the Ministry (with the ability for the territorial authority to recover the costs of undertaking assessments from the building owner) • where an owner either advises the territorial authority that they do not wish to undertake an engineering assessment (eg because they intend to demolish the building) or fails to provide an engineering assessment, the building is designated as 'potentially earthquake-prone (not assessed)' and: – is automatically categorised with earthquake-prone buildings that have the lowest level of performance – the register and notices issued requiring work to be carried out will record that the building is potentially earthquake-prone and that an engineering assessment has not been undertaken – remediation to ensure the building is not earthquake-prone will be required as if the building was an earthquake-prone building (this could simply involve providing an engineering assessment that determines the building is not earthquake-prone) • provide that the methodology for initial investigations to identify potentially earthquake-prone buildings and engineering assessments is risk-based and require the methodology to specify: – the tools and methods to be used to identify potentially earthquake-prone buildings (this is likely to consist of building categories which, by virtue of their location, age and construction type, territorial authorities can consider contain potentially earthquake-prone buildings. It is anticipated this may not include, for example, most timber framed buildings and post-1976 buildings, some low-rise non-unreinforced masonry buildings and some 1936-1976 multi-storey buildings in low seismicity areas such as Auckland and Northland) – the tools and methods to be used to determine whether or not a building is earthquake-prone, and its rating • require territorial authorities to monitor and report their progress on identification to the Ministry (timeframe dependent on the seismic risk of the area, with the shortest relevant reporting timeframe applying for those territorial authorities that cover more than one area of seismic risk

Option	Sub-option	Description	Main Features
			• provide territorial authorities with residual discretionary powers to apply their powers to require (or undertake) engineering assessments and issue notices requiring work to be carried out to those buildings not initially identified as earthquake-prone, including after the relevant identification period, if necessary ***Earthquake-prone building notification/disclosure*** • national register only includes details of buildings that are determined by the territorial authority as being earthquake-prone following consideration of the engineering assessment and, in the case of a potentially earthquake-prone building where no engineering assessment has been undertaken, a statement that the building has not been assessed, rather than including details of all buildings • clarify that the register includes relevant details where only part of the building is earthquake-prone • change the name of the seismic capacity register to the earthquake-prone buildings register and the names of the seismic capacity assessment and seismic work notice to the engineering assessment and earthquake-prone building notice • national register to also include details of an earthquake-prone building's percentage NBS range or specific percentage NBS • amend the earthquake-prone building notice provisions in the Bill so the earthquake-prone building notice also specifies an earthquake-prone building's percentage NBS range or specific percentage NBS, or in the case of a potentially earthquake-prone building where no engineering assessment has been undertaken, a statement that the building has not been assessed • earthquake-prone building notices will also specify whether a building is a priority building • the form of the earthquake-prone building notice is to be set in regulations (using a grading system to help differentiate earthquake-prone buildings and incentivise action) • provide building owners with the ability to provide an engineering assessment to their territorial authority (in accordance with the tools and methods to be specified and published in the methodology), and in the event that the territorial authority considers this changes the outcome of the earthquake-prone building notice, to require the territorial authority to reissue (or revoke) the notice and update the earthquake-prone buildings register • remove the requirement for territorial authorities to provide copies of earthquake-prone building notices to the occupiers of the building ***Priority buildings*** • define priority building in primary legislation in areas of medium and high seismic risk as follows: – 'hospital buildings' – those components of a hospital necessary for it to be able to maintain services in the event of a significant earthquake, but excluding administration buildings and aged residential care facilities – 'school buildings' – all buildings regularly occupied by 20 persons or more in an early childhood

