



## Hazards group of activities

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

- People feel safe at all times
- A strong economy
- Business and farming activities do not harm the environment

Environment Canterbury is the lead agency for gathering and providing information on natural hazards (Resource Management Act 1991) and is a joint lead agency with territorial authorities for flood risk reduction (Soil Conservation and Rivers Control Act 1941). Environment Canterbury is required to administer the Ellesmere Lands Drainage Act 1905, the Waimakariri River Improvement Act 1922, the Ashley River Improvement Act 1925, and the South Canterbury Catchment Board Act 1946, and is a leasing authority for reserve land (Reserves Act 1977). Environment Canterbury is required to maintain a register of dams in the region, to have an operative dangerous dams policy, and to be a Building Consent Authority responsible for processing and monitoring building consents for dams (Building Act 2004).

## KEY ISSUES FOR 2009-19

### Need for good hazard information

Environment Canterbury, the Canterbury Civil Defence Emergency Management Group, territorial authorities, infrastructure providers and other organisations need accurate information about hazards and vulnerabilities so they can make informed decisions about risk reduction, readiness, response and recovery. Ongoing hazard investigations are required to make sure enough information is available about floods, earthquakes, tsunamis, landslides and meteorological hazards.

### Climate change

Climate change is predicted to affect the frequency and magnitude of some natural hazards, including floods and landslides.

### Flood risk

Many of Canterbury's communities are built on the floodplains of rivers rising in the Southern Alps and their foothills. Reducing flood risk requires a combination of measures, including land use planning, public education, river catchment works, monitoring river levels and providing flood warnings. New rating districts may be established in consultation with local communities to address specific flood risks.

>> Waimakariri Flood Protection Project. Go to page 62.

### Gravel demand

Demand for gravel exceeds supply in some parts of the region. Gravel extraction from rivers helps to maintain flood capacity but can also compromise the integrity of infrastructure such as bridges and stopbanks if not managed properly. Gravel extraction is managed through land use resource consents (see page 60).

### Dam safety

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.

## Effect on the four well-beings

Reducing the impact of flooding increases social and economic well-being. Weed control and management of riverbed and riparian areas increases environmental well-being. However, flood protection measures may adversely affect 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.

In relation to dams, there is increased community social well-being arising from dams being designed, constructed and maintained in a safe and sustainable manner. However, for dam owners, meeting the cost of complying with consent conditions may adversely affect economic well-being.



SOCIAL



ECONOMIC



ENVIRONMENTAL



CULTURAL

## Involving the community

- Several communities have contributed to tailored floodplain management strategies, ensuring that an acceptable and affordable combination of flood mitigation measures is put in place.
- Sixty one river rating liaison committees throughout Canterbury annually recommend work programmes and levels of funding for river works. See Level of Service 3 (page 59) for a map showing location of river and drainage schemes.
- The River Gravel Liaison Committee assists Environment Canterbury to manage the sustainable extraction of gravel from riverbeds.

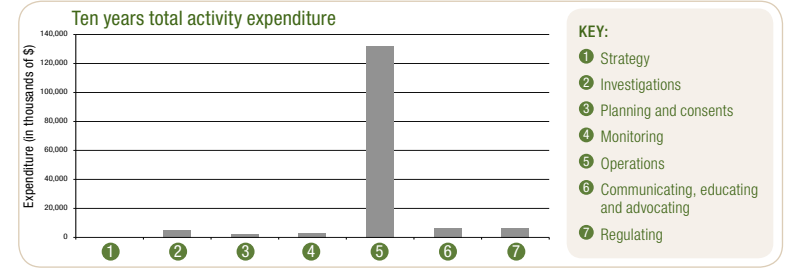
# ACTIVITIES

## Priority over the next 10 years

The focus for this group of activities is maintaining flood and erosion control works, including additional flood mitigation on the Waimakariri River floodplain.

