

Hazards

Canterbury is vulnerable to a range of hazards, including earthquakes, flooding and landslides.

Key issues for 2008/09

Basing development decisions on good information: The Canterbury region is vulnerable to damage from a number of hazards, including earthquakes, liquefaction, storms, flooding and landslides. Natural disasters are costly as are measures to avoid or mitigate them. People, territorial authorities and other organisations need information about hazards so they can make informed land use, infrastructure and development decisions.

Flood risk: For many areas in Canterbury, the most significant and common hazard is flooding. Several rivers with origins along the Main Divide are prone to major floods, particularly after north-westerly rain. Rivers with origins in the foothills and plains are prone to heavy flooding from rain from the south-west and east. In many rivers, flood-warning systems are in place to provide early warning of rising river levels and flood and erosion protection schemes are in place to protect life and property. It is anticipated that as a result of global warming, storm events will be more frequent and intense.

Demand for gravel: In some parts of the region, demand for gravel exceeds supply. Gravel extraction from rivers needs to balance removal to maintain flood capacity but not undermine infrastructure such as bridges and stopbanks.

Safety of dams: Canterbury is home to a number of large dams, particularly in the Waitaki River catchment, and further dam development in the region is likely given the increasing demand for water for irrigation. Dams must comply with the Building Act 2004 to ensure safe and sustainable design and construction, and ongoing dam safety.

» What's changed since the 2006-16 LTCCP?

New dam safety and building consent authority responsibilities under the Building Act 2004.

The hazards group of activities contributes to the following community outcome:

- *People feel safe at all times*

Environment Canterbury's role is as the lead agency for identifying natural hazards and as a joint lead agency with territorial authorities for flood risk reduction.

Levels of service

These services deliver Environment Canterbury's contribution to the community outcomes.

1. Maintaining flood protection and drainage schemes to protect life and property

Measure

The percentage of schemes maintained to their full service potential.

Target

All the 60 schemes listed on the accompanying map are maintained to full service potential.¹

Scheme maintained	
2004/05	100%
2005/06	100%
2006/07	100%
2007/08	Forecast: 100%
2008/09	Target: 100%
2009/10 to 2015/16	Target: 100%

Source: Environment Canterbury.

» What's changed since the 2006-16 LTCCP?

No change. This was previously Level of service 4 in the 2006-16 LTCCP.

Uncertainties

For 2008/09 the following is uncertain:

- the extent of the response required by Environment Canterbury staff during flood events. Diverting staff to assist could impact on normal services in other areas.
- the amount of maintenance work required to maintain design capacity in any one year due to the dynamic nature of river systems.
- the amount of funding for flood and erosion control works that could be required to repair damage arising from major flood events during the next 10 years.

» What's changed since the 2006-16 LTCCP?

No change.

Assumptions

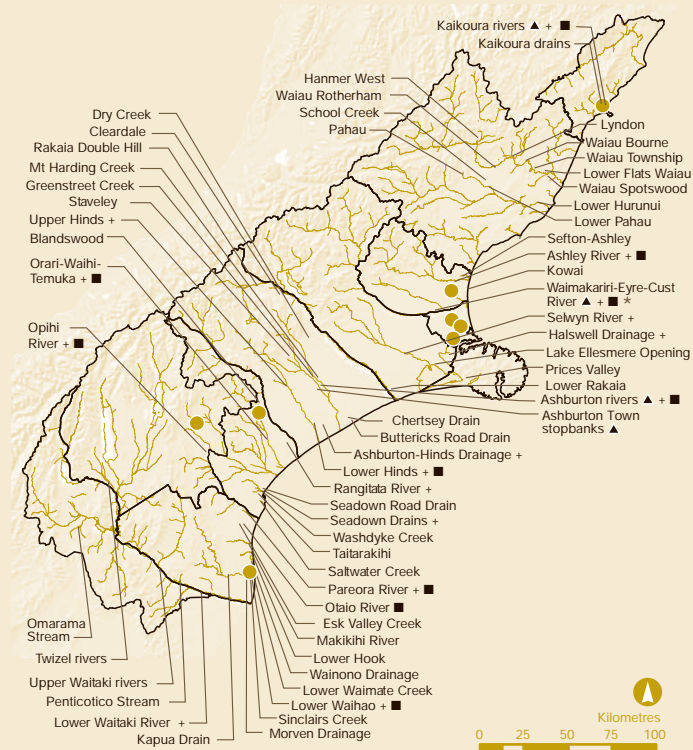
For 2008/09 it is assumed that:

- the cost of immediate works during flood events will be met from catchment rating district reserves and, if required, from other funding arrangements that Environment Canterbury has put in place. No provision for the impact of this has been made in forecasts.
- no provision has been made in forecasts for repairing flood damage. Arrangements for funding longer term repair works will be developed with affected catchment rating districts after the event.
- forecast levels of maintenance expenditure are based on historical levels of damage.

» What's changed since the 2006-16 LTCCP?

No change.

Locations where high flood risk is being managed



● Communities with floodplain management strategies are:

- * Waihaio floodplain (2004)
- * Kaikoura floodplain (2002)
- * Waimakariri floodplain (1996)
- * Butlers Road and Stratheona Huts (1991)
- * Blandswood (1991)
- * Waimakariri District -Ashley/ Waimakariri floodplains (2003)
- * Heathcote floodplain (1998)
- * Styx floodplain (1994)

- Territorial authority boundary
- ▲ Construction of new river control works are planned in the next three years.
- Communities where river bed levels are being monitored.
- ~ River and stream centre lines.
- * The Waimakariri is divided into five segments each surveyed five-yearly on a rotational basis.
- + Communities with asset management plans.

2. Providing information to key agencies during floods

Measure

Police, Civil Defence Emergency Management controllers, radio stations and territorial authorities rating of the information provided during floods.

Target

All agencies rate Environment Canterbury's provision of information as very good or excellent. (On a scale of very poor, poor, satisfactory, very good and excellent.)

Source: Environment Canterbury

» What's changed since the 2006-16 LTCCP?

No change. This was previously Level of service 3 in the 2006-16 LTCCP.

3. Reducing risk of damage to life and property from floods

Measure

The percentage of schemes that perform as designed during flood events.

Target

All the 60 schemes listed on the accompanying map perform as expected.¹

Scheme performance	
2004/05	100%
2005/06	100%
2006/07	100%
2007/08	Forecast: 100%
2008/09	Target: 100%
2009/10 to 2015/16	Target: 100%

Source: Environment Canterbury

» What's changed since the 2006-16 LTCCP?

No change. This was previously Level of service 2 in the 2006-16 LTCCP.

4. Progressing the identification and understanding of hazards and encouraging other agencies with responsibility to take appropriate action

Measure

Progress made on investigating and reducing flood and earthquake hazards.

Target

Stages are completed by the dates set out in the accompanying tables.

Source: Environment Canterbury

Earthquake hazard		
Investigation	Investigation completed ²	Report or strategy published
Earthquake hazard assessment for Waimate, Mackenzie and part Waitaki Districts	2006/07 2007/08	2006/07 2007/08
Potential impact of earthquakes on key primary industries		
Part 1	2006/07	2006/07
Part 2	2007/08	2007/08
Part 3	2008/09	2008/09
Offshore earthquake source	Part 1 completed	completed
Part 2	2007/08	2007/08
Part 3	2008/09	2008/09
Mt Hutt – Mt Peel fault zone	completed	completed
Hunters Hill fault zone	2007/08	2007/08
Earthquake hazard assessment for Kaikoura District	2008/09	2008/09
Earthquake hazard assessment for Waimakariri District (new)	2008/09	2008/09
Characterisation of Christchurch soils for enhanced seismic hazard assessment (new)	Part 1 2008/09	2008/09
Liquefaction hazard in Timaru District	2009/10	2009/10
Historic earthquakes located close to Christchurch	2009/10	2009/10
Economic impact of earthquakes on Christchurch City	2009/10	2009/10
Ashley fault zone	2010/11	2010/11

» What's changed since the 2006-16 LTCCP?

