

**BANKS PENINSULA WATER MANAGEMENT ZONE COMMITTEE
20 MARCH 2012**

**A meeting of the Banks Peninsula Water Management Zone Committee was held
in the Governor's Bay Hotel on Tuesday 20 March 2012 at 4pm.**

PRESENT: Donald Couch, Commissioner Environment Canterbury
(Interim Chairperson)
Yvette Couch-Lewis, Community Representative
Steve Lowndes, Community Representative
Councillor Claudia Reid, Christchurch City Council
Pam Richardson, Community Representative
Kevin Simcock, Community Representative
Richard Simpson, Community Representative
Wade Wereta-Osborn, Te Rūnanga o Koukourarata.

APOLOGIES: An apology for lateness was received and accepted from Councillor
Claudia Reid who arrived at 4.15pm and was absent for clause 2
and part of clause 3.

Apologies for absence were received and accepted from Ilean
Cranwell (Te Rūnanga o Wairewa), Pere Tainui (Te Rūnanga o
Ōnuku), and June Swindells (Te Hapu O Ngati Wheke).

1. CONFIRMATION OF MINUTES – 21 FEBRUARY 2012

It was **decided** that the minutes of 21 February 2012 be approved as a true and
accurate record, subject to the following amendments:

Clause 5 (Regional Committee update):

*'Commissioner Donald Couch advised the Committee that he had been unable to
attend the Regional Committee meeting on 47 February 2012.'*

2. DEPUTATIONS BY APPOINTMENT

A deputation was **received** from Paula Smith on sediment 'pollution' in Lyttelton
Harbour (refer **attached**). Paula requested that the Committee include consideration of
this issue into its workplan, as a priority.

3. IDENTIFICATION OF URGENT ITEMS

Nil.

4. IDENTIFICATION OF ANY GENERAL PUBLIC CONTRIBUTIONS

Claire Findlay, Chair of the Lyttelton Harbour/Whakaraupo Issues Group, expressed
the intention to make a deputation in support of that received from Paula Smith on
sediment 'pollution' in Lyttelton Harbour, at a later date.

5. UPDATE OF WORKPLAN

Francis Pauwels, Programme Director CWMS, informed the Committee that the new
Environment Canterbury (ECan) Facilitator, Fiona Nicol, would be starting in early April.

17. 4. 2012

20 March 2012

5 Cont'd

The Committee were advised that it would have approximately four months to work on the Zone Implementation Programme (ZIP), and that the new ECan Facilitator would provide a timeline before the next meeting, and would ensure that the workplan fits within these timeframes for the preparation of the ZIP.

6. WATER SUPPLY STRATEGY PRESENTATION

The Committee **received** a presentation from Diane Shelander, Christchurch City Council, on the Water Supply Strategy (refer **attached**).

The Committee discussed issues around water restrictions and retention of rainwater, including reference to potential measures to conserve water in the long term.

Peter Kingsbury (Christchurch City Council) agreed to provide the Committee with hard copies of the Water Supply Strategy.

Pam Richardson requested that staff provide the Committee with updated information on the Akaroa rainwater tank study.

7. SURFACE WATER STRATEGY PRESENTATION

The Committee **received** a presentation from Mel Renganathan, Christchurch City Council, on the Surface Water Strategy (refer **attached**).

In response to concerns that the strategy was too narrow in its focus solely on surface water, Jenny Ridgen (Christchurch City Council) assured the Committee that a more holistic approach would be included in the implementation of the strategy with regards to Banks Peninsula, which would address wider issues such as sediment runoff.

8. DRAFT RIP CONSULTATION

The Committee discussed the upcoming workshop on the draft Regional Implementation Plan (dRIP), including nominating Committee delegates to attend and specific issues for Banks Peninsula that the Zone Committee would address.

The Committee was encouraged by the Zone Facilitator and the interim Chair to actively participate in this process and take advantage of the experiences gained by other zone committees further along in the process.

The Committee agreed that Steve Lowndes, Richard Simpson, and Donald Couch attend the zone workshop session 1 on 30 March 2012, and that Yvette Couch-Lewis and Ilaean Cranwell would attend session 2 and session 3 also on 30 March 2012.

9. ADJOURNMENT

The Committee adjourned from 5.55 to 6.46 pm.

10. WORKING GROUP DISCUSSION

The Committee considered the draft priority outcomes which had been developed at the workshop held on 13 March 2012.

The Committee **decided** to address issues as a group and only split into working parties if there is a specialist area requiring additional action.

With regard to the timings of future workshops, the Committee **agreed** that workshops would be held on the weekends where possible to allow more members to attend.

10. Cont'd

The Committee discussed the land/sea interface and the limit of the Committee's remit. The Committee considered that this issue may become more clear as they narrow the focus of their workplan, and agreed that they would consider the effect of freshwater on the sea. The Committee requested to receive a presentation from David Gregory on coastal issues to help clarify this issue.

The Committee considered the draft list of principles and priority outcomes and amended the list as follows:

- ~~'safe drinking water is available for private supplies~~ private water supplies are protected from harm'
- 'waste *and surface* water management is improved in *the* Little River *catchment*; Lyttelton and Akaroa harbours'
- 'improved efficiency in the use of *waters* in the Zone.'

The Committee agreed that further work was required to split the bullet points in the draft list further at the next meeting, and noted that further presentations made to the Committee should be focused on the areas identified in the draft list.

Francis Pauwels agreed to supply the Committee with copies of the ZIPs from other zones for information.