We will undertake the following activities:

- 1 Strategy**  
Developing regional strategies for Environment Canterbury's contribution to community outcomes for hazards and, in addition, community floodplain management strategies.
- 2 Investigations**  
Investigating river flood, earthquake, tsunami and landslide hazards.
- 3 Planning and consents**  
Developing natural hazard management policy, working with territorial authorities and processing building consents for dams.
- 4 Monitoring**  
Monitoring natural hazards and risks, including the flood-carrying capacity of rivers and gravel extraction.
- 5 Operations**  
Reducing the impact of flooding on the community.
- 6 Communicating, educating and advocating**  
Raising awareness and providing advice about natural hazards.
- 7 Regulating**  
Regulating dam safety and ensuring compliance with building consent conditions.



## WORK PROGRAMMES FOR 2009/10 TO 2018/19:

- 1 Strategy**  
**Years 2010/11, 2013/14 and 2016/17**
  - Review Environment Canterbury's hazard strategy.
- 2 Investigations**  
**Years 2009/10 to 2018/19**
  - Investigate river flood hazards.
  - Investigations to support floodplain land use management and strategy development.
  - Investigate earthquake hazards.
  - Investigate tsunami hazards.
  - Assist territorial authorities to investigate landslide hazards.
- 3 Planning and consents**  
**Years 2009/10 to 2018/19**
  - Work with communities to resolve flood risk issues.
  - Ensure district and city plans give effect to the Regional Policy Statement and floodplain management strategies for managing flood risk.
  - Maintain accreditation and registration as a Building Consent Authority.
  - Process dam building consent applications.
- 4 Monitoring**  
**Years 2009/10 to 2018/19**
  - Monitor river levels.
  - Monitor changes in riverbed levels.

| UNCERTAINTIES  | ASSUMPTIONS   |
|--|---|
| For 2009-19, the following is uncertain:   | For 2009-19, it is assumed that:  |
| a) The amount of funding required to repair flood and erosion control works damaged by major flood events.   | a) The costs 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. |
| b) The amount of maintenance work required to maintain design capacity in any one year due to the dynamic nature of river systems.                                   | b) Forecast levels of maintenance expenditure are based on historical levels of damage. No budget provision has been made for repairing significant flood damage.                                       |
| c) Whether work programme priorities will need to change as a result of natural hazard events or changing territorial authority and research institution priorities. | c) The work programme does not make provision for a natural hazard event or changing territorial authority and research institution priorities.   |
| d) The number of dams in the region, including the number of dangerous dams and medium or high potential impact dams.  | d) Budget provision is sufficient to carry out regional authority functions with regard to dams.  |
| e) The number of new river rating districts that may be established.   | e) No provision has been made for any future new rating districts.  |

## LEVELS OF SERVICE



### 5 Operations

Years 2009/10 to 2018/19

- Maintain river and drainage schemes in river rating districts.
- Maintain the flood-carrying capacity of rivers in river rating districts.
- Manage gravel extraction at sustainable levels.
- Undertake construction of new flood protection measures, including the Waimakariri Flood Protection Project.
- Provide timely information on river levels.
- Provide flood warnings and manage flood events.
- Manage regional reserves, including protection of biodiversity sites.
- Manage regional forestry.

### 6 Communicating, educating and advocating

Years 2009/10 to 2018/19

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

### 7 Regulating

Years 2009/10 to 2018/19

- 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 consent conditions.

### HOW ENVIRONMENT CANTERBURY'S LEVELS OF SERVICE RELATE TO THE COMMUNITY OUTCOMES

| Levels of Service   | Community Outcomes            |                                  |   |
|---|-------------------------------|----------------------------------|---|
|   | People feel safe at all times | A strong and sustainable economy | Business and farming activities do not harm the environment |
| 1 Providing information during floods   | <input type="checkbox"/>      |                                  |   |
| 2 Working with territorial authorities  | <input type="checkbox"/>      | <input type="checkbox"/>         | <input type="checkbox"/>                                    |
| 3 Reducing flood risk   | <input type="checkbox"/>      | <input type="checkbox"/>         |   |
| 4 Collecting and providing natural hazard information   | <input type="checkbox"/>      | <input type="checkbox"/>         |   |
| 5 Authorising the safe and sustainable design and construction of dams and associated structures, and ensuring ongoing dam safety | <input type="checkbox"/>      |                                  |   |
| 6 Authorising and monitoring the use of natural and physical resources  | <input type="checkbox"/>      | <input type="checkbox"/>         | <input type="checkbox"/>                                    |

