



13. FACILITIES REBUILD PROJECT - FENDALTON LIBRARY AND SERVICE CENTRE

General Manager responsible:	General Manager Community Services, DDI 941 8607
Officer responsible:	Strategic Property Analyst
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PURPOSE OF REPORT

1. To seek approval to proceed with the permanent repair of earthquake damage at Fendalton Library and Service Centre, strengthening works identified by the Detailed Engineering Evaluation (DEE) of the building's structural strength (relative to the New Building Standard) and asset enhancement work required to mitigate a recently-identified health and safety hazard.

EXECUTIVE SUMMARY

2. The building suffered moderate damage in the series of earthquakes following September 2010 and following the departure of the temporary Infrastructure Recovery Office in November 2011 the facility had been intended to be returned to full service as a Library and Service Centre.
3. As part of the delivery of a program of DEE assessments for Council's portfolio of buildings a qualitative engineering assessment was completed in September 2011. This revealed a hypothetical structural strength of 50 per cent, relative to the New Building Strength (NBS).
4. This triggered the need for a quantitative assessment to model the impact of the earthquake and determine with greater rigour what the status of the building was relative to benchmark strengths of 33 per cent, 67 per cent and 100 per cent of NBS. When this was completed in November 2011 it gave a result of 27 per cent of NBS. The key elements that were below strength included horizontal roof bracing and the connections between the roof and wall structures.
5. With staff vacating the building in November 2011 engineers were able to lift floor tiles to assess the concrete slab more thoroughly and this revealed additional earthquake-related damage to construction joints and structural steel mesh located in the floor slab.
6. The cost of repairing the floor and other agreed earthquake related damage is \$70,000. Council's insurer has agreed to cover these costs as part of the insurance claim.
7. Upgrading the structural strength of the building to 34 per cent and 100 per cent is estimated to cost \$145,000 and \$165,000 respectively. The design and cost differential between 67 per cent and 100 per cent was minimal and these options have accordingly been merged to one.
8. Council's insurer disputes the need for a building consent to complete the floor repairs. It has stated that even if a building consent is required they will only cover the cost of upgrading the building to 34 per cent (not 67 per cent or 100 per cent) and only where the building element itself is part of the 'damaged portion'. The insurer contends that strengthening the roof elements does not meet the criteria set out in the insurance policy.
9. Council has sought preliminary legal advice and is still working through this matter with Council's insurers. The outcome of these considerations and negotiations will in effect establish a portfolio-wide position that will have a significant impact on Council's exposure to the cost of strengthening buildings.
10. A number of options exist, including deferring the work until greater clarity exists around the extent of the insurance liability. The staff recommendation is to proceed with strengthening work to meet 100 per cent of the NBS (given the minimal differential between that and 67 per cent), along with the other approved insurance repairs.
11. Staff have also scoped and priced an enhancement to the seismic fixing of lighting and equipment in ceiling spaces to mitigate the increased risks of earthquakes. The cost of this betterment is estimated at \$25,000.

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13. In January a fire destroyed garages at the rear of the property along with the library's shelving units. With no insurance cover on this event staff are evaluating the need for the garages and options to replace them, to be reported as part of the Annual Plan or Long-Term Plan.

FINANCIAL IMPLICATIONS

14. The total cost of earthquake related repairs, structural strengthening and asset enhancements are estimated at \$260,000.
15. The anticipated insurance recovery is \$70,000 leaving a net cost to Council of \$190,000.
16. The total sum insured is \$5,067,000 (including provision for 12 months inflation).
17. The cost of reinstating the earthquake damaged concrete floors and other general earthquake related damage is estimated at \$70,000.
18. The cost of strengthening building elements from 27 per cent to 34 per cent is estimated at \$145,000. The cost of strengthening building elements from 34 per cent to 100 per cent is estimated at \$20,000.
19. The cost of upgrading the seismic bracing of light fittings other equipment in the ceilings is estimated at \$25,000.
20. Expenditure on strengthening works and other asset enhancement works that may not be covered by insurance proceeds is proposed to be funded from the allowance made in the Council's earthquake financial strategy for Council Building/Infrastructure Shortfall.

Do the Recommendations of this Report Align with 2009-19 LTCCP budgets?

21. No. The purpose of this report is to gain approval for permanent repair/reinstatement works on a Council building, as per Council guidelines to staff in November 2011. These were not contemplated during the preparation of the 2009–19 budgets.

LEGAL CONSIDERATIONS

22. Yes.

Have you considered the legal implications of the issue under consideration?

23. Legal advice currently being sought.

ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS

24. No, the recommended expenditure in this report was not contemplated during the preparation of the 2009–19 LTCCP/Activity Management planning.

Do the recommendations of this report support a level of service or project in the 2009-19 LTCCP?