Option	Sub-option	Description	Main Features
			education centre, primary, secondary, or tertiary education facility, including registered private training establishments – 'emergency service facilities' – emergency service facilities such as fire stations, police stations and emergency vehicle garages, and designated emergency shelters, designated emergency centres and ancillary facilities – 'corridor buildings' – those buildings identified by the territorial authority, after consulting their communities (using the special consultative procedure in section 83 of the Local Government Act 2002) that could, if they were to collapse in an earthquake, impede transport routes of strategic importance in an emergency (the use of this provision would be optional for territorial authorities) • require territorial authorities to prioritise for identification those buildings defined as a priority building (within half the timeframe for the identification of other earthquake-prone buildings) • set the timeframe for remediating a priority building at half the timeframe for other earthquake-prone buildings (after a building is determined as earthquake-prone or designated as earthquake-prone (not assessed)) ***Remediation timeframes*** • set the timeframes for the remediation of most earthquake-prone buildings at: – 15 years for areas defined as high seismic risk – 25 years for areas defined as medium seismic risk – 35 years for areas defined as low seismic risk • timeframes for remediation will commence from when buildings are determined as earthquake-prone (or potentially earthquake-prone and not assessed) ***Trigger for seismic remediation*** • add a further trigger for remediating earthquake-prone buildings so that where 'substantial alterations' are to be carried out a building consent will not be granted unless building work is undertaken so that the building or part of the building is no longer earthquake-prone[3] • specify criteria in regulations that territorial authorities must apply when considering whether an alteration is a substantial alteration, for example in connection with the value of the building work in the building consent as a ratio of the value of the building or some other criteria as is determined

[3] Under section 112 of the Act, a building consent authority must not grant a building consent for the alteration of an existing building unless it is satisfied that the altered building will comply as nearly as is reasonably practicable with the Building Code provisions for means of escape from fire and access and facilities for people with disabilities.

Option	Sub-option	Description	Main Features
			Infringement offences • clarify that the infringement regime that currently applies for earthquake-prone buildings continues to apply under the Bill and that failures related to displaying earthquake-prone building notices and exemption notices on buildings under clause 23 new section 133AY(2) and (3) are infringement offences, and that the fine for these offences is set at $1000 (the same fine as displaying a false or misleading building warrant of fitness)

Additional discussion of the options outlined in Table 1

Option 1: the system set out in the Bill (status quo option)

32 The August 2013 RIS on the Bill describes the full impacts, both positive and negative, of the system for managing earthquake-prone buildings set out in the Bill.

33 Administration costs under this option will be higher than for other options. In relation to ensuring that the level of regulatory intervention is the minimum necessary to achieve the desired outcomes, Option 2 provides a better fit to the objectives. For these reasons Option 1 is not considered in any more detail in this RIS.

Option 2: packages of amendments to clarify and refine the system in the Bill

34 The following paragraphs discuss certain elements of Option 2 in more detail.

Excluding additional buildings from the system

35 Option 2 proposes excluding certain additional buildings because applying the pro-active earthquake-prone building provisions in the Bill to these buildings and structures would likely be impractical or excessive or both.[4]

36 In the case of some of the infrastructure buildings listed, the consequences of failure can be high (for example, 42 people were killed when the Cypress Street Viaduct on the Nimitz Freeway catastrophically failed during the 1989 earthquake in Loma Prieta, California). However, applying the earthquake-prone building provisions in the Bill may add little value beyond existing maintenance plans and requirements that exist under other legislation (such as the Railways Act 2005, Land Transport Management Act 2003, and Civil Defence Emergency Management Act 2002). For example, in addition to its regular bridge inspection and maintenance programme, the New Zealand Transport Agency has had a seismic screening programme since 1996.

37 The additional buildings and structures proposed for exclusion under Option 2 are covered by the current earthquake-prone building definition, but in practice territorial authorities do not focus on them for the reasons outlined. It is therefore unlikely that many notices have been issued for the remediation of these buildings.

38 It is important to note that the dangerous building provisions of the Act will still apply to these structures where appropriate. These provisions apply where a building is likely to cause injury or death, or property damage, in the ordinary course of events (excluding earthquakes).

