

**8. INFRASTRUCTURE REBUILD UPDATE**

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**PURPOSE OF REPORT**

1. This report provides an update on a range of activities within the rebuild of the City's horizontal infrastructure. It seeks the Council approval of the Infrastructure Rebuild Plan. It also seeks the Council approval of the associated delegations necessary to complete the rebuild.

**EXECUTIVE SUMMARY**

2. An Infrastructure Rebuild Plan has been prepared to outline the Council's plan for reinstating its own horizontal infrastructure and the community participation process to be adopted through the rebuild work. This plan has been developed with input from the Council, Christchurch Earthquake Recovery Authority (CERA) and the various Community Boards. Approval is now sought to publish this document.
3. An updated infrastructure rebuild estimate has recently be prepared to be used for budgeting and cash flow purposes going forward. This updated estimate is presented in the report for the Council to note. Linked to the updated estimate is the Annual Plan and annual appropriations process for approving an annual programme for the rebuild and associated cash flow. Delegations are sought to manage this programme accordingly once it has been approved. A reporting framework has also been developed to keep the Council informed of progress of the infrastructure rebuild. This will include monthly progress reports showing progress against key performance indicators as well as financial and work activity progress.
4. In order to oversee any scope and standards decisions for the rebuild, a committee has been established. This committee is chaired by the General Manager of City Environment and consists of technical representatives from both the Council and CERA. This committee will act as the conduit for scope and standards departures for the rebuild but recognises that where there are significant departures requested that have increased financial implications in excess of \$250,000 or involves changes to agreed Levels of Service, then the full Council will need to be involved in the decision making process eg recent approval of the use of alternative sewer solutions. This committee will also act as the conduit for resilience and betterment decisions with regard to the rebuild.
5. The community will be involved in the rebuild of our city's infrastructure as the work progresses. The plan and this cover report outlines the public participation process for the rebuild.
6. The Infrastructure Rebuild Plan has been consulted on with the Council, the Community Boards at various workshops and CERA during its development and feedback incorporated where appropriate.

**FINANCIAL IMPLICATIONS**

7. The Annual Plan has made provision for infrastructure rebuild activity in the 2011/12 financial year. Future activity will be address in successive Annual Plans and the 2013/22 Long Term Plan.

**DO THE RECOMMENDATIONS OF THIS REPORT ALIGN WITH 2009-19 BUDGETS?**

8. Yes, see above.

**LEGAL CONSIDERATIONS**

9. There are no immediate legal considerations. Officers have met with officials from CERA and will continue to do so to ensure that work is consistent with, and will inform, the development of the Recovery Strategy and Recovery Plans.

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#### HAVE YOU CONSIDERED THE LEGAL IMPLICATIONS OF THE ISSUE UNDER CONSIDERATION?

10. Yes, see above.

#### ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS

11. The infrastructure rebuild was not anticipated by the LTCCP or Activity Management Plans but is a response to a natural disaster.

#### DO THE RECOMMENDATIONS OF THIS REPORT SUPPORT A LEVEL OF SERVICE OR PROJECT IN THE 2009-19 LTCCP?

12. Yes - the Annual Plan has made provision for infrastructure rebuild activity in the 2011/12 financial year. Future activity will be addressed in successive Annual Plans and the 2013/22 Long Term Plan.

#### ALIGNMENT WITH STRATEGIES

13. The draft CERA Recovery Strategy provides for the development of a Land, Building and Infrastructure Recovery Plan. This plan is consistent with that foreseen in the Land, Building and Infrastructure Recovery Plan.

#### DO THE RECOMMENDATIONS ALIGN WITH THE COUNCIL'S STRATEGIES?

14. Yes, see above.

#### CONSULTATION FULFILMENT

15. There has been consultation with Council, Community Boards and CERA.

#### STAFF RECOMMENDATION

It is recommended that the Council:

- (a) Approve the Draft Final Infrastructure Rebuild Plan for publication;
- (b) Note the proposed reporting framework, current rebuild estimate, process for the Annual Plan and annual appropriations, and public participation processes;
- (c) Authorise the Chief Executive in conjunction with Canterbury Earthquake Recovery Authority and New Zealand Transport Authority to confirm the scope of each project as it is finalised; and
- (d) Authorise the Chief Executive in conjunction with Canterbury Earthquake Recovery Authority and New Zealand Transport Authority to allocate funding from the approved programme and approve funding for each project as it is finalised.