25. Yes. The facility is required to support the level of service contemplated in the 2009–19 LTCCP.

ALIGNMENT WITH STRATEGIES

26. Yes.

Do the recommendations align with the Council's strategies?

27. The work supports the Libraries 2025 Strategy Section 3.1.2 Residents have access to a physical library relevant to local community need or profile.

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CONSULTATION FULFILMENT

28. Not applicable.

STAFF RECOMMENDATION

It is recommended that the Council:

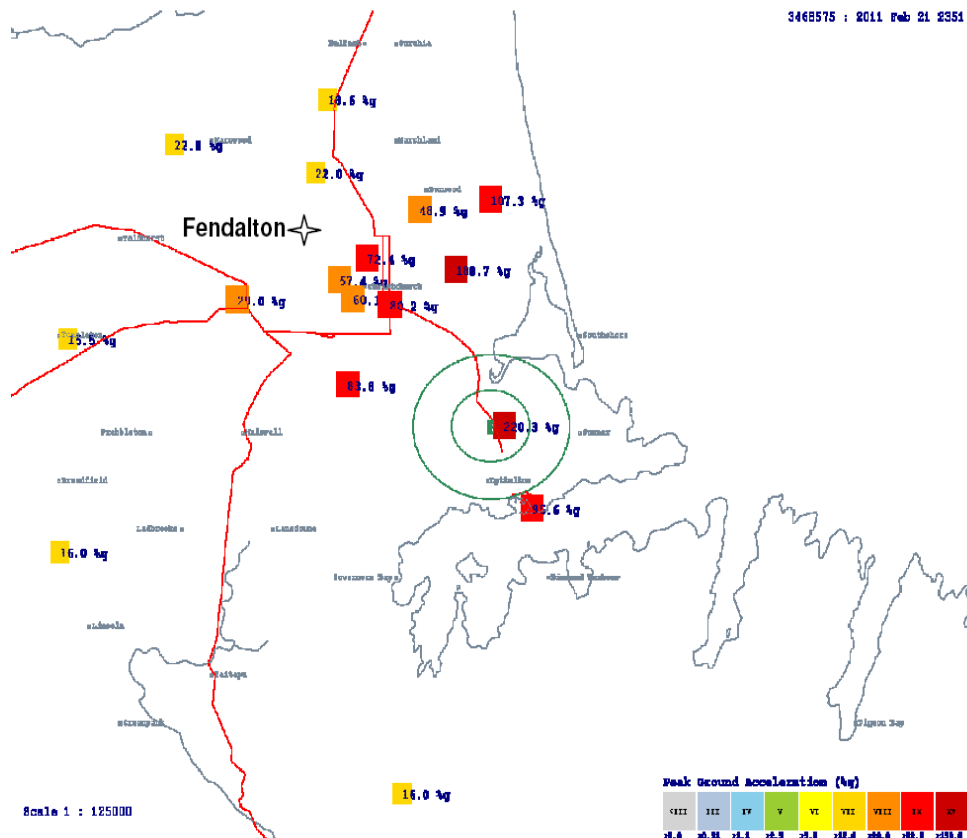
- (a) Undertake permanent earthquake repairs, complete identified structural strengthening works (to 100 per cent of the NBS) and complete other asset enhancements required to mitigate recently identified health and safety risks as outlined in the table below:

Repair Elements:	Insurer to Pay:	Council to Pay:
General Earthquake Repairs	\$ 70,000	\$ 0
Strengthening works to NBS 100%	\$ 0	\$ 165,000
Enhanced seismic equipment ties	\$ 0	\$ 25,000
TOTAL:	\$70,000	\$ 190,000

- (b) Approve expenditure on strengthening works and other asset enhancement works to a value of \$190,000 to be funded from the Council Building/Infrastructure - Shortfall Allowance.

BACKGROUND

29. The Fendalton Library and Service Centre incurred modest visible damage from the September 2010 and subsequent earthquakes. The February earthquake's ground accelerations in this area was significantly less than those experienced in the central city (see below) and the resulting damage to wall linings and fixtures was largely cosmetic. Some cracking damage and opening up of expansion joints was also evident in the concrete floor however the extent of this was difficult to assess while the facility was being used by a large number of staff.



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30. Following the various rapid engineering assessments, associated with significant earthquakes, the property was given green placards and declared safe to occupy by Structural Engineers. Following the February 2011 earthquake it was used as the Infrastructure Recovery Office, due to the shortage of available office space for Council staff. The service centre function also remained in operation. While the facility remained in use as office space through to November 2011 part of the building was returned to library use in October 2011.
31. A scope of work for cosmetic damage was being developed and priced to undertake a partial repair to the building, enabling it to be reinstated to a full library/service centre. While some initial work commenced on site under urgency it became apparent that the costs could escalate beyond delegated authorities due to the potential for expenditure to sit outside the coverage of an insurance claim. As a result work on site ceased until staff could obtain additional design and cost information to support Council's claim and this report.