11. APPOINTMENT OF CHAIRPERSON, DEPUTY CHAIRPERSON AND REGIONAL REPRESENTATIVE

It was **decided** on the motion of Kevin Simcock, seconded by Pam Richardson, that the Committee adopt to use the System B method of voting, as outlined in the agenda, to elect a Chairperson, Deputy Chairperson, and Regional Committee Representative.

The interim Chairperson called for nominations for the position of Chairperson.

Steve Lowndes was nominated by Kevin Simcock and seconded by Pam Richardson.

Richard Simpson was nominated by Pam Richardson and seconded by Kevin Simcock.

Richard Simpson was declared **elected** as Chairperson.

The interim Chairperson called for nominations for the position of Deputy Chairperson.

Yvette Couch-Lewis was nominated by Councillor Claudia Reid and was seconded by Richard Simpson.

There being no other nominations, Yvette Couch-Lewis was declared **elected** as Deputy Chairperson.

The interim Chairperson called for nominations for the position of Regional Representative.

Iaeen Cranwell was nominated by Yvette Couch-Lewis, seconded by Kevin Simcock.

There being no other nominations, Iaeen Cranwell was declared **elected** as Regional Representative.

The meeting concluded at 8.15pm.

CONFIRMED THIS 17TH DAY OF APRIL 2012

**DONALD COUCH
INTERIM CHAIRPERSON**

Deputation
to **Banks Peninsula Water Management Zone Committee**
by Paula Smith of Diamond Harbour
on 20 March 2012, 4.00pm at Governors Bay Hotel

Sediment “Pollution” in Lyttelton Harbour:

Stormwater management issues impacting on the streams and sea waters of the Lyttelton Harbour/ Whakaraupo catchment.

My name is Paula Smith. Some of you will be aware that I am chairperson of the Lyttelton/Mt Herbert Community Board but I am speaking to you today, not as an elected representative of the communities of Lyttelton Harbour and Port Levy, but simply as myself, a resident of Diamond Harbour where I am a housewife and mother of three, formerly a practising Landscape Architect, with a background in plant ecology. These are my personal views.

My parents bought a bach at Diamond Harbour when I was six. We used to come from Christchurch most weekends. I have been observing changes in the landscape and ecology of Lyttelton Harbour for over 45 years. I vividly remember the harm done by the Wahine Storm of 1968. For my painting of Stoddart Point with the pines violently uprooted by wind and rain I won second prize in the The Farmers Brownie painting competition. My prize was a French knitting set with six skeins of brightly coloured wool. I loved it.

I attended your October meeting when Dr Bolton-Ritchie talked about the state of the Banks Peninsula water resource. You may remember she told you that as a younger woman she enjoyed diving but she only ever did it in Akaroa, never in the Lyttelton harbour because suspended sediment makes the Lyttelton water so turbid nothing can be seen.

Why is Lyttelton Harbour/Whakaraupo more turbid (more milky) than Akaroa? Both have the same soil type and similar topography, and both harbours have a long history of forest clearance and pastoral farming. You might think Akaroa's higher rainfall would mean more erosion and more sediment. Maybe the opposite is true. Lyttelton's lower rainfall, which decreases as you move down the harbour, and our regular summer drought is hard on plants. Survival is lower and growth is slower. Any bare soil takes longer to re-vegetate here.

Other obvious factors which make Lyttelton different from Akaroa include over a century of dredging to keep shipping channels open, and possibly changes to natural water circulation patterns in the harbour caused by breakwaters and reclamations. A big factor is the prevailing easterly honking up the relatively shallow harbour creating wave action which keeps sediment suspended.

(Set up loess soil flocculation/slacking demonstration).

Our soil type and steep topography mean there has always been a small amount of sediment entering the harbours with run-off. For this landscape it is, to some extent, a natural process. But since human settlement the rate at which sediment enters the streams and harbour has increased exponentially.

Anecdotal evidence: about changes to stream and harbour ecology. These days traditional foods have a much restricted range, or are depleted, or gone.

Anecdotal evidence: about infilling of the harbour. A ferry used to routinely call at

Governors Bay jetty. Now the harbour is too shallow.

Empirical evidence: One estimate calculates the already shallow Lyttelton Harbour has infilled with 47 metres of sediment. Curtis (1985) estimates a sediment supply rate of the order of 44,300 tonnes per year. More recently Hart et al (2008) estimate sediment has been deposited at a rate of 35cm per year over the last 50 years.

The original harbour floor was likely to have been a diverse mosaic of rock, gravels and sands of various particle size, muds and silts, providing a range of habitats for abundant populations of a correspondingly diverse range of plants and animals. Sediment moving around the sea floor has the effect of reducing biodiversity, especially along the north side of the harbour, from Cass Bay to Governors Bay. The species which remain are those adapted to high turbidity, reduced productivity, mobile substrate, and a generally disturbed environment.

Because turbidity is nearly always high, light is unable to penetrate down into the water, reducing photosynthesis and productivity generally. The Lyttelton Harbour's ecology is significantly modified. In effect, Lyttelton Harbour is "polluted" with excess sediment.

In streams the variable stoney and gravelly substrate is replaced by silt. Spaces between the particles which provide homes for a variety of organisms are plugged with fine sediment. Water quality, stream productivity and species diversity are reduced.

For mana whenua this means traditional foods are no longer available.

Opportunities for economic development are compromised because the big ticket species such as dolphins, whales and penguins are rare visitors, not regular inhabitants.

Recreation value of both fresh and harbour waters is reduced.

There is potential for increased sediment to reach streams and harbour whenever earthworks are carried out which remove the protective mantle of vegetation, or every time the vegetative cover is removed, reduced or modified.