39 The list of excluded buildings was developed in consultation with a local government reference group (including Local Government New Zealand and several territorial authorities).

[4] Note that some of these structures, such as farm buildings, have lower structural design requirements than other buildings.

Defining areas of seismic risk

40 Two possible sets of definitions for areas of seismic risk to be defined in the Bill under Option 2B were considered. The areas of seismic risk could be defined in connection with the Building Code (and associated approved solutions and verification methods) with reference to the seismic hazard factor (Z factor) as follows:

- high seismic risk (Z factor ≥ 0.3)
- medium seismic risk (Zfactor of 0.15 up to < 0.3)
- low seismic risk (Z factor < 0.15).

41 Note that these Z factors were developed in consultation with engineers.

42 Alternatively, the areas of seismic risk could be defined as follows:

- high seismic risk (Z factor ≥ 0.4)
- medium seismic risk (Z factor of 0.2 up to <0.4)
- low seismic risk (Z factor < 0.2).

Priority buildings

43 Several submitters requested greater clarity about the definition of priority buildings, including the Legislation Advisory Committee. These submitters considered that placing as much information as possible into the primary legislation would increase clarity, certainty and transparency for building owners, building users and the public. The Regulations Review Committee recommended amending the Bill to include a definition of priority building in the Bill (rather than leaving the definition to regulations), or amending the Bill to provide a purpose for defining priority buildings and requiring regulations made under new section 401C(a) to be made in accordance with that purpose.

44 When considering whether to define priority buildings in primary legislation, the following factors are relevant and were taken into account:

- the need for clarity, certainty and transparency and flexibility
- the public interest in the subject matter
- the technicality of the subject matter
- how often the material is likely to be changed or updated
- the possibility of unforeseen contingencies.

Infringement regime

45 Local Government New Zealand (and several local government submitters) suggested the Bill should provide for an infringement regime in addition to the offence provisions set out in the Bill. These submitters contend that taking court action is costly and is

therefore only used as a last resort. The changes under Option 2 will provide councils with alternative mechanisms to enforce compliance before taking action against non-compliant building owners in the courts.

Potential impacts of the proposed system for managing earthquake-prone buildings, incorporating Option 2

46 The full set of costs and benefits associated with the system for managing earthquake-prone buildings in the Bill were identified in the August 2013 RIS on the Bill.

47 Qualitatively, the benefits associated with Options 2A and 2B include:

- improved confidence in the system for managing, and the quality of, New Zealand's existing building stock in relation to seismic performance
- reduced social costs and other impacts associated with earthquakes. These costs/impacts include:
  - impacts on sense of community and identity through loss of gathering places, places of employment, schools, hospitals, homes, heritage buildings and places to recreate and create (such as sports grounds, performance venues, galleries, museums, etc.)
  - costs/impacts associated with the displacement of households
  - improved post-earthquake functioning of towns and cities and reduced economic loss.[5]

48 Qualitatively, the costs and risks associated with Options 2A and 2B include:

- all of the costs associated with the identification of the seismic performance of buildings and notification costs
- planning and strengthening (or demolition) costs
- enforcement costs
- information, education and monitoring costs
- set-up and ongoing costs of a national register of earthquake-prone buildings
- the potential loss of heritage values from the loss of heritage buildings, because there is a risk that strengthening some earthquake-prone buildings may not be a viable option (demolition may be the only practical option)
- it is likely that upgrades to access and facilities for people with disabilities will not be carried out on a significant number of buildings when required earthquake strengthening is undertaken. There is a risk that this could have a long-term legacy impact, if no other building work that triggers the upgrade provisions in section 112 of the Act is ever undertaken on these buildings.

[5] At higher levels of strengthening these benefits can become very significant.

49 The Ministry has refined and updated the quantitative cost-benefit analysis model described in the August 2013 RIS to inform the analysis of Options 2A and 2B in this RIS. The results of this refined analysis are summarised in paragraphs 60-62 of this RIS.