Detailed Engineering Evaluation

32. As part of the program of detailed engineering assessment work (for all Council buildings) a qualitative assessment was completed in September 2011. This assessed the minimum seismic capacity in the east-west direction as approximately 50 per cent NBS (new building standard) of the current building code. This triggered the need for a quantitative assessment to model the impact of the earthquake and determine with greater rigour what the status of the building was relative to benchmark strengths of 33 per cent, 67 per cent and 100 per cent of NBS.
33. The results of the quantitative assessment were received in November 2011, with the major deficiencies being the strength of the roof bracing connections (36 per cent NBS) and the roof bracing itself under compression loading (27 per cent NBS). The low result for second component categorises the facility as being an Earthquake Prone Building.
34. While no critical weaknesses were identified it was decided to vacate the building at the end of November in accordance with the general guidance given by Council on the occupancy of facilities where the NBS rating is below 1/3.
35. These deficiencies did not contribute to significant building damage, largely due to the more modest ground accelerations experienced at the site to date. Nevertheless, under current design codes, these components could potentially fail if another considerable earthquake were to hit Christchurch - depending on factors such as location, depth and magnitude. While the failure of these components is unlikely to result in a collapse of the structure, it could result in increased displacements at roof level and a subsequent increase in damage.
36. The new seismic coefficient equates to double the bracing system design code of the original building design as the forces (now) required to be resisted reflect a more conservative response to the evident earthquake risk.
37. The following improvements were recommended to raise the strength rating of the building:
 - strengthen the roof plane diagonal bracing by replacing them with stiffer members; and
 - strengthen the bracing connections by either replacing existing bolts with higher grade bolts, or welding the connection plates directly to each other.
38. The cost of strengthening the above roofing structures to meet 1/3 of the NBS is approximately \$145,000. By comparison the additional cost to achieve either 67 per cent or 100 per cent NBS is \$20,000.
39. All of the above prices include the removal and reinstatement of a significant proportion of the ceiling tiles and grid, as well as building services required to be removed to enable the installation of new roof plane bracing elements and bracing connections. The prices also include allowances for professional and building consent fees, as well as some contingencies.

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Earthquake-Related Floor Slab Damage

40. Vacating the space also facilitated intrusive investigations of the floor cracks which revealed that expansion joints and saw cut construction cracks (as provided for in the original design) had widened beyond their intended design and that new cracks had appeared. The facility has been occupied continuously since opening in 1998 with the original carpet still in place and no obvious signs of gaps in the concrete floor or carpet wear and tear along these lines existed prior to the earthquakes. Accordingly, this movement has been attributed to the impact of the earthquakes and staff believe the cost of flooring repairs are claimable under Council's insurance policy. Allowances have been made for some carpet replacement as a result of the floor slab repairs.
41. The building's structural design relies on the concrete floor slab contributing to the bracing of the building's portal frame structure. Key to the integrity of the concrete floor is the steel mesh reinforcing, which has been compromised due to the impact of the earthquake. As a result some areas require additional reinforcing ties to reinstate structural integrity of the building.



Photo 1: 25 March 2011



Photo 2: 29 November 2011



Photo 3: 29 November 2011

The cost of repairing and reinstating the structural integrity of the floor slab is approximately \$51,000, including an allowance to reinstate the carpet and other floor coverings as required.

Insurance Response

42. Council's insurer has recently (December 2011) stated that they will only fund strengthening works up to 34 per cent of the NBS where the need for a building consent triggers the requirement for a structural upgrade. They also believe there is ambiguity over the requirement to strengthen the building beyond 34 per cent of the NBS and refer to the 67 per cent figure as a Council target - not a requirement. They have also taken the position that they will only support the strengthening of the 'damaged portions' of a building.
43. The insurance company's initial Statement of Position regarding Fendalton Library and Service Centre points to the floor slab work as not necessarily triggering a building consent. This issue is in dispute and clarification of the Building Consent Authority's requirements are currently being sought.
44. Even if the remedial work to the concrete floor does require a building consent the strengthening work required for the roofing elements is not considered by Council's insurers as part of the 'damaged portion' covered by the insurance policy wording. The cost of strengthening works to 34 per cent NBS and associated expenditure is \$145,000.
45. Council is currently seeking legal advice on the position taken by the insurers on these matters. The resolution of these issues is significant in financial terms as they potentially relate to many of Council's properties, not just the one being considered by this report.