Sources of sediment include:

- forest clearance for pastoral farming or forestry
- overgrazing of grassland which exposes bare soil
- animals in stream beds disturbing banks
- road cuttings, gravel roads and farm tracks
- subdivision and settlement, where building platforms are cut into slopes.
- stormwater, both rural and urban
- quarrying and reclamation activities
- dredging and dumping

(Although the Lyttelton Port Company says its activities do not contribute significantly to the harbour's sediment inputs compared with historic sources, and continued dredging is necessary because now there is so much sediment sloshing about in the harbour from land-based sources, the shipping channel acts as a sink. Keeping the channel clear of sediment is a significant ongoing cost for the port).

During storm events it becomes very obvious what is happening. Even in the settlements the gutters run with sediment laden water. In some places sediment fans form out over the seal where stormwater outlets from private properties enter the network. Stormwater sumps fill up and become blocked. Road cuttings slump and collapse into the drainage channels, from where the silt is wept into the streams. Quite often the slumps fall out over the carriageway and have to be taken away by contractors. Streams, both permanent and ephemeral, swell with dirty water. And at the mouth of every stream, extending out into the harbour there is a plume of sediment stained stormwater, which is clearly visible for several days after the event.

Very occasionally, when we have three or four days of calm conditions, the suspended sediment settles, and the waters of Lyttelton Harbour become a beautiful transparent emerald green. When this happens, I am reminded of what this water could be like again, if sediment inputs could be reduced to something more like pre-settlement rates.

It is my view that sediment entering the streams and harbour of the Lyttelton catchment is one of the most serious water quality issues in Banks Peninsula, up there with Wairewa eutrophication. And it seems to go largely unrecognised and unacknowledged.

I am asking the Banks Peninsula Water Management Zone Committee for help to fix this serious environmental problem.

What needs to happen to fix this problem?

1. **A shift in attitude.** Every decision made henceforth should (at least) not contribute further to the problem, and ideally, over time every decision whether made by an agency, a company or by individual landowners, both rural and urban, should lead to an ongoing reduction in sediment entering streams and harbour and a corresponding steady improvement in catchment ecological health.
2. **Raised awareness** of the problem throughout the community, from central government, regional council, port company, city council, rural landowners, urban landowners, contractors, quarry owners, schools, and individual residents.
3. **An integrated catchment management plan** (recently renamed a “surface water management” plan by CCC). Lyttelton Harbour catchment is 4th equal with Akaroa on the CCC priority list and is scheduled for 2013-2019. This work needs to be done as soon as practicable. There must be no further delay. I understand CCC's global consent for stormwater discharge expires in 2015.
4. **CCC land management activities** such as road construction and maintenance must be at least as tightly regulated as activities on private land, where there are subdivision sediment management plans and riparian stock management rules. Rules and guidelines which apply to earthworks and other land uses on private land should also apply to CCC roading activities and to CCC stormwater discharges to streams and to the sea. Currently there is a double standard operating.

5. **Road maintenance contracts** should be urgently reviewed by an ecologist. The single objective of keeping roads safe and passable for the least short term cost needs to be examined. Minimising sediment loss from the road corridor should be a parallel and equally important objective. A 100% vegetative cover policy for road earthworks should be adopted. Road corridor drainage systems may need to be redesigned to be better able to cope with significant storm events. Ecologically stable road corridors would be less vulnerable to storm events. Significant storm events cost CCC a lot of money in repairs and have a major ecological cost downstream. Design and management of road reserve land could be modified to take account of the multiple values of road reserve land for biodiversity, stormwater management, recreation and landscape values as well as for transport efficiency.
6. **Road maintenance contractors** need to be educated about natural processes so they are aware of the ecological consequences of their everyday actions. They may need incentives to change current practices.
7. **Bylaw enforcement** to prevent private landowners, both urban and rural, from contributing silt to the stormwater network. Clause 36: Protection of stormwater system states “unless otherwise authorised by the Council, no person may conduct surface water...into a stormwater drain, except through...silt traps or similar devices, situated in an approved position within the premises”.

I am asking you to add this issue to your list of priority outcomes: “A measured reduction in sediment input to Lyttelton Harbour”

Thank you for listening.

Some useful references:

Christchurch City Council. 2007. *Infrastructure Design Standard (draft, July 2007)*. Part 5: storm water and land drainage.

Christchurch City Council. 2008. *Christchurch City Council Water Related Services By-law 2008*. Part 2: wastewater and stormwater drainage.

Christchurch City Council. 2008. *Banks Peninsula Greenspace and Roading Maintenance Contract RFP 08/09 – 113*.

Christchurch City Council. 2009. *Christchurch City Council Surface Water Strategy 2009 -2039* Otautahi/Christchurch and Te Pataka o Rakaihautu/ Banks Peninsula.

Curtis, R.J. 1985. *Sedimentation in a Rock-walled inlet, Lyttelton Harbour New Zealand*. PhD Thesis (Geography), University of Canterbury.

De Vries, W.J. 2007. *Mudflat morphodynamics and sedimentation rates: a case study of the inter-tidal mudflats at The Head of the Bay, Lyttelton Harbour*. Honours Disseration (Geography), University of Canterbury.

Duncan, C.J. et al. 2010. *Stormwater Management in Rural Lyttelton Harbour*. GEOG309 project report to Lyttelton Harbour/Whakaraupo Harbour Issues Group. College of Science, University of Canterbury.

Environment Canterbury. 2007. *Erosion and Sediment Control Guidelines: a better way of managing earthworks and the environment*. Report No. R06/23 , Canterbury Regional Council. ISBN No1: 1-86937-607-2.