*Environment Canterbury's contribution will be reported on each year in our annual report.*

## OUR LEVELS OF SERVICE

### 1 Providing information during floods

#### MEASURE 1

The provision of river flood warnings to key agencies when agreed trigger levels are exceeded.

#### TARGET

Police, civil defence emergency management, radio stations and territorial authorities receive flood warnings.

#### MEASURE 2

The percentage of time that up-to-date<sup>1</sup> river level and flood information is available on Environment Canterbury's website and the River Report info line.

#### TARGET

Information is available at all times.

### 2 Working with territorial authorities

#### MEASURE

The percentage of reviewed district and city council plans that give effect to or are not inconsistent with regional policies for managing natural hazards.

#### TARGET

100% of reviewed plans (see table).

Note: Second generation plans will be developed by district and city councils by way of a plan review under section 79 of the Resource Management Act 1991. Environment Canterbury will review all second generation plans to ensure they give effect to the Canterbury Regional Policy Statement (CRPS) or are not inconsistent with the Proposed Natural Resources Regional Plan (PNRRP).

#### District and city council plans

| Council                       | First plan operative | Review of plan commences |
|-------------------------------|----------------------|--------------------------|
| Ashburton District Plan       | 2001                 | 2008                     |
| Waimate District Plan         | 2001                 | 2011                     |
| Hurunui District Plan         | 2003                 | 2013                     |
| Mackenzie District Plan       | 2004                 | 2014                     |
| Waimakariri District Plan     | 2005                 | 2015                     |
| Timaru District Plan          | 2005                 | 2015                     |
| Waitaki District Plan         | 2005*                | 2015                     |
| Christchurch City Plan        | 2007*                | 2017                     |
| Selwyn District Plan          | 2007                 | 2017                     |
| Kaikoura District Plan        | 2008                 | 2018                     |
| Banks Peninsula District Plan | 2009**               | 2019                     |

\* operative in part  
\*\* assumed operative date

### 3 Reducing flood risk

#### MEASURE 1

The percentage of river and drainage schemes that perform as designed during flood events.<sup>2</sup>