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**BACKGROUND (THE ISSUES)**

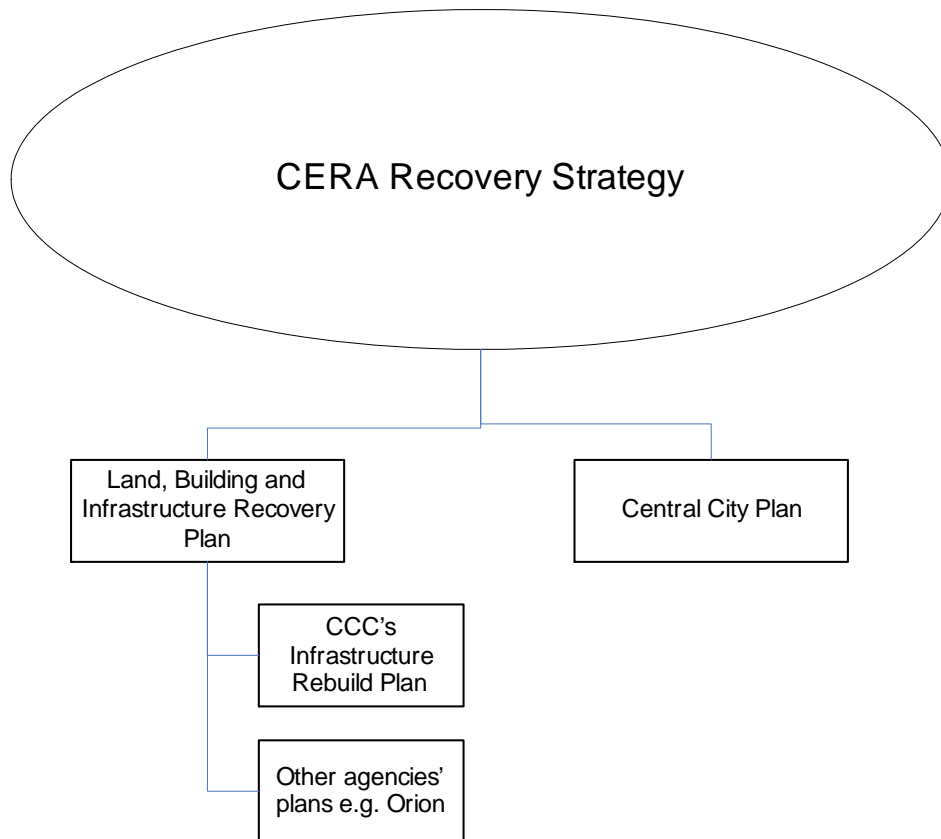
16. A devastating earthquake struck Christchurch on 22 February 2011, causing massive damage to city buildings, underground water and waste services, roads, parks and facilities. The magnitude 6.3 earthquake was centred 2 kilometres west of Lyttelton and struck at 12.51pm. Violent shaking brought down buildings across the city and claimed the lives of 181 people.
17. This happened six months after the 7.1 magnitude 4 September earthquake, centred in Darfield, which also resulted in significant damage to city buildings and infrastructure. While higher in magnitude, the September earthquake was not felt as violently by residents. It struck at 4.35am while many people were still sleeping; damage was widespread but, mercifully, no lives were lost as a direct result of that earthquake.
18. These earthquakes, combined with the more than 8000 aftershocks that have rocked the city since September 2010, have caused an estimated \$2 billion of damage to our city's essential services.
19. At its meeting of 28 April 2011, while considering reinstatement of the City's infrastructure, the Council agreed to:
  - (a) The Council prepare and approve an infrastructure recovery plan or similar, including the community participation processes planned.
  - (b) It ratifies the Chief Executive's proposal for an Alliance to be formed to deliver the reinstatement of the City's damaged infrastructure.
  - (c) The Chief Executive is authorised to approve and enter into such agreements and arrangements as are necessary to implement the proposal for an alliance referred to in (b) above.
  - (d) The Chief Executive is to report at least monthly to the Council on the programme of works and on progress in implementing the recovery plan and the reinstatement work.
  - (e) The Chief Executive is to exercise his authority in accordance with the relevant provisions of the Canterbury Earthquake Recovery Act 2011 and Orders in Council.