**ATTACHMENT 1 TO CLAUSE 2 BANKS PENINSULA
WATER MANAGEMENT ZONE COMMITTEE 20.3.2012**

Environment Canterbury. 2008. *Lyttelton harbour potential contaminant sources study, 2007*. Report No. U08/17. Canterbury Regional Council.

Giejsztowt, J. et al. 2010. *The role of land use in the sedimentation of Lyttelton harbour*. GEOG309-10-52 report to Lyttelton Harbour Issues Group. College of Science, University of Canterbury.

Goff, J. 2005. *Preliminary core study – upper Lyttelton Harbour*. Report to Environment Canterbury, NIWA client report CHC2005-151, National Institute of Water and Atmospheric Research Ltd, Christchurch.

Hart D.E. 2004. *Mapping of the Bathymetry, Soft Sediments, and Biota of the Seabed of Upper Lyttelton Harbour*. University of Canterbury, Department of Geography and Biology. Report to Environment Canterbury and DETC Consulting Ltd.

Hart, D.E. et al. 2008. *Mapping the Bathymetry, Soft Sediments, and Biota of the Seabed of the Upper Lyttelton Harbour*. University of Canterbury Estuarine Research Report 36/ Environment Canterbury Report 08/35.

Kingett Mitchell Ltd. 2006. *A Joint Christchurch City Council and Environment Canterbury Planning and Consents Protocol for Surface Water Management*. Catchment-wide consents for storm water discharges. (The protocol pre-dates amalgamation and does not include Banks Peninsula, Banks Peninsula is “a gap”)

Morrison, M.A. et al. 2009. *A Review of Land-based Effects on Coastal Fisheries and Supporting Biodiversity in New Zealand*. New Zealand Aquatic Environment and Biodiversity Report No. 37. Ministry of Fisheries, Wellington. ISSN 1176-9440.

New Zealand Government. 2010. *New Zealand Coastal Policy Statement 2010*. New Zealand Gazette 4/11/2010, no. 148, p3710. Notice no. 8542.

Shearer, M. 2011. *Soil Erosion and Intertidal Sedimentation in Lyttelton Harbour/Whakaraupo: The ongoing Legacy of Land Use Change assessed using the Revised Universal Soil Loss Equation (RUSLE)*. Honours Dissertation. GEOG240, Department of Geography, University of Canterbury.

Wyering, L. et al. 2010. *Sediment Run-off from Roadside Cuttings in Lyttelton Harbour*. GEOG309 project report for the Lyttelton Harbour/Whakaraupo Issues Group. College of Science, University of Canterbury.

See also Lyttelton Harbour/Whakaraupo Issues Group website

Water Supply Strategy 2009 - 2039

Banks Peninsula
Water Management Zone Committee

20 March 2012

Background

- One of 3 water-related strategies under the City Council's Healthy Environment Strategies programme
 - Adopted June 2009
 - Others:
 - Surface Water Strategy, adopted November 2009
 - Wastewater Strategy, under development