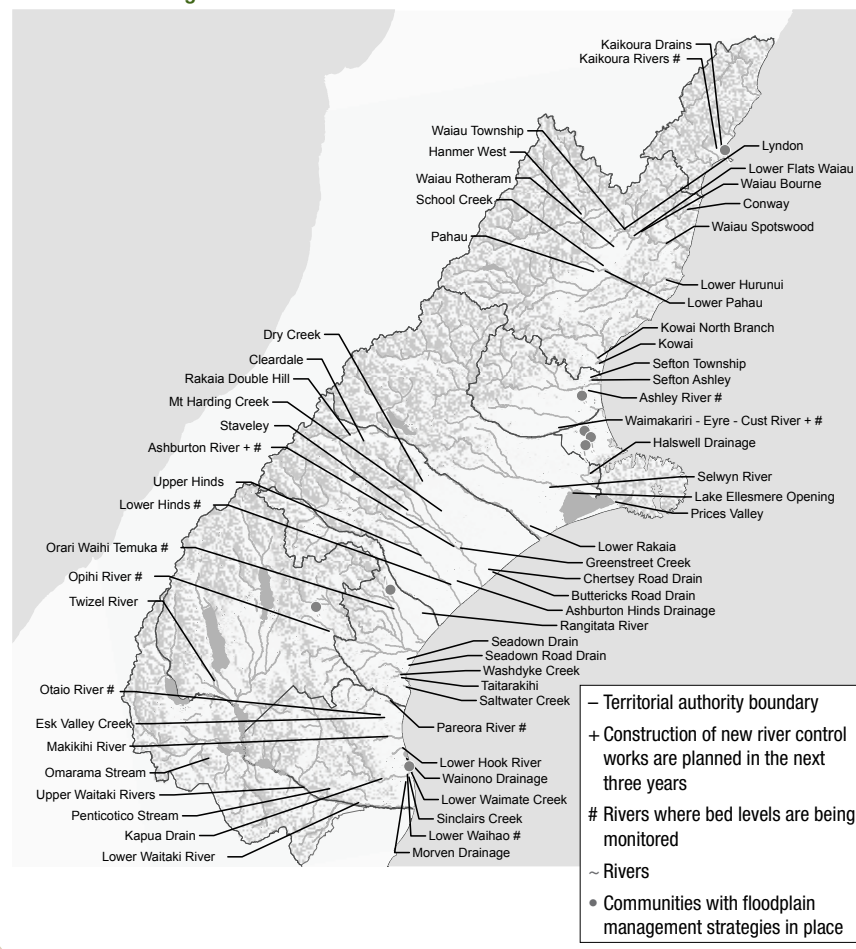
#### MEASURE 2

The percentage of schemes maintained to their full service potential<sup>2</sup>.

#### TARGET FOR MEASURES 1 AND 2

100% (all 61 schemes)

#### River and drainage schemes



<sup>1</sup> Updated when agreed flooding trigger levels are exceeded.

<sup>2</sup> The level of flood protection provided is defined in floodplain management strategies, or asset management plans.

## 4 Collecting and providing natural hazard information

### MEASURE 1

The availability of river flood hazard information.

### TARGET

See table.

| River or floodplain | Year findings reported |
|---------------------|------------------------|
| Washdyke            | 2009/10                |
| Halswell            | 2010/11                |
| Lake Hood           | 2010/11                |
| Selwyn              | 2011/12                |
| Orari/Waihi/Temuka  | 2011/12                |
| Arowhenua           | 2011/12                |
| Levels Plains       | 2012/13                |

### MEASURE 2

The availability of earthquake fault avoidance zone maps.

### TARGET

See table.

| Territorial Authority | Year findings reported |
|-----------------------|------------------------|
| Waimate               | 2009/10                |
| Mackenzie             | 2009/10                |
| Hurunui               | 2010/11                |
| Waimakariri           | 2011/12                |
| Timaru                | 2011/12                |
| Kaikoura              | 2012/13                |
| Waitaki               | 2012/13                |
| Selwyn                | 2013/14                |

Note: Ashburton will be completed in 2008/09 and there are no known active faults mapped within Christchurch city or Banks Peninsula. Source: Environment Canterbury.

### MEASURE 3

The availability of natural hazard information on Environment Canterbury's website.

### TARGET

Information is updated six-monthly and is available at all times.

## 5 Authorising the safe and sustainable design and construction of dams and associated structures,<sup>3</sup> and ensuring ongoing dam safety

### MEASURE 1

The percentage of building consents for dams processed in compliance with the statutory time frames set down in the Building Act 2004.<sup>4</sup>

### TARGET

100%.

### MEASURE 2

The percentage of building consent conditions for dams consistent with Building Act 2004 requirements.<sup>4</sup>

### TARGET

100%.

### MEASURE 3

The percentage of dams classified as "medium or high potential impact" that have a registered dam safety assurance programme.<sup>5</sup>

### TARGET

100%.

## 6 Authorising and monitoring the use of natural and physical resources

### MEASURE

The percentage of gravel extraction resource consents consistent with Resource Management Act 1991 requirements, including proposed and operative regional plan requirements.

### TARGET

100%.

Source: External audit of sample of issued consents.

<sup>3</sup> Structures that are integral to the proper functioning of dams.

<sup>4</sup> Environment Canterbury is an accredited Building Consent Authority under the Building Act 2004.