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Earthquake-Related Cosmetic Damage

46. The building, and other improvements on the site such as sealed car park areas, suffered a range of modest cosmetic damage e.g. plaster board cracking. The repair methodology and cost estimates for this damage has been agreed with and approved by Council's insurers.
47. The cost of completing these cosmetic repairs is approximately \$70,000.

Additional Non-Insurance Related Project Works

Enhanced Seismic Securing of Equipment and Fittings

48. As a result of the earthquake Council staff have become aware of the potential fall hazard represented by light fittings and other equipment housed in or above the suspended ceilings in many buildings. The existing means of attachment comply with historic design codes; however the weight of these fittings or items of equipment mean that if they fell or were dislodged in a significant seismic event, potential exists for them to cause serious injury. Examples exist in other facilities, such as Linwood Library, where such items of equipment fell and both staff and public were fortunate not to be injured.
49. While no regulatory justification currently exists it is a staff recommendation that the means of fixing these building components to the buildings structure be enhanced to mitigate these risks. The cost of completing this level of service enhancement is \$25,000 for this facility.

Compliance Works -- Fire Egress/Systems and Disabled Access

50. The requirement of a building consent for the floor slab work would trigger a review of current compliance for the building in relation to both disabled access as well as fire systems and egress. This is currently being reviewed by Engineers; however potential exists for some additional expenditure to meet revised. Given the age of the facility the risk of significant expenditure being required is low and an allowance has been included as a contingency sum for this, if needed.

Fire Damage/Loss

51. In early January 2012 a fire destroyed the garages located to the rear of the main Fendalton Library and Service Centre. The garages have since been demolished and removed and the damaged fence replaced. With no insurance cover in place, this work has been funded from the library renewals and replacement budget.
52. The garages were used primarily to protect Council cars stationed at the site. Consideration is currently being given to both the number of cars that need to be parked on site after hours and the nature of the enclosure, i.e. garages or cages. At the time of the fire the garages were being used to store shelving units removed from the Library and these have also been damaged beyond repair. Once further information is available along with cost estimates these will be reported via the Annual Plan process or LTP.

THE OBJECTIVES

53. The primary objective is to reinstate the facility to operation as a Library and Service Centre.
54. To do this we need to repair earthquake related damage, meet legal compliance requirements, comply with Council's stated (policy) response to earthquake strengthening and complete other works needed to restore and maintain the pre-existing levels of service for these activities.
55. A secondary objective is to enhance seismic securing of plant and equipment in ceilings to mitigate recently identified health and safety hazards.

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THE OPTIONS

56. 1. **Status Quo – Do nothing and do not re-occupy the facility** until all insurance issues relating to earthquake repairs and structural strengthening are resolved.
57. This approach would allow Council to be certain about the quantum and source of funding for the earthquake repairs, strengthening works and proposed asset enhancements.
58. Councillors have provided staff with general guidance on the occupancy of facilities where the NBS rating is below 34 per annum to the effect that such facilities remain closed to the public and staff, pending a structural upgrade to at least 67 per cent.
59. The consequence of this option (remaining closed) would be a reduced level of service to the public in this area for an unknown period of time, as well as loading added pressure to other Libraries and Service Centres in this area of Christchurch (especially with the closure of the Bishopdale Library, also for an unknown period of time).
60. 2. **Undertake permanent earthquake repairs, complete identified structural strengthening works (to 100 per cent of the NBS) and complete other asset enhancements required to mitigate recently identified health and safety risks**, prior to finalising insurance issues and funding.
61. The option requires Council to approve expenditure on strengthening works, other asset enhancement work not covered by insurance proceeds, fees consents and contingencies. Engineers advise that the design requirements and cost of strengthening from 67 per cent to 100 per cent of the NBS was minimal, and accordingly the recommendation is to strengthen to 100 per cent. This option will be funded from the Council Building/Infrastructure - Shortfall Allowance budget.

Option 2: *REPAIR and STRENGTHEN TO 100% NBS with OTHER BETTERMENT*

Repair Elements:	Insurer to Pay:	Council to Pay:
General Earthquake Repairs	\$ 70,000	\$ 0
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TOTAL:	\$ 70,000	\$ 190,000

62. This option enables Council to restore levels of service to the local community, upgrade the building's structural strength and complete asset enhancements to mitigate recently identified health and safety hazards.

THE PREFERRED OPTION

63. **Option 2. Undertake permanent earthquake repairs, complete identified structural strengthening works (to 100 per cent of the NBS) and complete other asset enhancements required to mitigate recently identified health and safety risks** prior to finalising insurance issues and funding.
64. The option requires Council to approve expenditure on strengthening works and other asset enhancement works that may not be covered by insurance proceeds. This will be funded from the Council Building/Infrastructure - Shortfall Allowance budget.

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