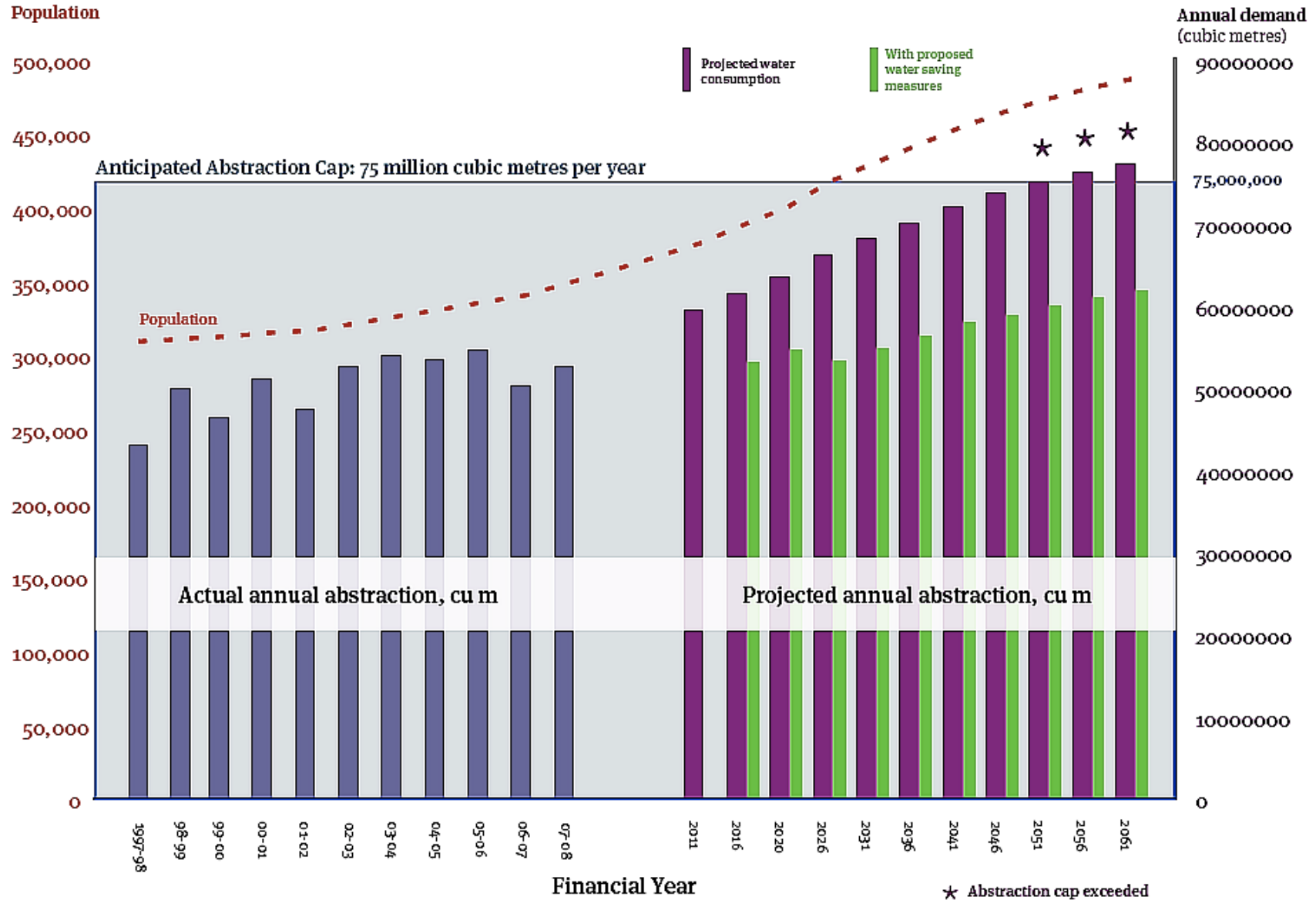
Drivers

- Availability
 - Potential for cap on extraction
 - Seasonal variability of BP surface water sources
 - Limited options for alternatives
- Water quality
 - Risk of contamination from land use activities
 - Risk of contamination post-abstraction e.g. from asset condition

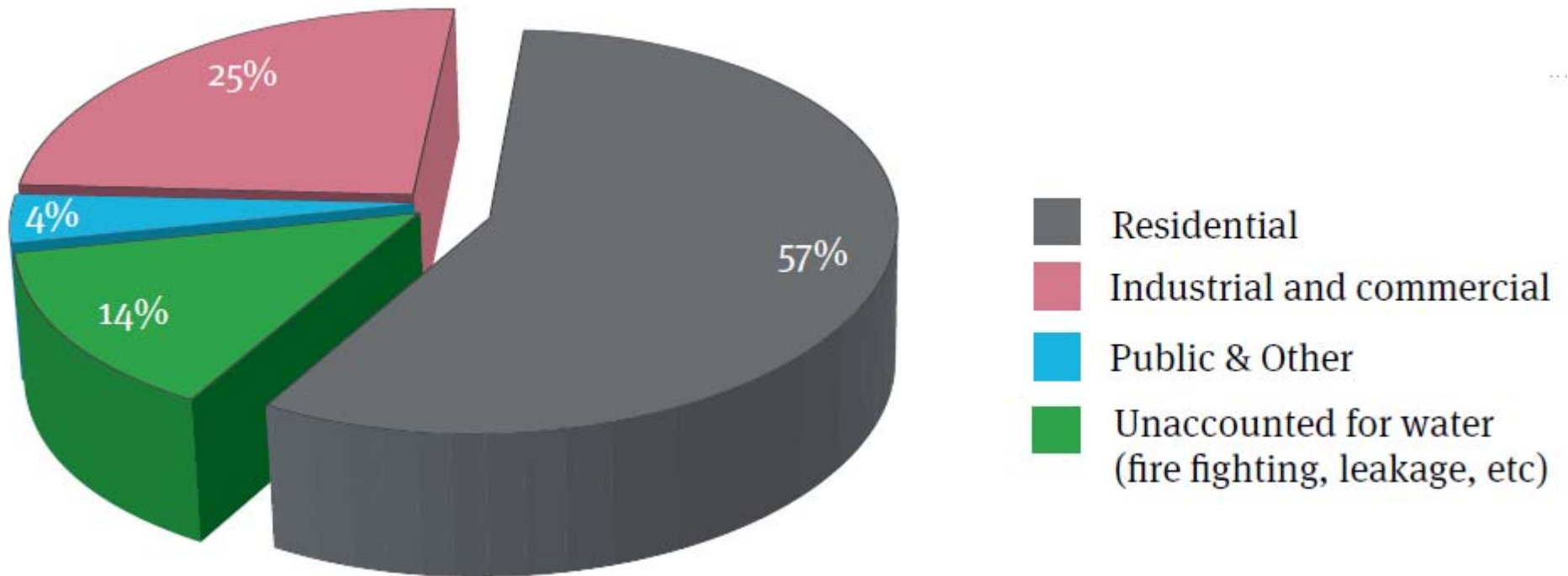
Drivers, continued

- Demand & use
 - Relatively high per-capita consumption
 - Averaged 430 to 450 l/p/d
 - Beacon Pathway national benchmark = 180 l/p/d
 - Anticipated growth
 - 2009 UDS assumption: 120,000 increase by 2041
 - Both potable and non-potable usage

Demand Forecast (2009)



Consumption



Drivers, continued

- Service standards, costs & regulations
 - Covered variety of other issues, e.g.:
 - relatively low cost to deliver water to customers (\$0.50/m³)
 - Response to “Da” grading for North West Christchurch

Scope

- Strategy applies to Christchurch’s public water supplies:
 - “urban” Christchurch, including Lyttelton Harbour (Lyttelton to Diamond Harbour & Governors Bay)
 - Banks Peninsula
 - Akaroa
 - Birdlings Flat
 - Duvauchelle
 - Little River
 - Pigeon Bay
 - Takamatua
 - Wainui

Vision & Goals

- Vision

We value and protect our public water supply as a precious resource for current and future generations.