- This was previously Level of service 1 in the 2006-16 LTCCP.
- Investigating earthquake hazard in Waitaki, Waimate and Mackenzie Districts is deferred to 2007/08 after consultation with affected councils to enable them to more fully participate in the process.
- Investigating the potential impact of earthquakes on key primary industries Parts 1-3 has been deferred to enable other higher priority earthquake investigations to proceed.
- The offshore earthquake source investigation work has now been completed by NIWA so funding for Parts 2 and 3 is no longer required.
- Two new earthquake investigations (earthquake hazard assessment for Waimakariri District and Characterising Christchurch Soils) are added to the 2008/09 work programme after consultation with affected councils.

5. Authorising the safe and sustainable design and construction of dams and associated structures⁵ and ensuring ongoing dam safety.

Measure 1

The percentage of building consents⁵ for dams processed in compliance with the statutory time frames set down in the Building Act 2004.

Target
90%*

Measure 2

The percentage of building consent conditions for dams consistent with Building Act 2004 requirements.

Target
100%*

Measure 3

The percentage of dams classified as “medium or high potential impact” that have a registered dam safety assurance programme.

Target
100%*

*No historic data is available. Data collection will start in 2008/09.

» What's changed since the 2006-16 LTCCP?

This level of service is being implemented as a result of new dam safety and building consent authority responsibilities under the Building Act 2004.

¹ The level of flood protection provided is defined in floodplain management strategies, or asset management plans.

² Environment Canterbury's responsibility in respect of earthquake hazard is to provide regional hazard information to the agencies having responsibility for planning and managing this risk, such as district councils and other managers of infrastructural assets. See also, the Civil Defence Emergency Management (CDEM) Group's level of service for lifelines infrastructure on page 94.

³ Flood reduction strategies often include both structural and non-structural measures. Structural measures are usually constructed and maintained by Environment Canterbury and can include floodgates, tree planting and stopbanks. Non-structural measures can often include requirements that district councils are responsible for implementing, usually through the District Plan, such as setting minimum floor levels and other land-use controls.

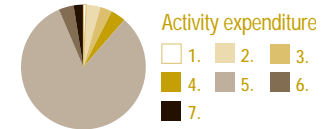
⁴ Because dates for completing flood protection measures are set in consultation with affected communities, these can only be provided where strategies have been published.

⁵ Structures that are integral to the proper functioning of the dam.

Activities

What we plan to do

Work programmes for 2008/09 are set out below.



» Variation from 2006-16 LTCCP

Changes have been made to Activity headings: a new activity 'Strategy' has been added, 'Policy making and planning' has been renamed 'Planning and consents' and 'Regulating and enforcing' has been renamed 'Regulating'. These changes better reflect the way the Council's responsibilities are organised internally and delivered to the community. Items listed under the headings 'what we plan to do' that are affected by these new arrangements have been moved to their new activity.

In 'Regulating' and 'Planning and consents', managing dam construction and safety has been added.

1. Strategy

This activity develops regional strategies for Environment Canterbury's contribution to community outcomes for hazards.

What we plan to do

Year 2008/09

- Evaluate strategy options for addressing issues identified in the Regional Environment Report.

» This work has no identified significant negative effects on community well-being.

2. Investigations

This activity investigates flooding and earthquake hazards.

What we plan to do

Year 2008/09

- Develop hydraulic models for floodplains.
- Investigate issues to support floodplain strategy development.
- Investigate other hazards, including geological and earthquake hazards.

» This work has no identified significant negative effects on community well-being.

Flood hazard

Investigation	Investigation completed	Report or strategy published ³	Agreed flood protection measures completed ⁴
Flood hazard			
Kaikoura area	completed	completed	completed
Waimakariri and Ashley rivers (within Waimakariri District)	completed	completed	2008/09-2009/10
Waimakariri River (within Christchurch City and Selwyn District)	completed	completed	2015/16
Avon River	2007/08	2007/08	-
Halswell River	2009/10 2008/09	2010/11 2008/09	-
Selwyn River	2011/12	2012/13	-
Ashburton River (Urban)	completed	completed	2010/11
Ashburton River (Rural)	2009/10	2010/11	-
Tinwald area	completed	-	-
Lake Hood	2008/09	2008/09	-
Hinds River	2009/10	2010/11	-
Orari, Waihi and Temuka rivers	2012/13	2013/14	-
Temuka area	2008/09	2008/09	-
Arowhenua area	2006/07 2008/09	2006/07 2008/09	-
Pleasant Point area	2008/09	2008/09	-
Levels area	2009/10	2009/10	-
Washdyke Creek	completed	completed	-
Pareora River	completed	completed	completed
Otematata River	2012/13	2012/13	-
Waitaki River	2012/13	2012/13	-

3. Planning and consents

This activity develops policy for flood hazard planning and monitors policy effectiveness and efficiency.