<sup>5</sup> New dams classified as "medium or high potential impact" must register a dam safety assurance programme within 3 months of being commissioned. Existing dams so classified are required to register a dam safety assurance programme by October 2010.

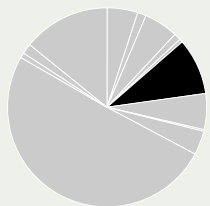
# FINANCIAL SUMMARY

## Asset management and capital expenditure

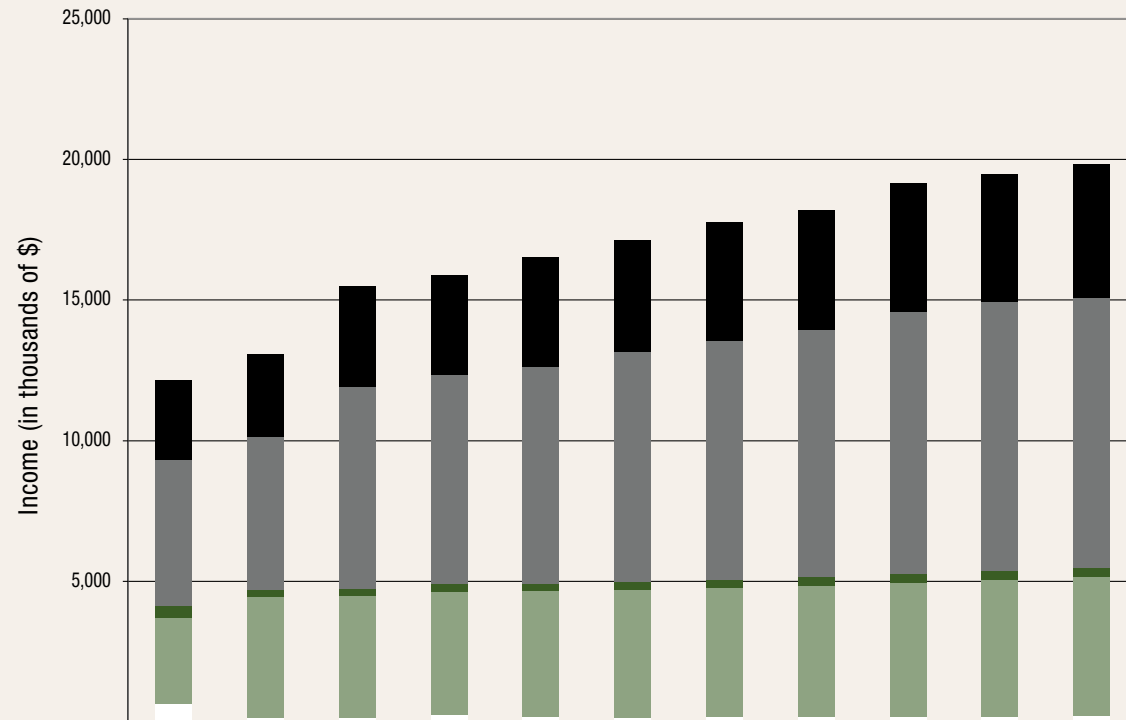
See Appendix 3 for information on assets involved in this group of activities.

## How this work is funded

For more information on source of funds and rationale for selection, see: 2009 Funding and Financial Policies, Long Term Council Community Plan Part B.