- Goals

- Clean, safe water
- Drinking water sources protected from harm
- Water supplies meet reasonable need
- Water is used efficiently and sustainably

Implementation

- Suite of near- and medium-term actions identified
- Several actions identified for financial years 2009/10 (first year of implementation), 2010/11 & 2011/12
- Majority of actions not included in LTCCP 2009-19

Implementation, 2009/10

Action	Status
1a - Water Loss Benchmarking / Economic level of Loss Study	Completed; Identified areas of improvement that CCC was actioning (pre-EQ)
2a - Pressure Zone Modelling	Delayed from FY09/10; was to start in late FY10/11but delayed
4a - Rainwater Tank Subsidy Study	Partially completed; cost-benefit study planned FY11/12; on hold no \$
6a - Valuing Water Campaign Research Study	Completed

Implementation, 2009/10 – 2010/11

Action	Status
13 - Partnering & Engagement	Completed (on-going)
14a - Securing Rights to Additional Takes	Completed (on-going); CCC continues to work with ECan
5a - Cost benefit study - water efficient devices	Delayed from FY10/11; unlikely to start this FY
13 - Partnering & Engagement	Completed (on-going)
14a - Securing Rights to Additional Takes	Completed (on-going)

Implementation, 2011/12

Action	Status
2a/2b Pressure zone modelling and feasibility study/cost benefit analysis	Expected to start up again this FY
6b - Valuing water campaign (design phase)	Delayed due to budget cuts 11/12
13 - Partnering & Engagement	Completed (on-going)
14a - Securing Rights to Additional Takes	Completing (on-going)

Post-earthquakes

- Underlying drivers largely unchanged
 - Significant change in priorities post February 2011
 - Shift in allocation of financial and human resources to address damage to infrastructure
- Review underway

Supplemental information

Action #	Ranking	Action	Preferred time frame	Rough order cost (-20% -to +50%)	Responsible party(ies)
13	H	<p>Partnering and engagement, e.g. support for variation 6 of the Proposed Natural Resources Regional Plan) - the Council will seek to partner with ECan to identify ways in which our drinking water sources can be protected. The Council will also seek to engage with national bodies, Ministries and other stakeholders so that practical initiatives to conserve water and protect public water supplies are implemented.</p>	2008–09 and onwards	\$staff time	CCC (Strategy & Planning; City Water & Waste; Asset & Network Planning; Enforcement & Policy Unit); ECan; MoH; MfE
2a	H	<p>Pressure zone modelling– Modelling would enable the establishment of smaller, easier to manage pressure management zones. The information produced from this work would also identify any changes needed to the water supply infrastructure</p>	2009–10	\$150,000	CCC (City Water and Waste Unit)
4a	H	<p>Rainwater tank subsidy study – a preliminary study to develop an assessment model is being completed by the end of the 2008–09 financial year, as part of a work programme being undertaken for Akaroa Water/Wastewater Management Project. The modelling software will enable an analysis to determine the water conservation benefits likely to be achieved compared to the cost of a rainwater subsidy programme for Banks Peninsula would be undertaken. That study will inform the decision whether to implement a subsidy scheme.</p>	2009–10	\$100,000	CCC (City Water and Waste Unit)

Action #	Ranking	Action	Preferred time frame	Rough order cost (-20% -to +50%)	Responsible party(ies)
6a	H	N Valuing water campaign research study – the Council currently promotes water conservation during summer months, which in the past has tended to focus its message on reducing water use. Research by Beacon Pathway suggests that education and promotion initiatives that concentrate on valuing the resource is needed. This option entails research into how and why residents value water as a resource and is envisaged to begin in the 2009–10 financial year. Currently this option is not included in the draft LTCCP 2009–19.	2009–10	\$20,000–\$50,000	CCC (City Water and Waste Unit)
14a	H	N Securing rights to additional water takes - because new large sources of drinking water are becoming increasingly scarce, it is important the Council act proactively to secure rights to new sources for the public water supply (Option 14a). The Council should work closely with local and regional authorities to ensure there is provision for access to water for the purpose of public drinking water supplies in the future. This work is envisaged to be undertaken in the 2009–10 and 2010–11 financial years	2009–10 to 2010–11	\$300,000	CCC (Strategy and Planning Group)
1a	M	N Benchmarking – A benchmarking exercise is needed to determine a target level for the Christchurch water supply based on industry best practice and economic level of loss. This will determine whether further improvements are needed to control leakage or whether the current level of performance is on par with best practice	2009–10 to 2010-11	\$50,000–\$100,000	CCC (City Water and Waste Unit)
5a	M	N Cost-benefit study – Water-efficient devices programme (2010–11 financial year) – a cost-benefit study would be undertaken to determine water conservation gains that could be achieved through a rebate or subsidy scheme to encourage the purchase of water-efficient devices.	2010–11	\$20,000	CCC (City Water and Waste Unit)