Reduction in administration costs

50 Analysis by the Ministry indicates both Option 2A and Option 2B will reduce the costs for territorial authorities associated with administering the system set out in the Bill.

51 The August 2013 RIS on the Bill did not quantify the administration, evaluation and decision making costs or the engineering investigation costs, associated with the proposed changes. This is because, in part, many of the cost impacts were dependent on the detailed design of aspects of the system that had not been done. It is also important to note that some of the costs identified have already been met (or would have been met) under the current system.

52 Since that time, the Ministry has begun preliminary work on the components of the methodology. This has provided a basis for estimates of administration costs associated with the identification of earthquake-prone buildings to be made.

53 Under both packages of amendments in Option 2, some buildings will be removed from the scope of the Bill. The following table sets out the assumptions about the buildings and structures to be removed from the scope of the Bill.

Table 2: Indicative numbers of buildings and structures to be removed from the scope of the Bill under Option 2

Category of building	Indicative number	Basis
Farm buildings	In the order of 260,000	Information from Statistics New Zealand indicates there were 58,068 farms at the end of June 2012. Assumed 4-5 farm buildings per farm.
Bridges and tunnels	In the order of 23,000	KiwiRail managed bridges and tunnels, New Zealand Transport Agency bridges and large road tunnels, and bridges managed by other road controlling authorities. Assumed 30 bridges per territorial authority area between land parcels.
Wharves	In the order of 3,500	Assumed approximately 50 wharves per territorial authority area based on anecdotal evidence from local councils.
Storage tanks (eg water reservoirs)	In the order of 14,000	Assumed approximately 200 tanks per territorial authority area based on anecdotal evidence from local councils. These tanks and silos are not excluded from the definition of a building under section 9 of the Act, and those that are farm buildings are not included here.

Category of building	Indicative number	Basis
Monuments that cannot be entered (eg, statues)	In the order of 3,000	Assumed approximately 40 monuments per territorial authority area. The Ministry for Culture and Heritage's memorials register lists about 900 memorials, but includes some memorials that are not buildings and does not include all monuments and statues.
Retaining walls and fences	Unknown	

54 The Ministry estimates that it would have taken territorial authorities in the order of one hour to process each of these buildings and structures and in the order of one hour to evaluate and make decisions on each of these buildings and structures. In addition, some of these buildings may have required engineering investigation.

55 Taking these buildings and structures out of the scope of the Bill will result in reduced administration, evaluation and decision making costs for territorial authorities, as well as some reduction in engineering investigation costs.

56 It is not anticipated that the changes proposed in Option 2A will fundamentally alter the indicative quantitative estimates of direct costs of strengthening and direct benefits of reduced fatalities and injuries (and estimates of reduced property damage) calculated in the August 2013 RIS on the Bill. The assumptions made about New Zealand's building stock that informed the quantitative estimates did not include rural buildings (or certain other structures that fall within the definition of a building under the Act, such as fences and retaining walls). Note that if chosen, the possible option of an opt-in time extension for owners of unreinforced masonry buildings could have some downward impact on quantitative estimates of direct costs of strengthening because the timeframe for remediating the whole building would be pushed out. The limitations of these quantitative estimates are discussed earlier. As discussed earlier, these quantitative estimates did not include quantitative estimates of administration costs.

Additional potential impacts of Option 2B

57 The methodology for identification will consist of profiling tools to identify potentially earthquake-quake prone buildings. Engineering assessments will be considered by territorial authorities who will then determine whether potentially earthquake-prone buildings are earthquake-prone. The structure of the methodology and the tools and methods for determining whether a building is earthquake-prone are still to be set. However, based on the estimated costs of using existing tools and methods, the Ministry estimates the costs of engineering assessments will range from an estimated average cost of $800 to $1200 per building for an initial seismic assessment to an estimated average cost of $10,000 to $20,000 per building (or more for larger, complex structures) for a detailed seismic assessment. The costs of assessment under Option 2B will fall on building owners, who will be required to pay for engineering assessments.