**INFRASTRUCTURE REBUILD PLAN**

20. The draft CERA Recovery Strategy provides for the development of a Land, Building and Infrastructure Recovery Plan (LBIRP). LBIRP will identify where, when and how rebuilding can occur; timeframes for making decisions about whether land can be remediated, and a process and timeframe for land remediation; a methodology for reviewing existing national, regional and local strategies and plans; programmes and sequencing of areas for rebuilding and development; a spatial plan for housing and strategic infrastructure and community facilities to maintain the short-term wellbeing of communities, long-term recovery and growth aspirations; a framework for identifying investment priorities and opportunities for horizontal, strategic and community infrastructure; and identification and prioritisation of 'early-win' projects. It is anticipated that LBIRP in draft form will be prepared by April 2012.
21. This plan, the Infrastructure Rebuild Plan (**Attachment 1**), is the Council's plan for reinstating its own infrastructure. It is meant to be totally consistent with that foreseen in LBIRP and will be used to inform its development. The purpose of this plan is to outline the scale of the work ahead, how the work will be coordinated, prioritised, identify key issues and opportunities, and describe how we will work and involve the community in the rebuild.

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22. The diagram below shows the relationship between the Recovery Strategy, LBIRP, and the Infrastructure Rebuild Plan.



23. Staff have met with the Council, Community Boards and CERA to seek feedback on elements of the plan. A summary of the feedback and the action taken is included in **Appendix A**.
24. It is proposed to publish the plan such that it is readily accessible to the public on both the Christchurch City Council and Stronger Christchurch websites with a limited amount of hard copies available at our Service Centres.

**REPORTING**

25. Currently staff are reporting monthly to the Council on the infrastructure rebuild.
26. We are refining this framework such that it is more meaningful. The following structure is being developed:
- Monthly operational progress reports that outline overall progress with regard to projects within the work plan, summary of productivity and performance metrics e.g. lineal metres laid by asset type (sewer main, water main), metres squared of pavement laid; work planned for the next three months; financial progress against annual and total budgets for each asset group.
  - Monthly email updates will be provided for each Community Board that outlines what projects are either ongoing or upcoming within their wards.

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**REBUILD ESTIMATE**

27. The infrastructure rebuild estimate was updated in September 2011. This supersedes the estimate prepared in April 2011. There are four points to consider:
28. Most Likely - the expected or most likely out-turn cost for the infrastructure rebuild. This is used for budgeting and cash flow purposes.
29. Best - the best out-turn cost for the infrastructure rebuild. While a risk adjusted cost estimate has not been prepared, the best could be nominally compared to a P5 cost estimate ie there is a 1 in 20 chance of the out-turn cost being less than this figure.
30. Worst - the worst out-turn cost for the infrastructure rebuild. While a risk adjusted cost estimate has not been prepared, the worst could be nominally compared to a P95 cost estimate ie there is a 1 in 20 chance of the out-turn cost being greater than this figure.
31. September 2011 Outlook - the current estimated out-turn cost for the infrastructure rebuild.
32. The Most Likely cost of the infrastructure rebuild is \$2.207 billion. This is an increase of \$96 million from that estimate prepared in April (\$2.111 billion). The main difference arises from damage sustained in the June earthquake.
33. The Best is \$1.662 billion and the worst is \$2.796 billion. The September Outlook or estimate is \$2.319 billion. It should be noted that the September Outlook lies between the Most Likely and Worst scenarios.
34. The table below provides further detail:

<b>Activity</b>	<b>Most Likely (\$M)</b>	<b>Worst (\$M)</b>	<b>Best (\$M)</b>	<b>September 2011 Outlook (\$M)</b>
Sewer Works	844	1,092	581	756
Water Systems	142	192	107	146
Storm Water Systems	109	182	68	119
Roading	731	862	607	763
Structures	123	142	105	203
Parks and Open Spaces	54	59	43	113
Solid Waste	11	13	9	13
<b>Sub-Total</b>	<b>2,015</b>	<b>2,542</b>	<b>1,520</b>	<b>2,112</b>
Contingency	192	254	142	207
<b>Total incl Contingency</b>	<b>2,207</b>	<b>2,796</b>	<b>1,662</b>	<b>2,319</b>
Escalation				171
<b>Total September outlook for Infrastructure including Contingency and Escalation</b>				<b>2,490</b>