Action #	Ranking	Action	Preferred time frame	Rough order cost (-20% -to +50%)	Responsible party(ies)
6b	H	N Valuing water campaign – this options implements the results of Option 6a, and is intended to enhance the effectiveness of the existing education and promotion campaigns. It is intended as a broader educational initiative aimed at changing behaviours, adding to and distinct from advertising campaigns which are primarily intended to raise awareness. It is suggested to commence in the 2011–12 financial year but is not in the draft LTCCP 2009–19	2011–12 2012–13 onwards	\$20,000–\$ 50,000 (Development and rollout (yr 1) \$20,000–\$50,000/y Implementation (subsequent years)r	CCC (City Water and Waste Unit)
2b	H	N Infrastructure upgrade feasibility study – pressure zone modelling (Option 2a) may result in the establishment of one or more new, smaller zones in addition to the current zones. This modelling may also identify changes that would be needed in order to meet the newly modelled pressures. A feasibility/cost benefit study to determine costs and benefits for any infrastructure changes would be required.	2011–12 to 2012–3	\$130,000	CCC (City Water and Waste Unit)
11a	M	N Comprehensive economic and legal review of charging for water – this study is needed to determine: <ul style="list-style-type: none"> ▪ whether shared connections must be separated prior to implementation of a volumetric charging scheme ▪ whether a phased approach for new homes, as is done in some other parts of the world, is feasible ▪ a robust cost-benefit analysis to determine water demand reductions, compared to the cost of implementing the scheme 	2011–12 to 2012–13	\$70,000	CCC (City Water and Waste Unit)

Action #	Ranking	Action	Preferred time frame	Rough order cost (-20% -to +50%)	Responsible party(ies)
5b	M	N Water-efficient devices rebate/subsidy scheme – pending the outcome of a cost-benefit study (Option 5a), a rebate/subsidy scheme would be implemented in the 2012–13 financial year to encourage the use of water efficient devices.	2012–13	Up to \$35,000 per year	CCC (City Water and Waste Unit)
7	M	N Green Plumber programme – this is an approach that promotes water-efficiency inside the home. The Green Plumber programme is a service offered to households in which one or more plumbers are available to provide water conservation advice and in-home leakage control (e.g. simple maintenance services such as replacing leaking washers or tightening leaking valves or faucets).	2012–13	\$20,800/yr	CCC (City Water and Waste Unit)
8	M	N Green Gardener programme – this is an approach that promotes water-efficiency outside the home. The Green Gardener programme is a service in which one or more experts in water-efficient gardening provide consultation and advice on smart irrigation, permaculture and xeriscaping. A Green Gardener Programme not only promotes water efficient gardening but promotes biodiversity as well through the use of plants appropriate to soil and microclimate types	2012–13	\$31,200/yr	CCC (City Water and Waste Unit)
18a	H	N Rainwater as adjunct source for Council facilities – a feasibility study to examine how rainwater capture can be utilised in Council facilities is proposed (Option 18a in the 2012–13 financial year). The outcomes of that study would determine if/how a rainwater use programme for Council facilities could be implemented	2012–13	\$150,000	CCC (City Water and Waste Unit)

Action #	Ranking	Action	Preferred time frame	Rough order cost (-20% -to +50%)	Responsible party(ies)
9	M	N Domestic water meter feedback programme – this programme would provide households with feedback on water usage, based on an annual reading of their meter. It will require that the domestic meters are read annually rather than every two years as is the current practice	2012–13 onwards	\$200,000	CCC (City Water and Waste Unit)
10	H	N Installation of water efficient devices in City Housing , as refurbishment and asset renewals occur	2012–13 onwards	Included in City Housing asset management budget	CCC (City Housing Unit)
1b	M	N Enhanced water loss reduction programme – If the result of the benchmarking exercise demonstrates that an economic level of loss for the Christchurch water supply is less than the current level of loss, implementation of an enhanced water loss reduction programme, Option 1b, would be recommended	2012–13, if needed	\$unknown (depends on benchmarked level of loss – Action 1a)	CCC (City Water and Waste Unit)
3	H	C North West Zone programme – in the North West Zones, shallow wells will be replaced with new, deeper wells where appropriate. In other locations, ultraviolet disinfection systems will be installed. The completion of this programme is expected to result in an improved Ministry of Health grading for this zone. The work for this option is included in the Capital Programme budget.	2012–2015	\$8,600,000 (Capex) \$80,000 (Opex, per annum)	CCC (City Water and Waste Unit)
4b	H	N Rainwater systems subsidy for Banks Peninsula – if cost-effective, based on the outcome of the cost-benefit study (Option 4a), a subsidy would be made available to Banks Peninsula residents who choose to install rainwater collection systems. Depending the results of Option 4a, this option is timed to begin in the 2013–14 financial year	2013–14	\$TBD depends on cost-benefit study (Action 4a)	CCC (City Water and Waste Unit)
2c	H	N Infrastructure upgrades – a programme of capital works to implement pressure zone changes may be required, pending the outcome of the cost-benefit analysis (Option 2b).	2013–14 onwards	\$TBD; depends on results of Actions 2a and 2b	CCC (City Water and Waste Unit)

Action #	Ranking	Action	Preferred time frame	Rough order cost (-20% -to +50%)	Responsible party(ies)
		<i>Only if necessary, either development of Waimakariri River OR Ellesmere well-field as new source. This approach is intended as a backup only in the event that additional sources of water are needed in the</i>			
14b	H	<p>N Waimakariri River development of new source 40 MI/day (with treatment)</p> <p><u>OR</u></p> <p>N Waimakariri River development of new source 80 MI/day (with treatment)</p> <p><u>OR</u></p>	<p>2013–14 to 2014–15 (development)</p> <p>TBD (infrastructure)</p>	<p>\$67,000,000 Capex (based on 2005 data)</p> <p>\$20,100,000 Opex (based on 2005 data)</p> <p><u>OR</u></p> <p>\$78,000,000 Capex (based on 2005 data)</p> <p>\$36,700,000 Opex (based on 2005 data)</p> <p><u>OR</u></p>	<p>CCC (City Water and Waste Unit)</p>
14c		<p>N Ellesmere well-field (treatment costs, if any, not included)</p>		<p>\$59,000,000 Capex (based on 2005 data)</p> <p>\$8,600,000 Opex (based on 2005 data)</p>	