58 The requirement to have the percentage NBS range or specific percentage NBS specified and the use of a grading scheme will mean that all earthquake-prone buildings will need to have at least a detailed seismic assessment carried out (at an estimated cost of $10,000 to $20,000 per building (or more for larger, complex structures)). This is in order to provide sufficient evidence and confidence about the percentage NBS range or specific percentage NBS, to inform the decision about which grade of earthquake-prone building it is, based on the grading scheme.

59 Changes to remediation timeframes under Option 2B will alter the indicative quantitative estimates of direct costs of strengthening and direct benefits of reduced fatalities and injuries (and estimates of reduced property damage) calculated in the August 2013 RIS on the Bill.

60 The following table sets out the indicative quantitative costs and benefits for alternative timeframe options for the current system, the system in the Bill, Option 2A and Option 2B (including alternative timeframes with different definitions of areas of seismic risk). These figures do not include the assessment cost discussed above. In addition, these figures are a partial analysis that does not compare all of the costs and benefits in Options 2A and 2B in a quantitative manner.

Table 3: Indicative direct costs of strengthening (to 34% NBS) compared to the direct benefits of reduced fatalities and injuries (and estimates of reduced property damage), under alternative timeframe options (not including a priority buildings list)

	Costs NPV $ million	Benefits NPV $ million	Net NPV $ million
Current system (timeframes vary across New Zealand – estimated average of 28 years)	958	26	-932
Option 1 and Option 2A – one national timeframe (20 years)	1,359	29	-1,330
Option 2B(i) – 15, 25, 35 years Z factors: < 0.15 (areas of low seismic risk) 0.15 to < 0.3 (areas of medium seismic risk) ≥ 0.30 (areas of high seismic risk)	668	26	-642
Option 2B(ii) – 15, 25, 35 years Z factors: < 0.2 (areas of low seismic risk) 0.2 to < 0.4 (areas of medium seismic risk) ≥ 0.4 (areas of high seismic risk)	516	22	-494

Working assumptions:

- These timeframes apply once a building has been determined as being earthquake-prone, or as potentially earthquake-prone (not assessed). Timeframes for identification and assessment outlined earlier in this paper occur first and have been taken into account in the calculation of these figures.

- The figures are midpoint estimates based on extrapolated local authority data and are indicative only (eg they do not consider proposed transitional provisions, and assume earthquake-prone heritage buildings are treated the same as other earthquake-prone buildings).
- Benefits were calculated based on the probability of a major seismic event occurring (MM8 to MM11 earthquakes were modelled taking into account their respective probabilities in each local authority), and were discounted over 100 years[6]. One key assumption in relation to the benefit modelling is an assumed value of statistical life of $3.67 million (based on what is used in transport evaluation).
- Note that the discount rate used in the calculation of these figures is 6.5%. This is Treasury's real discount rate for general purpose office and accommodation buildings.
- An attrition rate of 10% is assumed.

61 Moving remediation timeframes out or bringing them forward impacts on the indicative quantitative costs and benefits of remediation. Note that the new trigger for the remediation of earthquake-prone buildings when building owners undertake substantial alterations could have some upward impact on quantitative estimates of direct costs and benefits of remediation because it may result in some buildings being remediated earlier than would have otherwise occurred.

62 For the same reason, requiring priority buildings to be remediated within a faster timeframe impacts the indicative quantitative costs and benefits for each alternative timeframe option. The following table shows the effects of remediating priority buildings described in Table 1 on the indicative quantitative costs and benefits for each alternative timeframe option, including when the requirement to remediate these buildings only applies to areas of medium and high seismic risk.