Ten years total expenditure, all 13 groups of activities  
KEY: ■ This group of activities



| (\$000)                     | 2008/09 Annual Plan | 2009/10 LTCCP | 2010/11 LTCCP | 2011/12 LTCCP | 2012/13 LTCCP | 2013/14 LTCCP | 2014/15 LTCCP | 2015/16 LTCCP | 2016/17 LTCCP | 2017/18 LTCCP | 2018/19 LTCCP |
|-----------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Interest                    | 631                 | 153           | 147           | 238           | 194           | 158           | 164           | 172           | 180           | 199           | 213           |
| User Pays/Other             | 3,082               | 4,296         | 4,324         | 4,388         | 4,444         | 4,522         | 4,604         | 4,684         | 4,769         | 4,851         | 4,940         |
| Grants                      | 429                 | 253           | 272           | 272           | 292           | 302           | 307           | 307           | 327           | 327           | 327           |
| Targeted Rates              | 5,168               | 5,449         | 7,168         | 7,457         | 7,718         | 8,174         | 8,496         | 8,801         | 9,311         | 9,569         | 9,599         |
| General Rates               | 2,827               | 2,928         | 3,579         | 3,535         | 3,898         | 3,965         | 4,209         | 4,231         | 4,567         | 4,544         | 4,764         |
| <b>Total Income</b>         | <b>12,137</b>       | <b>13,079</b> | <b>15,490</b> | <b>15,890</b> | <b>16,546</b> | <b>17,121</b> | <b>17,780</b> | <b>18,195</b> | <b>19,154</b> | <b>19,490</b> | <b>19,843</b> |
| Operating Expenditure       | 11,299              | 12,328        | 13,817        | 14,490        | 14,959        | 15,181        | 15,853        | 16,269        | 17,081        | 17,573        | 17,773        |
| Operating Surplus/(Deficit) | 838                 | 751           | 1,673         | 1,400         | 1,587         | 1,940         | 1,927         | 1,926         | 2,073         | 1,917         | 2,070         |
| Reserves                    | (838)               | (751)         | (1,673)       | (1,400)       | (1,587)       | (1,940)       | (1,927)       | (1,926)       | (2,073)       | (1,917)       | (2,070)       |

# Waimakariri Flood Protection Project

## What the Council decided



### THE DRAFT 2009-19 LONG TERM COUNCIL COMMUNITY PLAN PROPOSED:

- That the Waimakariri Flood Protection Project loan payback period is spread over 25 years (loan repayments will include an adjustment for inflation).
- That the project is funded via a new three class targeted rating district, along with a works and services rate and a general rate contribution.

### COUNCIL'S DECISION

This proposal was adopted in full.

### BACKGROUND TO THE PROPOSAL

The Waimakariri Flood Protection Project is designed to provide additional protection to the residents of Christchurch city, Selwyn and Waimakariri districts from the effects of a significant flood in the Waimakariri River.

On the north side of the river the project will upgrade the existing stopbanks where necessary, construct continuous rock armouring from the Eyre Diversion to State Highway 1, and install seepage protection to the toe of the north stopbank in the area of the old North Branch (known as Baynons).

On the south side of the river the project will link together the sections of existing secondary stopbank between Halkett and State Highway 1 to contain overflows. The work will include upgrading rock protection at the bridges, South Branch/Otukaikino confluence, and Engelbrechts.

A flood warning and evacuation plan will be prepared and implemented for the floodplain area between the primary and secondary stopbanks on the southern side of the river in the Halkett, McLeans Island, and Coutts Island areas.

### WHAT THE SUBMITTERS TOLD US

Submissions were generally strongly in support of the Waimakariri Flood Protection Project and its funding and rating consequences.

Some submissions sought removal of the Class B classification, in which property owners receiving indirect benefit pay a lower targeted rate, and suggested collection of this funding from general rates. This suggestion was not supported by Council.

### IMPACT ON RATES

The estimated cost of the project is \$34M (2008 dollars) over a 10-year construction period, planned to start in 2010/11. The work will be funded by a loan to be repaid over a specific period via a targeted rate, along with a combination of general rates, works and services rates and income from Waimakariri reserve land.

Funding options considered for the targeted rate component included spreading the loan to pay for the project over a 10-year, 25-year or 50-year payback period. The Council also considered different construction periods for the project. It was decided to structure the project so that the work is carried out over 10 years, but to reduce the impact on ratepayers the funding for the project will be spread over 25 years.