Action #	Ranking	Action	Preferred time frame	Rough order cost (-20% -to +50%)	Responsible party(ies)
12	H	N City Plan change – a plan change to require the installation of a rainwater system or a combination rainwater-greywater system in new homes, particularly in areas prone to summer water restrictions such as Akaroa. This could also be an appropriate option for inner city intensification development, where captured rainwater or greywater could be used for lower quality water uses such as toilet flushing. An additional benefit to rainwater collection is the diversion of the collected rainwater from stormwater runoff volumes.	2014–15	\$TBD	CCC (City Water and Waste Unit)
18b	H	N Rainwater as new source – Council rainwater use programme. Dependent on the outcome of feasibility study (18b)	2014–15	\$TBD depends on results of study (Action 17a)	CCC (all units as applicable)
15	H	N Acquire existing well rights as they become available. There is no certainty when, or if, existing water takes might become available and whether they would be cost-effective as either sources of the public water supply or as sources for non-potable water use.	2015–16 and onwards	Up to \$4,000,000 (over 30 years)	CCC (City Water and Waste Unit)
4c	M	N Rainwater systems subsidy for urban Christchurch – if cost-effective, based on the outcome of the cost-benefit study (Option 4a) and the experience from a subsidy programme in Banks Peninsula if implemented, a subsidy would be made available to urban Christchurch residents who choose to install rainwater collection systems. This option would begin in the 2016–17 financial year, pending the outcomes of Options 4a and 4b.	2016–17	\$TBD depends on cost-benefit study (Action 4a)	CCC (City Water and Waste Unit)

Action #	Ranking	Action	Preferred time frame	Rough order cost (-20% -to +50%)	Responsible party(ies)
11b	M	N Volumetric charging (depends on outcome of review) (may require separating shared connections) - can only be considered following the completion of the legal and financial review (Option 11a) and a full public consultation. A strong preference of stakeholders, submitters on the draft Strategy and the Hearings Panel is for consideration of a scheme in which only usage above a baseline allocation would be charged.	2017–18	\$2,100,000 to \$2,700,000 above current costs (Opex; costs would be recovered through charging structure)	CCC (City Water and Waste Unit)
17	H	C Wastewater Reuse Demonstration Project - Capital programme - an addition to the Christchurch Wastewater Treatment Plant to treat process water could provide quality non-potable water to the treatment plant thereby reducing the treatment plant's use of potable water and demonstrating the use of this resource. This demonstration project could also provide nearby irrigation.	2018–19 to 2019–20	\$3,200,000 (Capex) \$145,000 (Opex. Per annum)	CCC (City Water and Waste Unit)
4d	M	N Encouraging retention of existing rainwater tanks – where the public water supply is introduced into a new area, the public will be encouraged to retain rainwater tanks as a supplementary source of water, subject to ensuring that backflow is prevented. This option would be implemented as new areas are added to the public water supply network.	As public water supply network introduced into new areas	\$TBD	CCC (City Water and Waste Unit)
16	H	N Water reuse as appropriate in new Council facilities or major refurbishments - There may be opportunities for water reuse for toilet flushing, sub-surface irrigation or other water use, when new Council facilities are built or when major refurbishments of Council facilities are undertaken	Project by project basis	To be integrated into project budgets where practical	CCC (applicable Council units)

Notes: **C** indicates that the action is included in the Capital programme budget for the budget planning for the 2009-19. LTCCP
L indicates that the action was included in the budget planning for the 2009-19 LTCCP
N indicates that the action was not included in the budget planning for the 2009-19 LTCCP

Infrastructure post-EQ

- Loss of storage capacity
 - 6000m³ structures replaces 32,000m³ Huntsbury reservoir
- Damaged wells
 - Repairs need to ~ 1/2 our wells
 - Approx 10% yet to be repaired as of 30 Dec
- Repair to damaged infrastructure (to 22 Dec) ~ \$146 million

For further info

Healthy Environment Strategies

www.ccc.govt.nz/thecouncil/policiesreportsstrategies/strategies/healthyenvironmentstrategies/index.aspx

Diane Shelander

941 8304

diane.shelander@ccc.govt.nz



Surface Water Strategy 2009-2039

Banks Peninsula Zone Committee presentation

21 March 2012

Surface Water resources

- Two lakes
- Three rivers
- Part of the Waimakariri and Halswell rivers
- 2605km of streams, tributaries and many springs
- 1300km of stormwater pipes

Surface Water Strategy

- Update Waterways and Wetlands Natural Asset Management Strategy 1999
- Include recent developments in surface water management
- Reflect changes in policy and planning
- Address current issues and build on strengths

Overview of Strategy development process

- Based on previous work
- Integrated approach
- Detailed preparation of background material
- Sought feedback from a variety of people and organisations throughout preparation

Surface Water Strategy

Vision

The surface water resources of Christchurch support the social, cultural, economic and environmental well-being of residents, and are managed wisely for future generations

Goals

1. Improve water quality
2. Reduce adverse effects of flooding
3. Improve ecosystem health
4. Restore Tangata Whenua values
5. Support a range of recreation activities
6. Protect heritage values
7. Protect and enhance landscape values
8. Support community involvement
9. Manage stormwater in an efficient manner that supports Goals 1 to 8.

Surface Water Strategy- Implementation

- Review of Strategy implementation planned for 2012/2013
 - Changes needed around implementation and prioritising of projects
- Some changes already made
 - Stormwater management plans timeframes
- New areas to investigate
 - Red zoned land
 - Stopbanks
 - Future development



Thank you

Questions?