Table 4: Total costs and benefits, reflecting the impacts of remediating a priority buildings list, including indicative direct costs of strengthening (to 34% NBS) and the direct benefits of reduced fatalities and injuries (and estimates of reduced property damage)

	Costs NPV $ million	Benefits NPV $ million	Net NPV $ million
Option 2B(i) and priority buildings list in areas of medium and high seismic risk	777	27	-750
Option 2B(ii) and priority buildings list in areas of medium and high seismic risk	603	24	-579
Option 2B(i) and priority buildings list in all areas	842	27	-815
Option 2B(ii) and priority buildings list in all areas	686	24	-662

[6] MM is the Modified Mercalli Intensity Scale, a descriptive scale that assesses the severity of earthquake shaking. The Richter Magnitude Scale measures the amount of seismic energy released by an earthquake.

Working assumptions:

- These timeframes apply once a building has been determined as being earthquake-prone, or as potentially earthquake-prone (not assessed). Timeframes for identification and assessment outlined earlier in this paper occur first and have been taken into account in the calculation of these figures (including assumptions around timeframes for the identification and assessment of priority buildings).
- The figures are midpoint estimates based on extrapolated local authority data and are indicative only (eg they do not consider proposed transitional provisions, and assume earthquake-prone heritage buildings are treated the same as other earthquake-prone buildings).
- Benefits were calculated based on the probability of a major seismic event occurring (MM8 to MM11 earthquakes were modelled taking into account their respective probabilities in each local authority), and were discounted over 100 years. One key assumption in relation to the benefit modelling is an assumed value of statistical life of $3.67 million (based on what is used in transport evaluation).
- Note that the discount rate used in the calculation of these figures is 6.5%. This is Treasury's real discount rate for general purpose office and accommodation buildings.
- An attrition rate of 10% is assumed.

63 In light of the changes proposed under Option 2B, including changes to the timeframes for the remediation of earthquake-prone buildings, some of the transitional provisions set out in the Bill will need to be adjusted.

64 Currently, the Bill amends the Act to:

- recognise building assessments already undertaken where they have been undertaken using a methodology consistent with, or recognised by, the methodology to be specified and published by the Ministry
- notices issued under section 124 of the Act for earthquake-prone buildings remain in force where the time remaining on the notice is shorter than the timeframe for remediation under Option 1
- notices issued under section 124 of the Act for earthquake-prone buildings be re-issued by the territorial authority where the time remaining on the notice is longer than the timeframe for remediation under Option 1.

65 Under Option 2B, the Bill would amend the Act to provide that:

- decisions made by territorial authorities that led to section 124 notices being issued for earthquake-prone buildings remain valid
- notices issued under section 124 of the Act for earthquake-prone buildings be reissued by the territorial authorities under the Bill to ensure that there are consistent notifications on earthquake-prone buildings
- where the remediation timeframe remaining on the existing section 124 notices is less than the relevant timeframe of 15, 25, or 35 years (or the relevant timeframe for priority buildings) then the original remediation timeframe will apply

- where the remediation timeframe remaining on the existing section 124 notice is longer than the relevant timeframe of 15, 25 or 35 years (or the relevant timeframe for priority buildings) then the new relevant timeframe referred to above will apply

- building owners may apply to their territorial authority to have the relevant timeframes of 15, 25, or 35 years (or the relevant timeframe for priority buildings) for buildings in that specific seismic area to apply from the date of issue of their original section 124 notice, and for the Ministry to provide guidance to territorial authorities on how to exercise their discretion as to whether to grant these applications.

Conclusions and recommendations

66 As noted earlier, many submitters to the Local Government and Environment Committee supported the intent of the Bill to revise the current system for managing earthquake-prone buildings. However, several submitters suggested amendments to refine the Bill to better balance cost, risk and heritage issues.

67 While this RIS sets out different options and approaches for a system for managing earthquake-prone buildings, deciding on a preferred approach requires a range of on-balance decisions to be made. The costs and benefits will be significantly impacted by the on-balance decisions made, for example decisions on the timeframes for strengthening earthquake-prone buildings. Identifying a preferred option requires judgement about whether the expected benefits of the option are justified given the anticipated costs/risks, which are outlined earlier in this paper.