**ANNUAL PLAN AND ANNUAL APPROPRIATIONS PROCESS/DELEGATIONS**

35. Funding will be provided through a combination Government subsidies from the New Zealand Transport Agency (NZTA) and CERA/Treasury, insurance and Council borrowings. This requires significant coordination between Christchurch City Council, NZTA and CERA.
36. A funding process is being developed which will align with the Council's own Annual Plan process. It is anticipated that in February 2012, we will have available the cash flow at a programme level for the infrastructure rebuild for the 2012/13 financial year. This will be supported by a detailed schedule of projects. It is expected that more detail will be available for projects that are to be completed in the early part of the financial year than the latter part.
37. This information will be used to support appropriations from NZTA and CERA/Treasury and in our own Annual Plan process.

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38. Once this programme is approved (the approved programme), it will be managed accordingly. This will involve confirming the scope of each project as it is finalised in real time and allocating the funds to that project from the approved programme. This programme management function will be performed by a joint Board that includes Christchurch City Council, CERA and NZTA officers.
39. For the purposes of delegations it should be noted that:
- (a) In April 2011 the Council ratified the proposal for an Alliance to be formed to deliver the reinstatement of the City's damaged infrastructure;
  - (b) In April 2011 the Council gave authorisation to the Chief Executive to approve and enter into such agreements and arrangements as are necessary to implement the proposal for an alliance;
  - (c) The Council in concert with Central Government will approve an annual programme;
  - (d) A joint Board that includes Christchurch City Council, CERA and NZTA officers will confirm the scope of each project as it is finalised in real time and allocate funds to that project from the approved programme.
40. It should be noted that some of these projects will be greater in value than the current \$5 million delegation for capital works. This delegation is being sought because the three organisations (CERA, NZTA and Christchurch City Council) who each fund a share of the project will each need to approve the project. This delegation is appropriate on the basis of:
- The Council have already approved who will perform the work (the Alliance)
  - The Council will approve the annual programme
  - The scope and standards of the work has been pre-determined
  - The budget for each project is independently verified by an external auditor
  - Opportunities for betterment beyond that envisaged in the annual programme will be reported separately to the Council for their approval
  - Regular reporting will flow through to the Council

#### SCOPE AND STANDARDS

##### *Scope*

41. The scope of the work is limited to the rebuild of the infrastructure damaged in the Canterbury earthquakes. This may involve repair or replacement.

##### *Standards*

42. The standards to be applied for the rebuild are based on the Infrastructure Design Standards that were adopted by the Council in 2010 and the Construction Standard Specifications. In addition to the above, Council officers have prepared an Infrastructure Recovery Technical Standards and Guidelines document that is currently being independently peer reviewed. The purpose of this document is to record actions taken to date and provide technical standards and guidance for the organisations and individuals that will assist the Council to undertake the restoration process associated with the water and roading networks. It is expected that the baseline standard for the infrastructure rebuild will be to replace 'like for like to modern equivalent' (ie using modern materials and modern construction methods) whilst also incorporating earthquake learnings to date where appropriate.

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43. In order to oversee any scope and standards decisions, a committee has been established. This committee is chaired by the General Manager of City Environment and consists of technical representatives from both the Council and CERA. This committee will act as the conduit for scope and standards departures for the rebuild but recognises that where there are significant departures requested that have increased financial implications in excess of \$250,000 or involves changes to agreed Levels of Service then full Council will need to be involved in the decision making process e.g. recent approval of the use of alternative sewer solutions.

#### *Resilience and Betterment*

44. In the case of the infrastructure rebuild, resilience is the ability of our services to resist future earthquake damage and continue to function. Improved infrastructure resilience can be achieved by: using better materials, adopting higher construction standards, creating new systems, building redundancy into systems, and eliminating, isolating or minimising the hazard.
45. Betterment is used to describe an improvement in the system and it raises both opportunity and cost. Examples we will face in the infrastructure rebuild include providing improved resilience to future earthquakes, increasing the capacity of piped networks, enhancing streetscapes and providing new infrastructure.
46. Betterment is not meant to include improvements arising from applying modern day standards and materials. It is clear that the standards at which a pipe was designed and built 50 years ago will be different to today. While this may have a cost consequence it is not betterment.