Seventy percent of the cost of these works will be financed by a new targeted rating district,<sup>6</sup> 15% by a works and services rate levied across Christchurch city, Waimakariri and Selwyn districts, and 15% by the general rate across the whole of Canterbury.

The new targeted rating district is based on three classifications (see map):

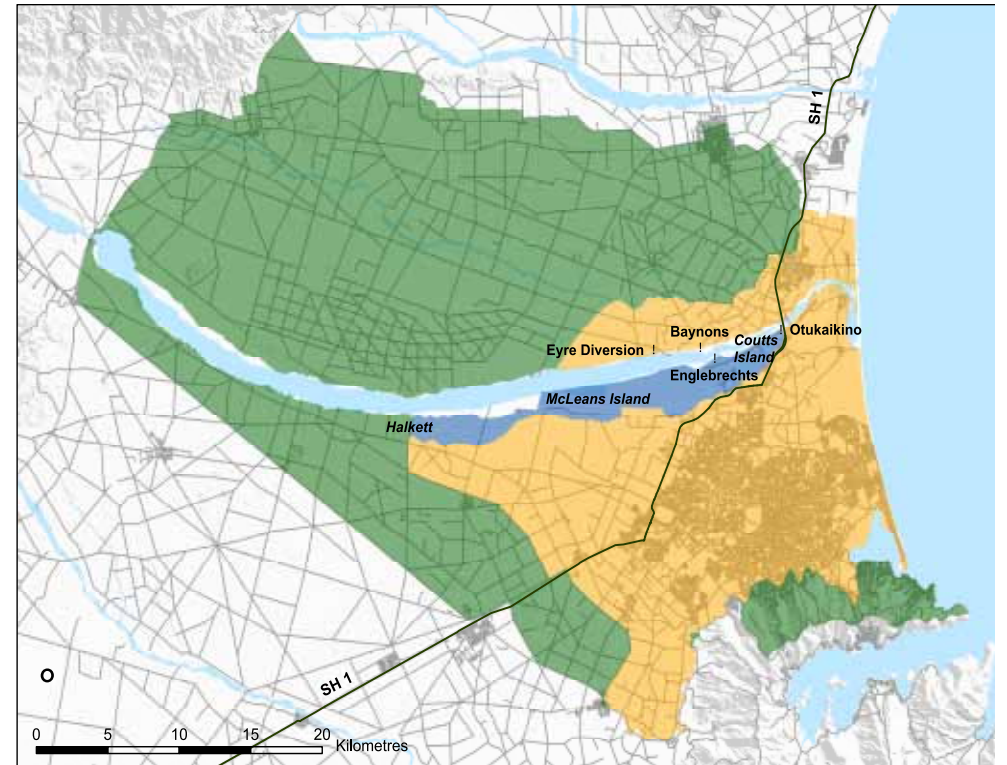
- Class A: property owners receive direct benefit.
- Class B: property owners receive an indirect benefit.
- Class C: property owners receive no benefit because these properties are located between the primary and secondary bank systems.

The table below shows the levels of targeted rates for this work. The average general rate over the whole region in 2010/11 will be \$0.23/\$100,000 capital value (the actual amount in each district will vary due to the influence of equalisation).

Proposed targeted rate per \$100,000 capital value for 2010/11

|                      | Class A targeted rate | Class B | Class C | Works and Services Rate |
|----------------------|-----------------------|---------|---------|-------------------------|
| Waimakariri District | \$2.27                | \$0.45  | \$0     | \$0.25                  |
| Christchurch City    | \$2.22                | \$0.44  | \$0     | \$0.33                  |
| Selwyn District      | \$2.66                | \$0.53  | \$0     | \$0.13                  |

### Proposed rating district to fund the Waimakariri Flood Protection Project



- Class**
- A Property owners receive direct benefit
  - B Property owners receive an indirect benefit
  - C Property owners receive no benefit

<sup>6</sup> The existing Waimakariri-Eyre-Cust river rating district, that maintains existing flood protection works, is unaffected by the establishment of the new targeted rating district.