68 It is intended that any changes approved will be incorporated in the Ministry's Departmental Report to the Local Government and Environment Committee.

Other amendments to improve the workability of the Bill

69 A range of other minor amendments to improve the workability of the Bill will also be included in the Ministry's Departmental Report to the Local Government and Environment Committee. These other amendments fall within the scope of existing Cabinet policy approvals, and for this reason are not analysed in this RIS.

Consultation

70 The Bill is currently being considered by the Local Government and Environment Committee. The Committee received 121 submissions (several supplementary submissions were also received). Submitters suggested a number of amendments to improve the workability of the Bill.

71 It is intended that decisions on options outlined in this RIS be incorporated into the Departmental Report to the Local Government and Environment Committee. Officials had the permission of the Committee to consult with local government, engineers and GNS Science to help inform the development of the Departmental Report.

72 The Ministry has begun initial work on the methodology, including working with the New Zealand Society for Earthquake Engineering, GNS Science, other engineers and experts, and local government.

73 Discussions have also been held with Local Government New Zealand. Local Government New Zealand is generally supportive of the proposals. However, it still has concerns about potential impacts on rural and provincial New Zealand in areas of high seismic risk where underlying economies are not strong.

74 The following agencies have been consulted on the proposals: the Treasury, Canterbury Earthquake Recovery Authority, Ministry for the Environment, Ministry for Culture and Heritage, Department of Internal Affairs, Inland Revenue, Government Property Management Centre of Expertise, Ministry of Health, Ministry of Education, Ministry of Justice, Ministry of Civil Defence and Emergency Management, Office for Disability Issues, Ministry of Social Development, Land Information New Zealand, Ministry of Transport and the New Zealand Transport Agency.

75 [omitted]

76 The Department of the Prime Minister and Cabinet has been informed.

Implementation plan

77 The August 2013 RIS on the Bill describes how a revised system for managing earthquake-prone buildings will be implemented through the Bill, the provision of information and guidance by the Ministry and the development of a register of information on earthquake-prone buildings. This implementation plan is still applicable.

78 Of note is that compliance costs will be minimised by maintaining some aspects of the current system and through the transitional provisions. To further minimise compliance costs and implementation risks, identifying earthquake-prone buildings will take place progressively within the identification period.

79 The Ministry has begun work on the detailed scheme design underpinning the publically searchable national register of earthquake-prone buildings. Only requiring buildings that have been identified as earthquake-prone to be listed on the register will reduce the costs associated with developing and maintaining the register.

80 The August 2013 RIS on the Bill also discussed the implications of building owners refusing to deal with their earthquake-prone building and the how the current system and the system in the Bill manages this implementation risk. The infringement changes described in the Options section of this RIS will also help manage this risk.

Monitoring, evaluation and review

81 The Ministry is developing a monitoring and evaluation strategy to assess the implementation and impacts of Bill. The purpose of the monitoring and evaluation strategy would be to determine whether the policy is working as intended (outcomes),

understand any constraints impacting on the implementation of the policy (processes), and describe any unintended consequences from the implementation of the policy, both positive and negative.

82 The evaluation will include both quantitative and qualitative data collected over time. The evaluation will occur in distinct phases: baseline data collection (including an understanding of the current situation); iterative modelling of policy implementation; process and early impact evaluation; and a five-year impact evaluation.

83 Data will be collected through:

- monitoring data provided by territorial authorities, including the number of buildings identified and assessed, the number of buildings repaired or demolished, and the type of repairs undertaken
- cost data provided by territorial authorities related to both the direct costs of implementing the policy and the impact on other work and activities
- key stakeholder surveys and interviews related to the constraints and consequences of the policy implementation
- analysis of a range of market data to determine the influence of the market.