What we plan to do

Year 2008/09

- Work with communities to develop strategies to resolve flood hazard issues.
- Ensure consistency between district and city plans and strategies for managing flood hazard.
- Maintain accreditation and registration as a Building Consent Authority.
- Process dam building consent applications.

» This work has no identified significant negative effects on community well-being.

4. Monitoring

This activity monitors the flood-carrying capacity of rivers.

What we plan to do

Year 2008/09

- Periodically monitor changes in riverbed levels.

» This work has no identified significant negative effects on community well-being.

5. Operations

This activity reduces the impact of flood hazards on the community.

What we plan to do

Year 2008/09

- Maintain flood protection and drainage schemes.
- Maintain the flood-carrying capacity of rivers in river rating districts.
- Manage gravel extraction at sustainable levels.
- Undertake construction of new flood protection measures.
- Continuously monitor river levels.
- Provide flood alerts and manage flood events.
- Manage regional reserves.
- Manage regional forestry.

» Flood protection measures may have a significant negative effect on environmental well-being, through the physical impact of stopbanks and other structures, and cultural well-being, through potential impact on biodiversity and tangata whenua values. However, this is outweighed by increased social and economic well-being, arising from increased safety from the impact of flooding.

6. Communicating, educating and advocating

This activity raises awareness of hazards and provides advice about flood risk.

What we plan to do

Year 2008/09

- Provide information about earthquake, flood, landslide and tsunami hazards.
- Provide river flow information through the River Report phone line and the Environment Canterbury website.
- Provide advice about building on floodplains.

» This work has no identified significant negative effects on community well-being.

7. Regulating

This activity regulates dam safety and ensures compliance with the Building Act 2004.

What we plan to do

Year 2008/09

- Develop and maintain a dams register in association with dam owners and key stakeholders.
- Work with dam owners to monitor dam building consents for compliance with the Building Act 2004.

» Meeting the cost of complying with consent conditions may have a significant negative effect on the economic well-being of dam owners. However, this is outweighed by increased community social well-being arising from dams being designed, constructed and maintained in a safe and sustainable manner.

Financial summary

\$ in thousands	Annual Report 2006/07	Annual Plan 2007/08	LTCCP 2008/09	Annual Plan 2008/09
Operating Revenue				
General rates	2,676	2,874	2,830	2,827
Targeted rates	5,053	5,054	5,162	5,168
Statutory charges/User pays	1,697	2,435	2,348	3,082
Grants	210	210	230	429
Interest	436	511	490	631
Total Operating Revenue	10,072	11,084	11,060	12,137
Operating Expenditure				
Expenditure	8,234	10,583	11,321	11,259
Interest	-	-	-	-
Depreciation	256	25	18	40
Total Operating Expenditure	8,490	10,608	11,339	11,299
Operating Surplus/(Deficit)	1,582	476	(279)	838
Operating Surplus/(Deficit) transferred to Catchment Reserve	1,020	476	(279)	898
Operating Surplus/(Deficit) transferred to General Reserve	562	-	-	(60)

Capital Expenditure

■ Refer to Appendix 2 page 106 and 107 for more information on capital expenditure associated with this activity. Capital expenditure associated with this group of activities is funded from general funds and included as depreciation expense.

For more information on source of funds and rationale for selection, see:

Funding and Financial Policies

2006/16 LTCCP Part B

Pages 3-33

» Variation from 2006-16 LTCCP

Previously net income from leasing catchment reserve lands was shown as user pays income. In the Annual Plan, income and expenditure have been separated and shown as user pays income and operating expenditure.