#### **PUBLIC PARTICIPATION PROCESSES**

47. The community will be involved in the rebuild of our city's infrastructure as the work progresses.
48. However, the infrastructure rebuild is a largely technical project and decisions about how damaged services are replaced must be made by technical experts.
49. Unlike other areas of the city's recovery, such as the draft Central City Plan which was based on the ideas of the community and stakeholders, public participation in the infrastructure rebuild will be largely through information sharing. There will still be opportunities for the community to be involved.
50. Information will be shared through face-to-face briefings, local information displays, letter box drops, online information and advertising. The rebuild team will listen to residents' feedback and respond to any concerns as work progresses.
51. There will also be some opportunities for the community to influence decision-making. This will occur when the bulk of the underground work is complete and planning is underway for above-ground elements on local streets and parks.
52. To keep the cost of the rebuild within budget, in most areas the rebuild will be replacing like with like to modern standards – there will not be large-scale changes to our infrastructure. More time will be spent talking to the community in areas where significant changes are required to what previously existed. For example, where the road and/or streetscape changes noticeably from its pre-earthquake design with the street width being reduced to bring the road into line with current design standards.
53. Interactions with the community will be carried out on two distinct levels:
  - (a) Inform – the community will be actively engaged through clear, timely communication informing them of the nature of the work, duration and any specific impacts during construction, through a wide range of tools and techniques. In many instances this will involve direct personal contact with some of the more directly affected stakeholders, and there may be opportunities to influence the delivery methodology in some instances where that doesn't pose an unacceptable risk to the timing or cost of the project.

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- (b) Consult – stakeholder feedback will be actively sought on specific elements of a project where that feedback can add value to the project or provide a confident platform for well-informed decision making.
54. It is anticipated that for more than 85 percent of the rebuild interaction will be of an inform nature. However, further levels of public engagement will be considered through the rebuild as appropriate to further involve the community.
55. The table below provides an indication on how we will apply these levels (this is summarised in the Infrastructure Rebuild Plan). This table has been provided to the Community Boards for their feedback and any comments received to date have been incorporated in **Appendix A**.

Activity	Notes/Example	Level of Public Participation	
		Inform	Consult
<b>All infrastructure</b>			
Maintenance Repair Like for like replacement	Includes the use of modern materials and to current standards.	✓	✓
<b>Below ground infrastructure</b>			
New systems, same LOS	For example an enhanced gravity sewer system or vacuum sewer system	✓	✗
New systems, different LOS	For example a pressure sewer system	✓ Need and selected option	✓ Location of any associated infrastructure on private property
<b>Above ground infrastructure</b>			
<b>Water and Wastewater Works</b>			
WWTP		✓	✗
New pump station	New site	✓ Need/Requirement	✓ Location
New reservoir	New site	✓ Need/Requirement	✓ Location
New well	New site	✓ Need/Requirement	✓ Location
New well, Reservoir, Pump Station	Existing site	✓	✗
<b>Roading and Structures works</b>			
Carriageway smoothing		✓	✗
Modification to street width		✗	✓
Steet-scape changes (Excluding technical and safety design elements)		✗	✓
Retaining walls		✓	✓ Access to private property for construction. Statutory requirements eg Historic Places Trust -Archaeological Authority



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Activity	Notes/Example	Level of Public Participation	
		Inform	Consult
<i>Parks and Open Spaces</i>			
New structures		✓ Need/Requirement	✓ Location
Significant New landscaping		✓	✓ For areas in excess of 1000m2
<i>Rivers and streams</i>			
Work within streambed		✓ Work within global consent	✓ Work outside of global consent ECan/MKT/Key Stakeholders
Work on River Banks		✓ To meet existing LOS	✓ Changed LOS or access/encroachment onto private property.
Tree Removal		✓ Health and safety/adverse project risk in terms of time/cost	✓ Removal desirable but not essential

**KEY**

- ✓ Either inform or consult or both in the circumstances outlined in the note below the tick
- \* Not inform or consult or both